The University of Minnesota

AGRICULTURAL EXPERIMENT STATION

BULLETIN 139

MINNESOTA WEEDS

SERIES II

DESCRIPTIONS AND IDENTIFICATIONS

BY

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AND

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UNIVERSITY FARM, ST. PAUL

MAY 1914

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MINNESOTA WEEDS SERIES II

INTRODUCTION

This bulletin describes the weeds of the seed case Series II shown in Figure 1. The Seed Laboratory of the Division of Plant Pathology and Botany has prepared three cases, each containing the seeds of twenty-four different kinds of weeds.* Bulletin 129, entitled Minnesota Weeds, Series I, which describes the weeds of seed case I, can be obtained by applying to the Office of Publications, University

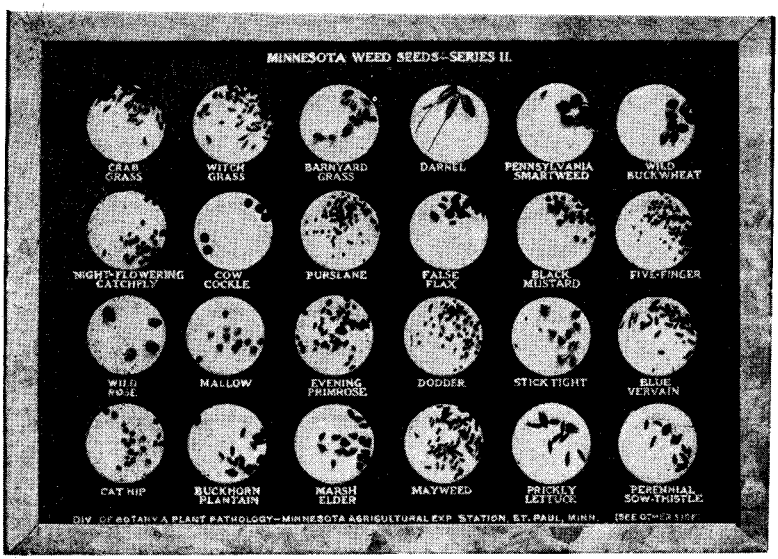

Fig. 1. Minnesota Seed Case, Series II

Farm, St. Paul. A general discussion of weeds appears in Bulletin 129, and will be omitted here. In this bulletin the authors have not adhered to the strictly accurate botanical terminology but have used the terminology of the farm and of the seed trade. This has been done to avoid confusion and to make the bulletin a practical one for farm use. All the drawings in this bulletin are original. The seedling

*The seed cases may be obtained from the Seed Laboratory, University Farm, St. Paul, at a cost of fifty cents for each series. Three cases, each containing twenty-four kinds of weed seeds, are now available.

Fig. 2. Crab Grass

1 Entire plant; 2 enlarged flower spike; 3 seedling; 4 seedling somewhat older; 5 seed natural size and enlarged.

and plant drawings were made by G. D. George, Walter S. Beach, and O. F. Illescas. For the seed drawings the authors are greatly indebted to F. H. Hillman, of the Seed Laboratory of the United States Department of Agriculture.

INDIVIDUAL WEEDS

Crab Grass (*Syntherisma sanguinalis* L. Dulac)

Other common names.—Large crab grass, finger grass, Polish millet, hairy finger grass, crow foot or pigeon grass.

Description.—Crab grass is an annual, spreading plant, usually growing very close to the ground. Its creeping stems are sometimes from one to three feet long. This grass was introduced from Europe and is now found throughout this State, except possibly in the extreme north. It is quite common in cultivated fields and along roadsides but is particularly common in lawns, where it is one of the worst weed grasses. The plant flowers in early autumn and does not mature its seeds until late in August or early in September, so it is particularly troublesome in the latter part of the season. The leaves are generally quite hairy and vary from two to six inches long and often have a very reddish hue. The flowers and seeds are arranged on long, finger-like branches suggesting the name finger grass. These branches are sometimes nearly purple in color. The plant is propagated almost entirely by seed, although sometimes roots spring from the joints of the stem. The seeds of crab grass are about a tenth of an inch long, generally straw-colored or a dull, purplish green. They are convex on one side and nearly flat on the other. Seeds of crab grass are frequently found in lawn-grass mixtures and in seeds of redtop and Kentucky blue grass.

Eradication.—Prevent the plants from going to seed by cutting early and often throughout the season. Owing to the spreading habit of the plant, it is difficult to cut all of the seed stalks with the lawn mower. Hand work with a sickle or scythe is often necessary to complete eradication. Where only a few plants appear in a lawn they should be dug out or pulled as soon as recognized. Thin spots in the lawn should be thickened up by sowing some Kentucky bluegrass seed. Keeping the lawn in good condition by top-dressing occasionally will help also in keeping out crab grass. Little trouble is experienced with this weed in cultivated fields. The above treatment will not completely eradicate crab grass, but will hold it in check as much as possible.

Fig. 3. Witch Grass

1 Entire plant; 2 seedling; 3 seed natural size and enlarged.

Witch Grass (*Panicum capillare* L.)

Other common names.—Old witch grass, tickle grass, tumble grass, tumbleweed, fool hay, and panic grass.

Description.—Witch grass is an annual which matures its seeds any time between July and September. The plant is more or less spreading in its habit of growth and when it is young the leaves are extremely hairy. This grass is easily recognized by the fine, thread-like branches of the much-branched head. Very often the whole plant is nearly purple in color. Witch grass is found quite commonly throughout the State in cultivated fields and along roadsides. It prefers dry, sandy soil. The leaves of the plant are from six to twelve inches long, very hairy, and often purple in color. The flowers are very inconspicuous and are borne on the end of a rather stiff, slender stem. These branches are grouped into a bunch which has a plume-like appearance when the seeds are ready for distribution. The plant is very often called tumbleweed because it easily breaks from the ground at maturity and is carried around by the wind, scattering its seeds. The plant is propagated by small, oblong, highly polished seeds which are often concealed in purple coverings. Seeds of witch grass occur very often among the seeds of the different clovers and in lawn and other grass-seed mixtures.

Eradication.—Do not sow grass seed containing seeds of witch grass. Destroy stray plants as soon as they are discovered and prevent all plants from going to seed whenever possible. This weed yields readily to thorough cultivation.

Barnyard Grass (*Panicum crus-galli* L.)

Other common names.—Barn grass, cockspur grass, cocksfoot grass, water grass, and loose panic grass.

Description.—Barnyard grass was introduced from Europe and now grows in nearly every part of the State. It is an annual plant with a large number of leafy, flattened stems, branching or spreading from the base. Barnyard grass is closely related to the millets and is said to be quite valuable for forage. The plant is quite variable in size and shape as well as in color. Very often the heads are of a deep purplish hue but they may also be green in color. The stems are rather succulent and the growth of this grass is very rapid in the late summer. The leaves are generally smooth, sometimes slightly hairy with a rough margin. The flowers are very small and are crowded closely together in the much-branched head. The seeds are oval, generally yellowish gray but often brown in color. They

Fig. 4. Barnyard Grass

1 Entire plant; 2 seedling; 3 seed natural size and enlarged.

Fig. 5. Darnel

1 Top of plant showing arrangement of seed; 2 root system; 3 seed natural size and enlarged.

Fig. 6. Pennsylvania Smartweed

1 Top of plant; 2 seedling; 3 seedling somewhat older; 4 seed natural size and enlarged.

are about an eighth of an inch in length, flat on one side, and round on the other. The surface is highly polished in appearance. The seeds are very frequently found mixed with grasses and clovers and especially with the different millets. Barnyard grass is propagated entirely by seeds.

Eradication.—Do not sow grain or grass seed containing the seed of barnyard grass. Where seed is in the ground, cut weeds that appear frequently enough to prevent seeds from maturing. Plowing the land and giving thorough cultivation for a season should destroy all seeds and prevent reappearance until seeds are again sown or allowed to mature.

Darnel (*Lolium temulentum* L.)

Other common names.—Ivray, juray, cheat, chess, poison darnel, bearded darnel, tare, neale poison rye grass, and white darnel.

Description.—Darnel is an annual grass introduced from Europe. It is found most frequently in waste places and in grain fields but is not very common in this State. It seems to be most common in the Red River Valley. It often appears in wheat fields and its large seeds, which are about the same size as wheat kernels, are hard to separate from seed wheat. The plant begins flowering in July and seeds mature late in August. The inconspicuous flowers are arranged alternately on a more or less broken spike. The plant varies from two to four feet in height and is very erect. The seeds are about one fourth of an inch long and about one eighth of an inch wide. The seed is ordinarily covered with a hard husk and when this is removed the actual seed is greenish in color, often tinged with purple. The husks are almost always on the seed.

Eradication.—Avoid sowing the seed. Destroy those in the ground by first encouraging germination, and then giving thorough cultivation. Darnel seed can be removed from grain by grading carefully in a strong wind blast.

Pennsylvania Smartweed (*Polygonum pennsylvanicum* L.)

Other common name.—Pennsylvania persicaria.

Description.—Pennsylvania smartweed is an annual plant, which grows from one to three feet tall. It is erect during the first part of its growth but becomes more or less spreading by the time the seeds are mature. This plant grows particularly well in moist soil and is found more commonly in wet years than in dry years. Pennsylvania smartweed is very common along lakes and creeks. It is found in

Fig. 7. Wild Buckwheat

1 Entire plant; 2 plant winding around a stalk of timothy; 3 root system; 4 seedling; 5 seedling somewhat older; 6 seed natural size and enlarged.

nearly every part of the State. It begins flowering in July and continues during August. The seeds are found very soon after the flowers appear and start ripening late in August. The leaves are from two to twelve inches long and are frequently spotted. The pink flowers form a dense cluster. This plant is propagated entirely by seeds which are generally black, although sometimes dark brown. They are almost circular in shape but they come to an abrupt point at one end. When the seed has been entirely threshed out it is found to be very smooth and shiny. The seeds of Pennsylvania smartweed are generally found in the seeds of the clovers and cereals.

Eradication.—Avoid sowing the seed. Where stray plants appear in meadows or pastures they may be removed with a spud or sharp spade. If patches of smartweed appear they should be mowed in time to prevent seed from maturing. The weed yields readily to cultivation.

Wild Buckwheat (*Polygonum convolvulus* L.)

Other common names.—Climbing buckwheat, bindweed, black bindweed, bind corn, corn bind, and ivy.

Description.—Wild buckwheat is an annual plant which was introduced into this country from Europe and is found in all parts of this State except possibly in the extreme north. It is very common in waste places, cultivated fields, grain fields, and along roadsides. This plant has a long, trailing, twining stem, which often reaches to a length of three and one-half or four feet. The stem is more or less branched and produces abundant foliage. Its habit is to twine around the stalks of corn or the grain plants and it often smothers the crops. This is a rather troublesome weed in cultivated fields as well as in grain fields. It begins to flower in July and continues throughout the entire summer. The heart-shaped leaves of wild buckwheat are from half an inch to three inches in length. They closely resemble the leaves of the common buckwheat. The seeds begin to ripen about the first of July. They are three-angled and dull black in color. They resemble the seeds of tame buckwheat to some extent but are much smaller and the color is darker. The seeds are found most commonly in the seeds of the different cereals.

Eradication.—Disk or harrow the grain fields immediately after the crops are removed, to encourage germination of the seeds during the autumn. The plants will be killed by frost. Early spring cultivation before the grain is sown will kill some of those starting in the spring. Where the young plants come up thickly in a grain field

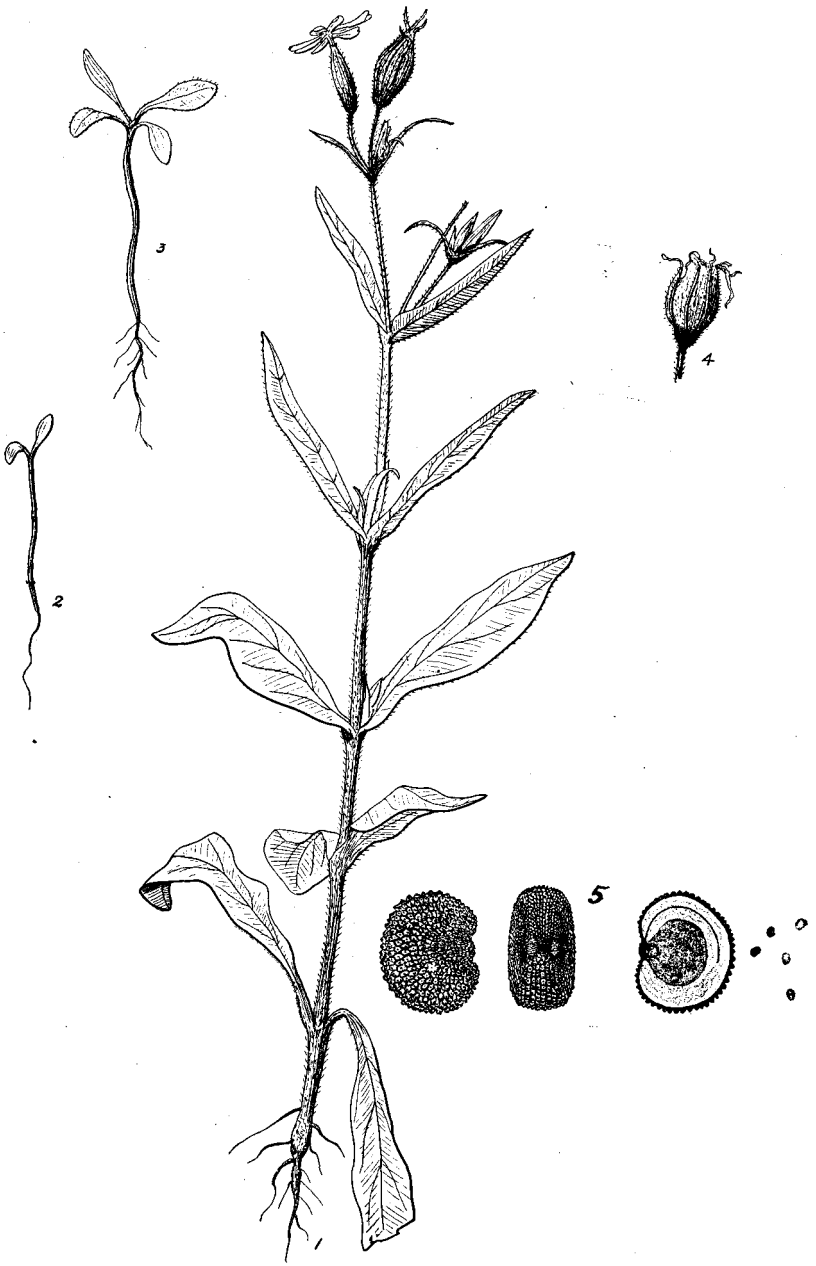

Fig. 8. Night-Flowering Catchfly

1 Entire plant; 2 seedling; 3 seedling somewhat older; 4 capsule containing seed; 5 seed natural size and enlarged.

they can be set back or destroyed by harrowing even after the grain is up. The seeds can be removed from seed grain by screening. Thorough surface cultivation of intertilled crops and short rotations in which grass crops are raised will hold this weed in check.

Night-Flowering Catchfly (*Silene noctiflora* L.)

Other common name.—Sticky cockle.

Description.—Night-flowering catchfly was introduced from Europe. It is an annual or a winter annual and is found in waste places, cultivated fields, and lawns throughout the State but is not considered a very serious weed pest. It belongs to the cockle family and is a very close relative to the common white cockle. The plant is erect, stout, leafy, sticky, and somewhat branched, and the entire plant is covered with soft, spreading hairs. The leaves are from two to five inches long and are gradually narrowed down from a rounded summit. They are several times as long as wide. The few large, showy flowers generally appear late in June, in July, or early in August. They are of a delicate creamy white hue or sometimes purple. The shape of this flower is somewhat like that of the morning-glory, but the five petals are not united into a tube. The flowers are quite fragrant and are open only at night. The seeds are found in oblong pods, each containing a very large number of seeds. The seed is a dull gray with a somewhat roughened surface. This plant is commonly propagated by seeds.

Eradication.—Avoid sowing the seed. It is not troublesome on well-kept farms where good cultivation is given and crop rotation is followed.

Cow Cockle (*Saponaria vaccaria* L.)

Other common names.—Cow-herb, cow basil, cockle, and china cockle.

Description.—Cow cockle is an annual plant which was introduced from Europe and is a very close relative to the ordinary corn cockle so common in this State. This plant grows from one to three feet high. The leaves are very smooth and succulent. The blossoms appear in July and seeds are ripe in August. The pale red and rather showy flowers are often an inch broad, although their average width is only about half an inch. The seeds are produced in a five-angled pod. They are dull black in color, slightly roughened, and almost spherical. Cow cockle seeds are often found in the seeds of the

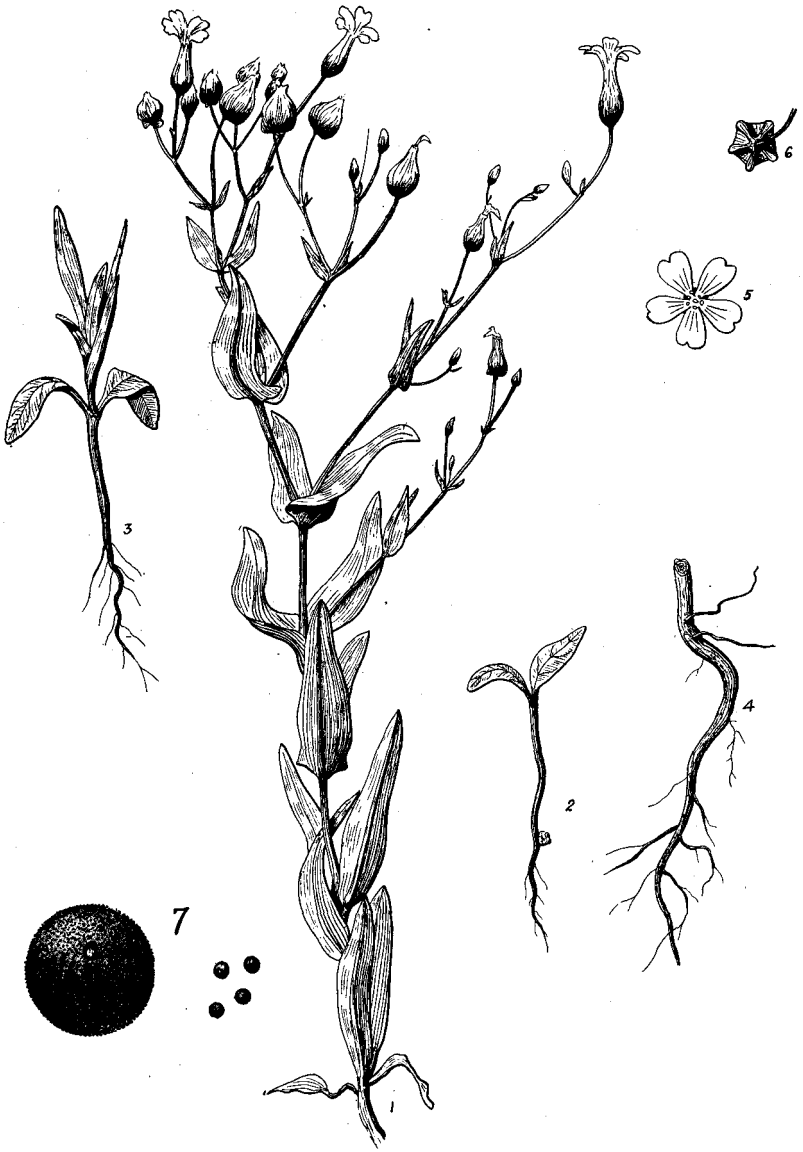

Fig. 9. Cow Cockle

1 Top of plant; 2 seedling; 3 seedling somewhat older; 4 root system; 5 flower; 6 capsule containing seeds; 7 seed natural size and enlarged.

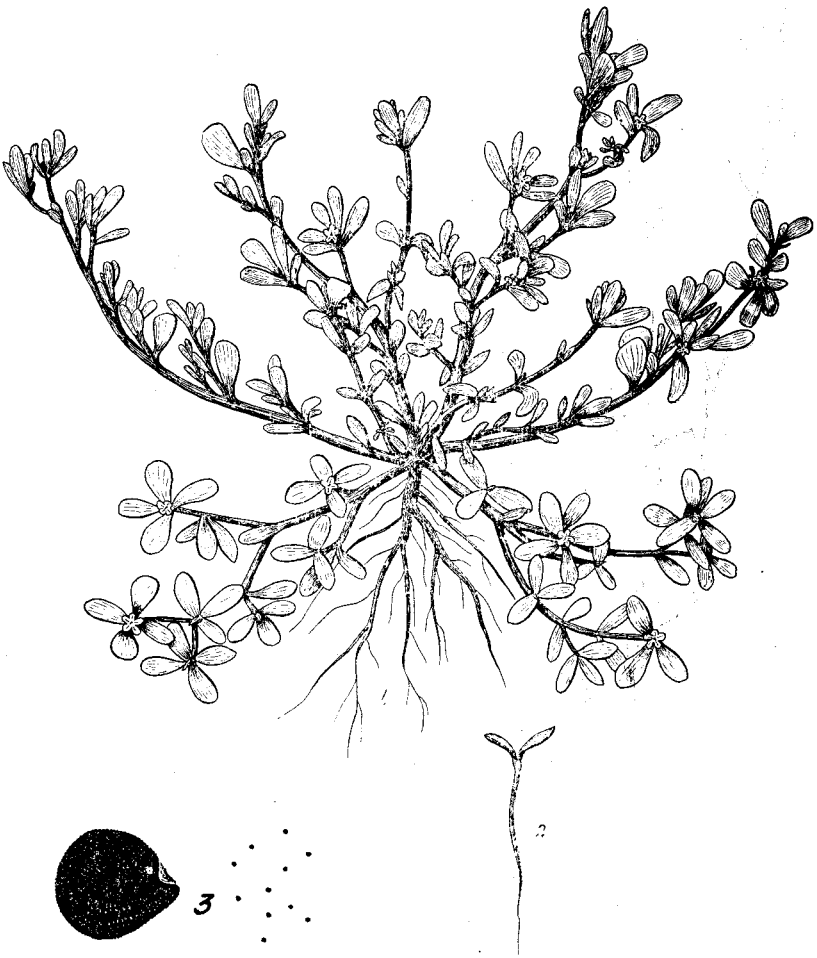

Fig. 10. Purslane

1 Entire plant; 2 seedling; 3 seed natural size and enlarged.

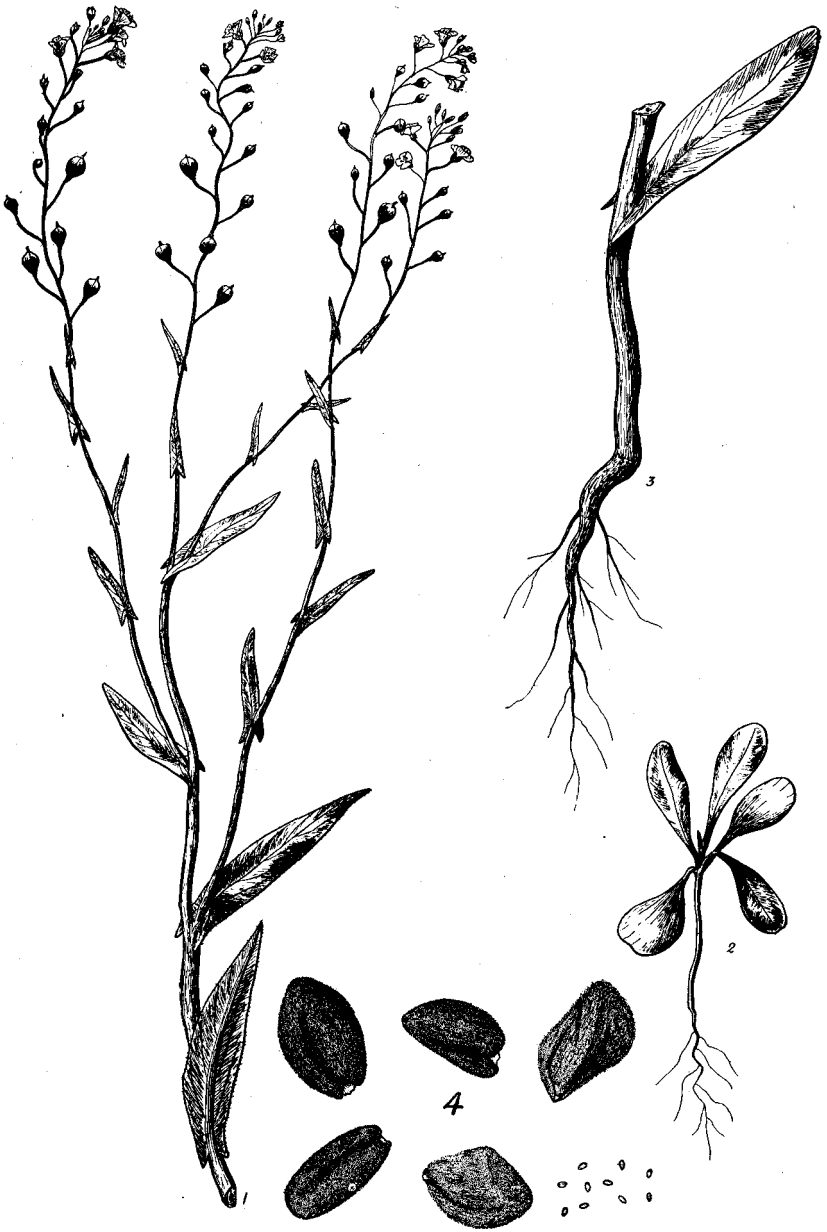

Fig. 11. False Flax

1 Top of plant; 2 seedling; 3 root system; 4 seed natural size and enlarged.

different cereals. This plant is becoming more common in the State each year.

Eradication.—Cow cockle can easily be kept in check by sowing clean seed. The seeds are small and easily screened out of seed grain. Stray plants should be destroyed before the seeds mature.

Purslane (*Portulaca oleracea* L.)

Other common names.—Garden purslane, pursley, wild portulaca, and pusley.

Description.—Purslane is an annual weed. It is very spreading in its habit of growth and is almost always found prostrate on the ground. It branches freely, the branches coming from a central root and extending in every direction. This is a very fleshy plant, the leaves and stems containing so much moisture that the seeds often ripen even after the plant is detached from the soil. The inconspicuous, yellow flowers begin to form during the latter part of June, but the plant keeps on flowering and produces seeds during nearly the entire season. The small, black, kidney-shaped seeds are produced in a pod which breaks open when the fruit is mature. They are very finely marked but the markings can not be seen without the aid of a magnifying glass. Purslane is scattered chiefly by seeds, although sometimes small roots are sent out at the joints. It is very often considered a bad weed in the garden.

Eradication.—Frequent hoeing, preferably when the plants are young, will prove effective. If nearly mature they should be removed from the field or garden and burned if possible. The plant seeds freely and is very persistent but can be eradicated by prompt and constant attention for a season.

False Flax (*Camelina sativa* L.)

Other common names.—American false flax, Dutch flax, oilseed plant, Siberian oilseed, jack flax, cheat, and madwort.

Description.—False flax belongs to the mustard family and is either an annual or winter annual. It was introduced from Europe and is found particularly in flax fields, also in other cultivated fields and waste places. The plant has one central root, from which grow several upright, leafy side branches. It grows from about one to three feet high, bears small yellow flowers from June to August, and matures seeds from July to September. The seed pods are about a quarter of an inch long and somewhat oblong in shape. The seeds

Fig. 12. Black Mustard

1 Top of plant; 2 seedling; 3 seedling somewhat older; 4 single leaf; 5 seed natural size and enlarged.

are quite variable in shape and size. They are slightly flattened on one side with a deep groove on the opposite side. The color of the seed is reddish yellow. The seed of false flax is found most commonly in the seed of ordinary cultivated flax.

Eradication.—If false flax is found thinly in grain or flax fields, pull it out by hand. Where the land is badly infested, give surface cultivation in the fall and spring. If an early crop can be removed, fallowing for the balance of the season will give good results. Rotations including grass crops will help in eradicating, if one or two crops of hay can be cut. Sow clean seed.

Black Mustard (*Brassica nigra* L. Koch)

Other common names.—Brown mustard, grocer's mustard, cadlock, kerlock, and warlock.

Description.—Black mustard, an annual weed, is a very close relative to the ordinary wild mustard or charlock which is so common throughout the State, but is not so widely distributed as the latter. The plant is different in many respects. The leaves and stem are smoother, the foliage is darker than that of the other mustards and the plant grows much taller, often reaching a height of seven feet. The plant flowers from June to September, somewhat later than the common mustard, and the seeds are ripe in August. The seed pods are quite short and are more or less four-angled. There are about six almost spherical, red or dark brown seeds in each pod. They are often elongated, and the surface is slightly roughened.

Eradication.—As in the case of other annuals, black mustard should be prevented from seeding. Seed grain should be carefully cleaned so that no mustard seed will be sown. Hand-pulling is effective for stray plants. Frequent cultivation when the plants are young will destroy them in cultivated fields. The methods of eradication advised in Bulletin 129 of this Station for common mustard give good results in combating this weed.

Five-Finger (*Potentilla monspeliensis* L.)

Other common names.—Cinquefoil, Norwegian cinquefoil, upright cinquefoil, and barren strawberry.

Description.—Five-finger belongs to the rose family and may be either annual or biennial. It grows in both dry and moist soil and is found commonly in meadows, cultivated fields, and waste places. It is quite generally distributed throughout the State. It begins

Fig. 13. Five-Finger

1 Top of plant; 2 seedling; 3 seedling somewhat older; 4 separate leaf; 5 seed natural size and enlarged.

flowering the early part of June and flowers and seeds until the latter part of September. The plant is somewhat spreading in its character and often grows quite near the ground. The leaves are three-lobed and not five-lobed as the name would indicate. The plant is quite hairy and sometimes grows to a height of three feet. The yellow flowers are about half an inch broad. The plant is propagated chiefly by its seeds, which are very small, light brown in color, and have a wrinkled surface. They are found chiefly in timothy, lawn grass, and many of the other commercial grasses.

Eradication.—Avoid sowing grass seeds containing seeds of this weed. Destroy the plants by hoeing, cultivating, or cutting before seeds mature. Will yield to clean farming and short rotation schemes in which the grass crops are used for hay and the intertilled crops are thoroughly cultivated.

Wild Rose (Species of *Rosa*)

Other common names.—Sweet briar and eglantine.

Description.—The wild rose is a perennial weed which grows very commonly along roadsides and also in cultivated fields and waste places. The plant flowers during practically the entire summer, and seeds are mature in the early fall. The fruit of the wild rose varies from orange to bright red and is somewhat berry-like in appearance. The seeds are hard and nutlike. The wild rose is quite variable in height, sometimes reaching a height of three or four feet, while at other times it is very low and bushy. There are two common species of the wild rose growing in this State. The large attractive flowers, which are generally borne singly, although sometimes in clusters, range from white to a dark pink or even red. The plant is propagated by seeds and also by running root stalks. The seeds are quite variable in shape and color, the latter being, however, generally a dark brown. They are most commonly found in the seed of wheat, oats, and other cereals. It is sometimes quite difficult to separate the seed from wheat because it is of practically the same size.

Eradication.—The wild rose is one of the troublesome weeds of the prairie section. Its deep, perennial, underground stems make it very persistent. It is especially troublesome where the grain is "stubbled in" without plowing the land. The best remedy is plowing thoroughly with a sharp plow, cutting the entire furrow slice so that all roots will be cut off clean. If the plowing can be done in August or early in September and the land disked several times at intervals of a week or ten days, the roots will almost surely be destroyed.

Fig. 14. Wild Rose

1 Top of plant; 2 separate leaf; 3 seed natural size and enlarged.

Fig. 15. Mallow

1 Top of plant; 2 seedling; 3 seedling somewhat older; 4 separate fruit; 5 seed enlarged.

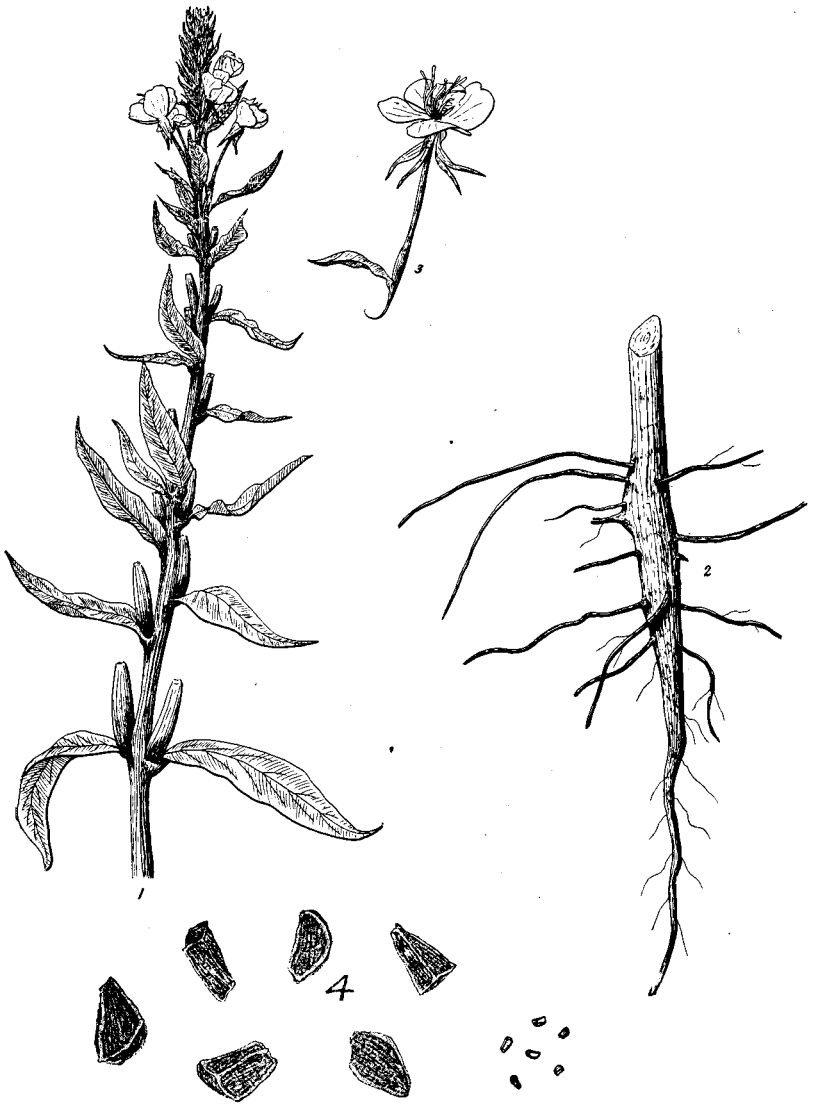

Fig. 16. Evening Primrose

1 Top of plant; 2 root system; 3 single flower; 4 seed natural size and enlarged.

Mallow (*Malva rotundifolia* L.)

Other common names.—Common mallow, low mallow, dwarf mallow, blue mallow, country mallow, running mallow, Dutch cheese, doll cheese, fairy cheese, and cheeses.

Description.—The mallow is an annual, biennial, or even perennial. It is a relative of the hollyhock, which it somewhat resembles, though much smaller in size. It was introduced from Europe but is now commonly found in all parts of this State in waste places, gardens, lawns, and fields. The plant flowers almost throughout the season and matures seeds during the latter part of July. It has a deep tap root from which branch spreading stems that are often thirty inches long. The pale blue, rose-colored, or white flowers are borne in clusters in the axils of the long-stalked, round or heart-shaped leaves. The seeds of this plant are produced in a sort of a circle which has the appearance of a cheese. This accounts for the name, cheeses, which is often given to this plant. The plant is propagated mainly by the seeds, which are very seldom found in commercial seed.

Eradication.—Mallow is a common dooryard weed, but usually not troublesome on cultivated land. It may be destroyed by bringing the land under cultivation or by seeding it thickly to grass.

Evening Primrose (*Onagra biennis* L.)

Other common names.—Common evening primrose, tree primrose, four-o'clock, coffee plant, fever plant, large rampion, and night willow herb.

Description.—The evening primrose is a biennial native of this country. It is found both in waste places and in cultivated fields, as it thrives in either dry or moist soils. The flowers of evening primrose appear in June and the seeds are mature about the last of September. The flowers are particularly attractive, being of a bright yellow color, opening towards the end of the day and closing next morning. Many of them, however, remain open during the day. The flower develops into a long, tapering, four-celled fruit which is somewhat capsular in shape. When the fruit is ripe, this capsule breaks open and the small, dark reddish brown, four-angled seeds are shaken out by the wind. The evening primrose is propagated almost entirely by seeds, which are most commonly found in alsike clover, white clover, blue grass, lawn and other grasses.

Eradication.—When evening primrose appears in meadows or clover fields, the plants should be removed with a spud. In grain

Fig. 17. Dodder

1 Clover attacked by dodder; 2 dodder seedling; 3 young clover plant attacked by dodder; 4 seed natural size and enlarged.

stubble they may be destroyed by fall or spring cultivation. Late summer plowing is also useful in eradicating this weed. Special care should be taken to avoid sowing the seed.

Dodder (Species of *Cuscuta*)

Other common names.—Hail-weed, hairweed, ail-weed, strangle weed, scold-weed, strangle tare, devils-gut, hellweed, and love vine.

Description.—Dodder is an annual weed which is parasitic in its nature. The plant starts from the seed and forms a threadlike branch which winds around some growing plant, sending small parasitic roots into it. The dodder plant then detaches itself from the soil by the dying away of its lower stem, and lives entirely upon the plant which it has attacked. Dodder attacks many different kinds of plants. There are several varieties, two of which grow particularly well on alfalfa, while two attack red clover and one grows on flax. At the present time dodder has not secured a strong foothold in this State but it is quite common in western states and in Europe and great care must be taken in sowing seeds that no dodder is sown. The plant flowers in the middle of the summer and early fall and seeds ripen from the latter part of July to September. The leaves of the plant are so modified that they are very inconspicuous and appear as scales along the sides of the stem. The plant is generally yellow and the seeds are not very large, although the size varies with the variety. For instance, the seeds of the small-seeded alfalfa dodder are very much smaller than those of the large-seeded variety. Dodder seeds are found particularly in the seed of alfalfa, clovers, and flax.

Eradication.—Prevention rather than eradication should be the rule with dodder. A careful examination of the clover and alfalfa seed should be made and any seed that contains dodder seed rejected. If an alfalfa field is badly infested with dodder it should be plowed and put into other crops for a few years. Where alfalfa is grown for hay for two or three years, the original seeds will be exhausted and the dodder eradicated, as the early and frequent cutting will prevent new seeds from forming.

Sticktight (*Lappula lappula* L.)

Other common names.—Stickseed, beggar's-lice, European stickseed, bur seed, sheep bur, small sheep bur, and blue bur.

Description.—Sticktight is an annual or winter annual which was introduced from Europe and which has now become quite generally distributed throughout this State. Only recently has this weed been

Fig. 18. Sticktight

1 Top of plant; 2 enlarged section of plant showing where seeds are produced; 3 seedling; 4 seedling somewhat older; 5 seed natural size and enlarged.

Fig. 19. Blue Vervain

1 Top of plant; 2 seed natural size and enlarged.

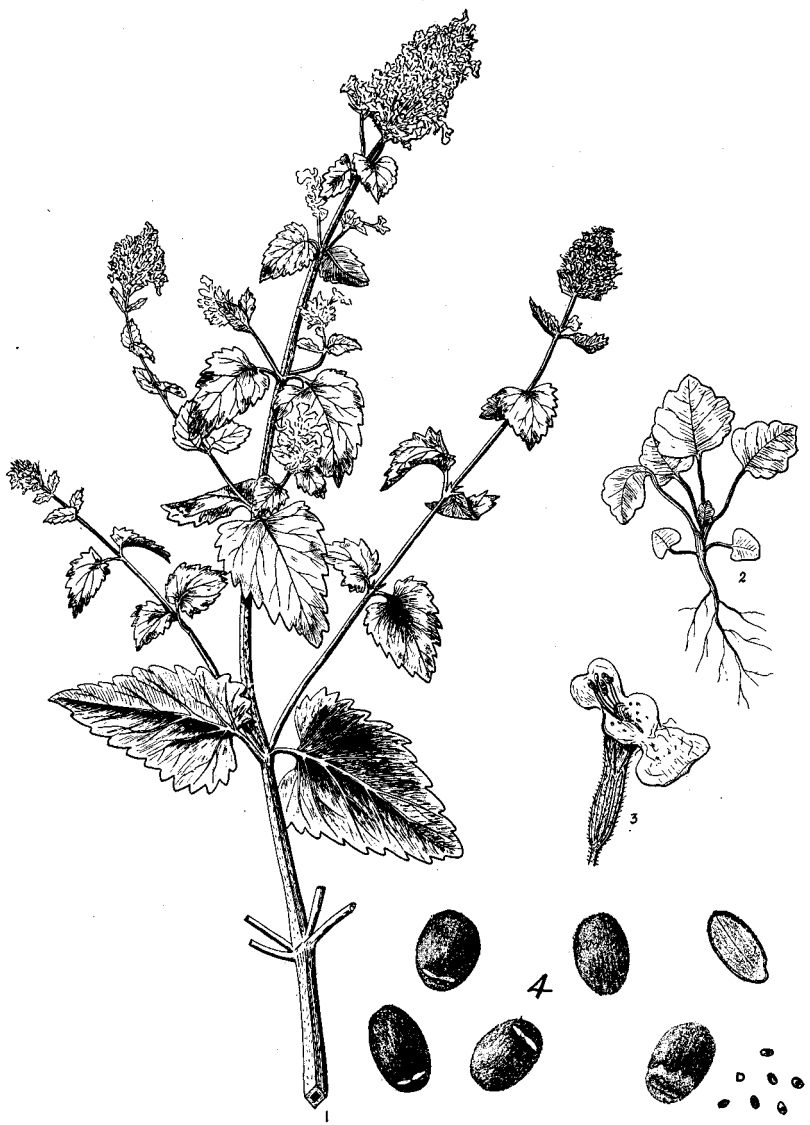

Fig. 20. Catnip

1 Top of plant; 2 seedling; 3 single flower; 4 seed natural size and enlarged.

found in cultivated fields as it is one which generally grows only in waste places. It thrives best on light, sandy soil. The plant branches profusely and is covered with short, white hairs which give it a grayish appearance. It begins flowering in June and the seeds begin to ripen during the latter part of July. The inconspicuous small blue flowers are borne in leafy, one-sided clusters. The pear-shaped seeds are covered with sharp, hooklike spines, which aid greatly in distribution. Sticktight seeds are sometimes found in clover seed and quite often in alfalfa seed.

Eradication.—Avoid sowing the seed. Cultivate thoroughly. Early summer fallowing is recommended if the land is badly infested.

Blue Vervain (*Verbena hastata* L.)

Other common names.—Wild hyssop, American vervain, purvain, blue American vervain, iron weed, and false vervain.

Description.—Blue vervain is a persistent, deep-rooted perennial weed common in this State. It is particularly fond of moist soil and grows commonly in waste places, in pastures, along roadsides, and sometimes even in cultivated fields. The stem of this plant is erect, nearly square, usually branched, and from three to seven feet high. Although not very injurious, this weed becomes very unsightly in pastures and along roadsides, especially when the leaves are covered with mildew. This plant flowers practically all summer and the light blue flowers are borne in slender heads, the flowers appearing first at the base of these heads and gradually working up. The plant is propagated entirely by brown, club-shaped seeds which are very often found in commercial seeds, such as timothy, red clover, lawn-grass mixtures, and other grasses. There are four different species of vervain growing in this State, but the blue vervain is the most common.

Eradication.—Remove blue vervain by spudding out or cutting with a sharp hoe or spade. It is not troublesome on well-cultivated land.

Catnip (*Nepeta cataria* L.)

Other common names.—Catnep and common catmint.

Description.—Catnip is a perennial weed introduced from Europe and now quite common throughout the State, especially near dwellings, and in barnyards and gardens, but it is not considered troublesome in cultivated fields. The plant belongs to the mint family and

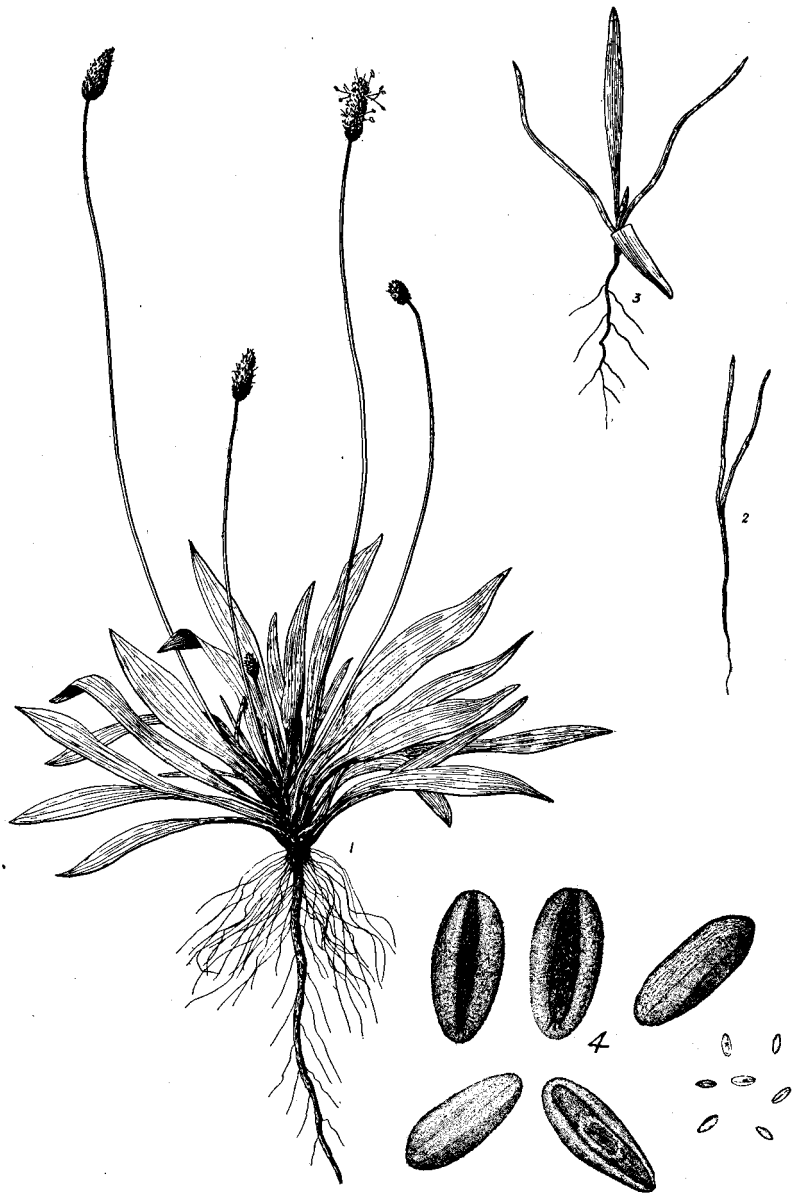

Fig. 21. Buckhorn Plantain

1 Entire plant; 2 seedling; 3 seedling somewhat older; 4 seed natural size and enlarged.

has a square, leafy stem. In olden times the leaves of catnip were used for catnip tea which was supposed to be a remedy for practically all children's ailments. Cats are very fond of the leaves of this plant. The flowers are borne at the summit of the main stem and are pale purple in color. The reddish brown seeds are quite small and very seldom appear in commercial seeds.

Eradication.—Dig out with a spade or hoe.

Buckhorn Plantain (*Plantago lanceolata* L.)

Other common names.—English plantain, buck plantain, long-leaved plantain, ripple plantain, snake plantain, long plantain, dog's-ribs, black-jacks, rams'-tongue, rib-grass, ribwort, and rat-tail.

Description.—Buckhorn plantain is usually perennial, although sometimes biennial. This plant, which was introduced from Europe, has become very common in the southern states but has only recently worked its way into this State. It very often secures a foothold in clover fields and crowds out the clover plants. The flowers appear throughout the summer and the seeds mature about August 1. This plant is a close relative to the common plantain which grows abundantly in lawns and waste places. The leaves of the buckhorn plantain are long and narrow and they all come from a common point at the top of the root. The flowering head is short and clublike. The flowers are yellow in color. Buckhorn plantain propagates itself almost entirely by seeds, which are distributed in hay and in the seeds of crops. These seeds are chestnut-brown in color and highly polished. They are boat-shaped and rounded at each end, one face of the seed is rounded, while the other face is flattened and has a deep groove. The seeds of buckhorn plantain are found especially in the seeds of the clovers and grasses. On account of the size of the seed it is very hard to clean buckhorn plantain from red clover seed.

Eradication.—Stray plants in a lawn may be spudded out. Fields badly infested must be plowed, cultivated, and resown. Grass seed containing buckhorn should not be sown. It is important that all grass seed be inspected for purity as this is a dangerous weed.

Marsh Elder (*Iva xanthiifolia* Nutt)

Other common names.—Highwater shrub and false ragweed.

Description.—Marsh elder is an annual weed with a very simple root system. This weed is especially common in the central and southern parts of this State but is not a very serious pest. It is

Fig. 22. Marsh Elder

1 Top of plant; 2 seedling; 3 seedling somewhat older; 4 seed natural size and enlarged.

Fig. 23. Mayweed

1 Top of plant; 2 root system; 3 seedling; 4 seedling somewhat older; 5 seed natural size and enlarged.

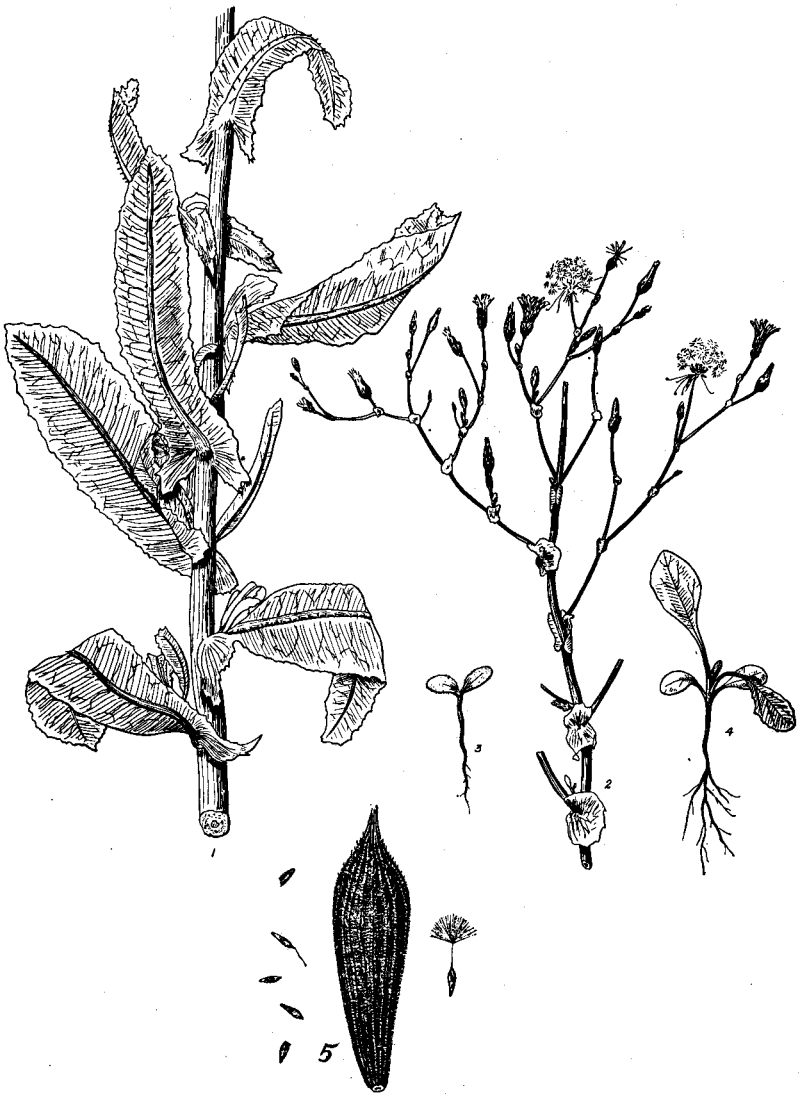

Fig. 24. Prickly Lettuce

1 Section of plant showing leaf arrangement; 2 top of plant; 3 seedling; 4 seedling somewhat older; 5 seed natural size and enlarged.

found particularly in waste places, along roadsides, and in cultivated fields, especially grain and hay fields. This is a very coarse plant, greatly resembling the kinghead in general appearance. The plant reaches a height of from three to eight feet, the stem is much branched, and the broad leaves have a grayish tinge. Large numbers of grayish black, elongated, somewhat heart-shaped seeds are produced.

Eradication.—Prevent the plants from going to seed by cutting or pulling. Marsh elder may easily be held in check by clean farming.

Mayweed (*Anthemis cotula* L.)

Other common names.—Dog's camomile, fetid camomile, dill weed, madders, mawther, dog fennel, hog's fennel, dog-finkle, dog daisy, stinking camomile, and stinking mayweed.

Description.—Mayweed is an annual or sometimes a winter annual which grows in waste places, around old buildings, and on uncultivated lands. It is particularly abundant in old settlements. It grows in nearly all kinds of soil and is quite generally distributed throughout the State, but is not considered a very serious weed pest. The plant flowers in late summer and early autumn and some seeds are mature in the latter part of August. The leaves of the plant are very finely divided and have a quite prominent and disagreeable odor. The flowering heads are white and sometimes about an inch broad. The center of the head is yellow and the flower is very similar to the yellow-eyed daisy. The plant is propagated entirely by very small and inconspicuous seeds which are often found in lawn-grass mixtures and also in the seeds of some of the clovers.

Eradication.—Avoid sowing the seed. Pull stray plants in meadows and pastures. Cut the plants that grow in fence corners and lanes before they go to seed. Keep the land fully occupied by grass crops. Clean cultivation will prevent mayweed from becoming established in fields and garden.

Prickly Lettuce (*Lactuca scariola* L.)

Other common names.—Milk thistle, wild lettuce, English thistle, compass plant, and horse thistle.

Description.—Prickly lettuce is an annual or biennial plant, from which common garden lettuce is thought to have originated. It was introduced from Europe about fifty years ago and is now very common throughout the State in meadows, cultivated fields, along roadsides, and in waste places. It seems to thrive well in any kind of

Fig. 25. Perennial Sow Thistle

1 Underground system of plant; 2 top of plant showing flowering head; 3 seedling; 4 seed natural size and enlarged.

soil. The plant grows from two to five feet high and contains a milky juice which can readily be seen by breaking the stem or the leaf. As the leaves tend to turn one edge toward the sun, the plant is sometimes called the compass plant. The plant begins flowering in July and continues until frost. The yellow flowering heads are borne on slender stalks. The seeds are ripe in the fall, are dark gray, almost black in color, and resemble very closely those of the dark-seeded varieties of the common lettuce. A tuft of hairs is attached at one end of the seed which aids in distribution. The seed of prickly lettuce is very seldom found in commercial seed.

Eradication.—Prickly lettuce causes very little trouble in well-cultivated fields. Destroy stray plants with a hoe or spade, making sure to get beneath the crown. Clean cultivation and full seeding in waste places will occupy the land and keep out the weed.

Perennial Sow Thistle (*Sonchus arvensis* L.)

Other common names.—Corn sow thistle, milk thistle, swine thistle, tree sow thistle, field sow thistle, and creeping sow thistle.

Description.—Perennial sow thistle is one of the worst weeds in the State. It is, at the present time, more or less confined to the northwestern part of the State but it is, however, rapidly working southward. The plant is very common in waste places, along roadsides, and in cultivated fields. It seems to thrive best in rich soil. The plant flowers from June to August and matures seeds from July to September. The plant ranges from two to four feet in height. The stems are more or less hollow and are filled with a milky, bitter juice which often gives it its name, milk thistle. There are two other varieties of sow thistle quite common in the State. These are annual varieties and are not considered bad weeds. These annual sow thistles can readily be distinguished from the perennial by the fact that they do not have the thick, creeping underground root stalks which characterize the perennial sow thistle.

The bright yellow flowers of the perennial sow thistle are clustered together in a composite head which is from one to two inches across. Many oblong, dark brown seeds are produced from each head. Their surface is longitudinally ribbed and, when mature, they have a dense tuft of hairs attached which aids in distribution as the wind is thus enabled to carry them. In spite of the great number of seeds produced, the most common mode of propagation is by underground root stalks. The seed of the perennial sow thistle is very seldom found

in commercial seed but has been found in blue-grass seed and in lawn-grass mixtures.

Eradication.—When the first stray plants appear they should be pulled or spudded out, before they mature seeds. Constant watchfulness is necessary to detect them. When a field has become so badly infested that the thistles interfere with crop growth, early summer fallowing is advisable. Short rotations should be followed in sections where the weed is very common. A three-year rotation of (1) grain, (2) clover, and (3) a cultivated crop; thorough preparation of the land; and clean cultivation will keep the weed in check.

The specific treatment that follows will give good results where the weed has become well established. Immediately after the removal of the grain crop, plow the land deeply, preferably early in August. After plowing, disk frequently enough to keep the leaves from starting. The disking should be kept up until frost stops the growth of the plants. Start disking early in the spring or replow fairly early. Cultivate the land frequently until about June 1 and plant thickly to fodder or ensilage corn in rows from three to three and one-half feet apart. Cultivate the corn frequently until it shades the ground completely. Hand hoe if necessary. Remove the corn by September 15, plow the land, and sow immediately fall rye. In the spring sow clover in the rye and harrow. The following year cut the first crop of hay and plow under the second. Plant corn the next year and work into a short rotation. Where cultivated crops can not be grown successfully or can not be used, buckwheat, following early summer fallow, may be grown quite satisfactorily for smothering out the thistles. Vigilance, prompt and thorough cultivation, and short rotations are necessary in the eradication of sow thistles.

SUMMARY OF INFORMATION FOR USE IN THE RECOGNITION OF THE WEEDS DESCRIBED IN THIS BULLETIN

Name	Class	Color of		Found in
		Flower	Seed	
1. Crab grass	Annual	Green and purple	Gray and purple	Lawn grass, blue grass, and other grasses
2. Witch grass	Annual	Green	Leaden gray or straw color	Lawn grass and other grasses
3. Barnyard grass	Annual	Green or purple	Yellowish gray	Clovers and grasses
4. Darnel	Annual	Green	Gray	Wheat and other cereals
5. Pennsylvania smartweed	Annual	Dark pink	Shiny black or brown	Clovers and cereals
6. Wild buckwheat	Annual	Green	Dull black	Clovers and cereals
7. Night-flowering catchfly	Annual and winter annual	Creamy white	Dull gray	Alsike and white clover
8. Cow cockle	Annual	Pale red	Dull black	Cereals
9. Purslane	Annual	Yellow	Black	Kentucky blue grass
10. False flax	Annual and winter annual	Yellow	Yellow	Flax
11. Black mustard	Annual	Yellow	Reddish brown	Clovers
12. Five-finger	Annual or biennial	Yellow	Straw color	Timothy, blue grass, and redtop
13. Wild rose	Perennial	Pink to red	Light brown	Cereals
14. Mallow	Annual, biennial, or perennial	White to rose color	Gray	Red clover
15. Evening primrose	Biennial	Bright yellow	Dark brown	Timothy and clovers
16. Dodder	Annual	White or yellow	Grayish	Clovers, alfalfa, and flax
17. Sticktight	Annual and winter annual	Blue	Gray	Clovers and alfalfa
18. Blue vervain	Perennial	Blue	Brown	Timothy, clovers, and grass mixtures
19. Catnip	Perennial	Pale purple	Reddish brown	Clovers
20. Buckhorn plantain	Biennial and perennial	Yellow	Chestnut-brown	Red clover and alfalfa
21. Marsh elder	Annual	Greenish	Gray black	Alfalfa and clovers
22. Mayweed	Annual and winter annual	White	Straw color	Timothy and clovers
23. Prickly lettuce	Annual or biennial	Yellow	Gray black	Seldom found in commercial seed
24. Perennial sow thistle	Perennial	Yellow	Dark brown	Seldom found in commercial seed