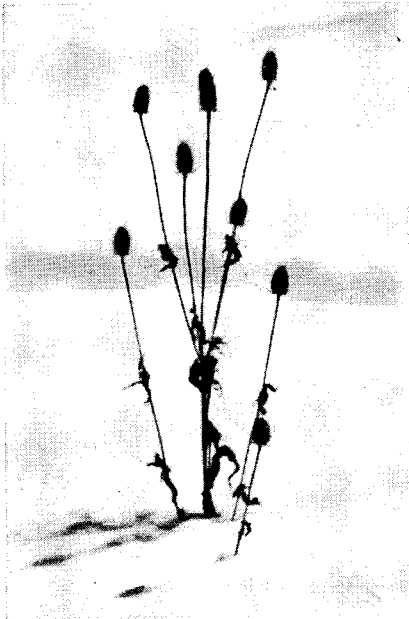
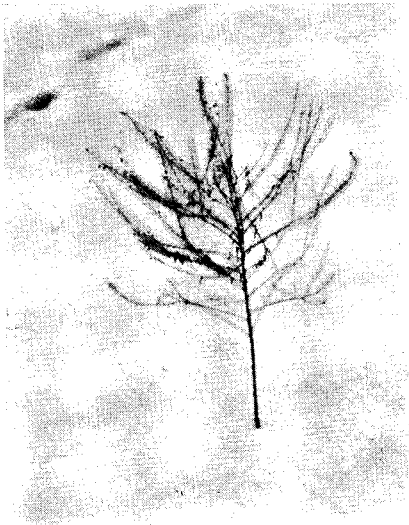


# WEEDS ABOVE THE SNOW

By E. LAURENCE  
PALMER



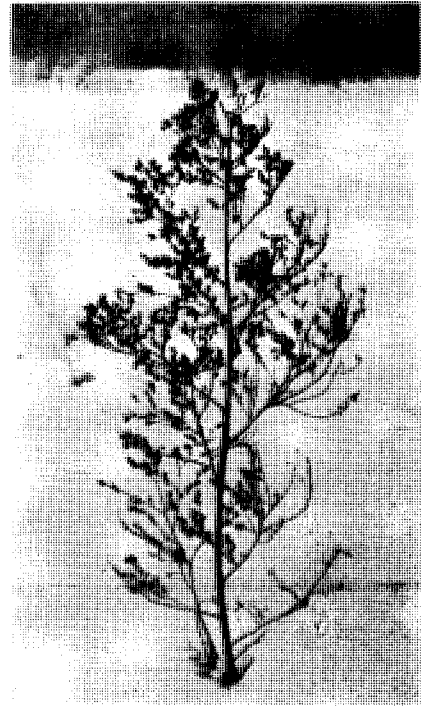
WILD TEASEL



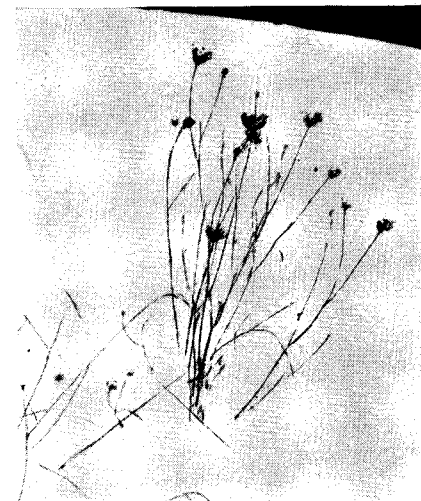
PEPPER-GRASS



NARROW-LEAVED PLANTAIN



LAMB'S QUARTERS, PIGWEED



WILD CARROT



COMMON RAGWEED

This is the second in a series of special educational inserts prepared specially for Nature Magazine. The first appeared in the October issue and was devoted to insects of fresh waters.

**M**ORE than twenty years ago, Dallas Lore Sharpe published an article on weeds above the snow, and started a hobby that has persisted ever since. This took the form of hunting for weeds so situated that they may be photographed effectively against a natural white background and interestingly framed.

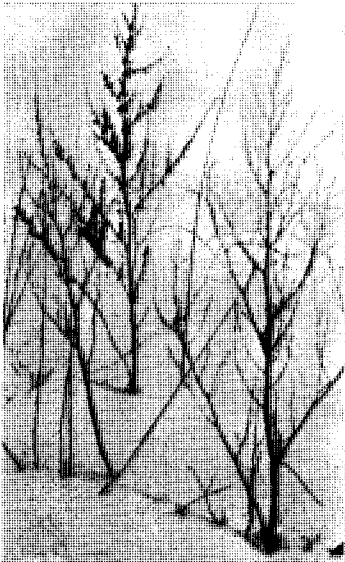
There are many intriguing problems involved, such as where parts of the weed-tops are white and part dark; then the camera must be maneuvered so that the necessary contrasts are possible. Then, too, snow photography is rarely easy, and, since a hobbyist always plays fair with himself, and because a delicate weed-top seems always to be swaying in the wind, one has to do his weed hunting when there is good sunshine and little wind. While it might generally be possible to "fake" a picture, this is to lose part of the fun. A cattail, to satisfy the hobbyist, must be framed



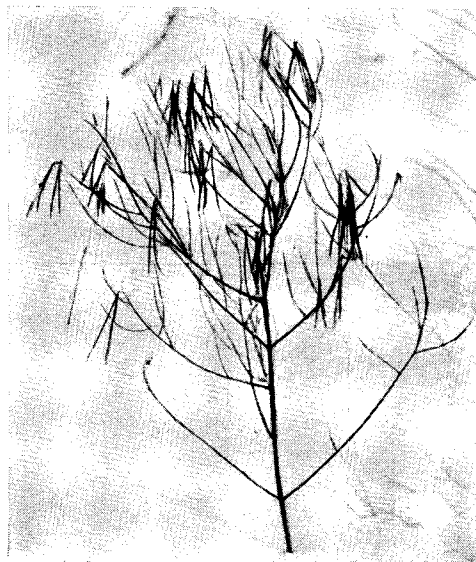
HEAL-ALL



YARROW



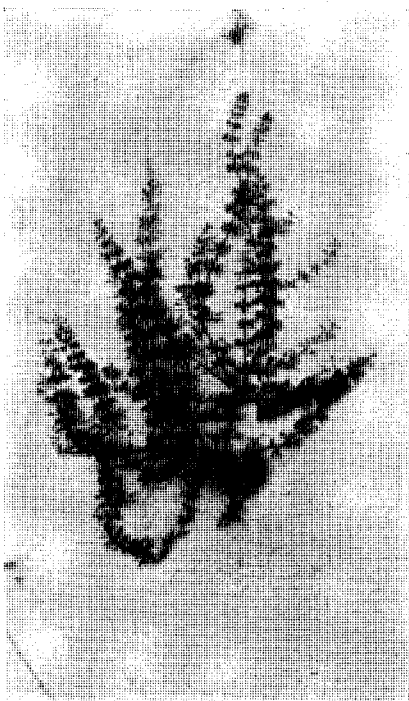
CURLED DOCK



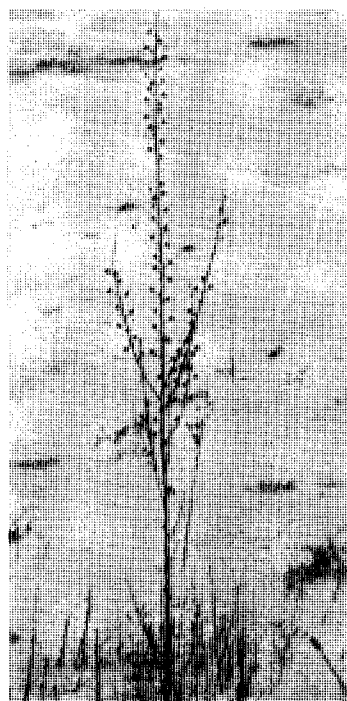
INDIAN HEMP, DOGBANE



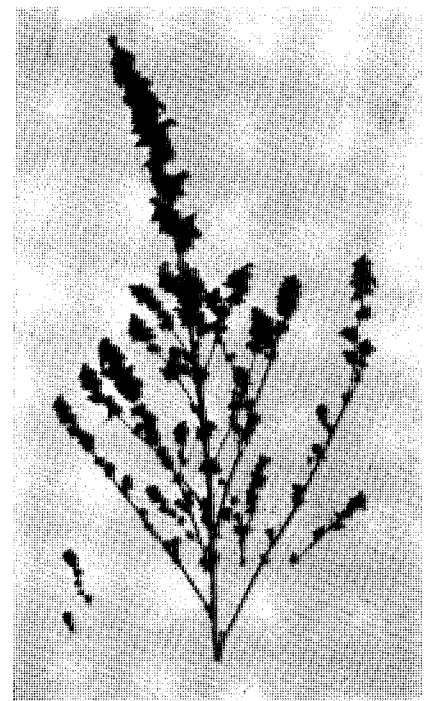
MOTHERWORT



MOCK PENNYROYAL



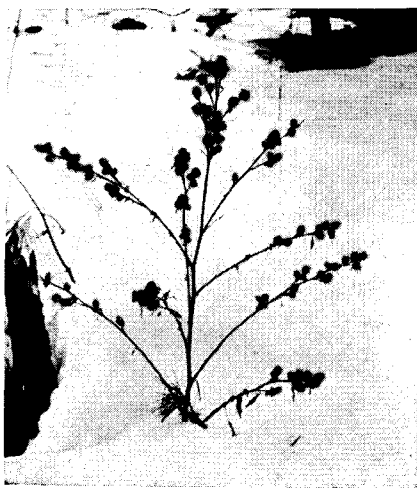
MOTH-MULLEIN



AMARANTH, PIGWEED



CAT-TAIL



BURDOCK



CLAMMY EVERLASTING

in a background that will look like a swamp. A ragweed or a wild carrot must look as though it grew along the roadside or in a neglected field. And then, as is always true with hobbyists, comes the fun of trying to get pictures of as great a variety of weeds as possible. And there is the fun of answering the question: What is the name of that weed or where can I get help in naming it?

Anyone who becomes a weed-top hobbyist will soon learn of the rôle these plants play in supplying winter birds with their food. After a heavy snowfall, when everything close to the ground is covered, the weed tops may rear their heads still bravely above the white. Let some bird light on a pigweed and give it a shake, and a shower of excellent little fruits falls on the snow below, an ideal breakfast for a bird. It takes a phenomenal snowfall to cover all of these weeds so that the birds must starve.

The weed-seed study may prove to be even more intriguing than the facts about weed-tops. It provides one of the most interesting keys to the food habits of many birds, sheds light on the origin of a sample of commercial seed, sometimes reflects on the integrity of the seed salesman, and frequently provides an interesting clue to the early history of man. That is the way of most hobbies—we start with one, and end up with some other.

One interesting thing to do with winter weed-tops is to taste them. Try nibbling a few seeds of some wild sweet clover. At first nothing exceptional happens, but after a few minutes a satisfying sense and odor of sweet grass will fill the mouth and nasal passages. Then try a seed of catnip or pennyroyal to see how they differ. Nibble a few seeds of some wild sunflower, or, if you feel like it, try even a burdock seed. It will be surprising what flavors you can get from these (Continued on page 604)



COMMON MULLEIN



WHITE VERBENA



EVENING PRIMROSE

NAME	CAT-TAIL <i>Typha latifolia</i>	CURLED DOCK YELLOW DOCK <i>Rumex crispus</i>	LAMB'S QUARTERS PIGWEED <i>Chenopodium album</i>	GREEN AMARANTH RED-ROOT PIGWEED AMARANTH <i>Amaranthus retroflexus</i>
DESCRIPTION	Stems above ground 3 to 7 feet tall, with narrow, erect, ribbon-like leaves. Rootstocks live from year to year just under ground surface, starch-laden in fall. In winter, flower-spikes remain erect with the stamen-bearing area, above, naked. Stubble may survive fire.	Stem above ground, 1 to 3 feet tall, erect and well-branched, bearing clusters of the fruits at base of branches in winter; slender, smooth, tough. Leaves, somewhat narrowly oblong with conspicuously wavy, crisped margins, smooth, alternate, entire. Roots, large, red or yellow, taproot going underground to depth of 8 to 12 inches and sometimes 1 inch thick. Perennial.	Stems above ground, 1 to 4 feet tall and much branched, showing in winter the clusters of fruits. Smooth or powdery in appearance, with the stems often ridged or grooved to a degree. Leaves, alternate, somewhat diamond-shaped, the uppermost being linear, while the lower are rounded, toothed and more or less long-petioled. Roots extend directly into the ground. Annual.	Stem above ground, 1 to 9 feet tall, erect, branched, coarse and rough, crowded in winter with fruit-bearing clusters that persist, point upward, and are commonest at branch tips. Leaves, alternate, rough, dull green, long-petioled with wavy margins, not persisting conspicuously on winter stalks. Roots comparatively small, red, extending direct into ground. Few side roots.
HABITAT	In marshy spots where the soil is loose and fine, sometimes covering great areas but often restricted.	Open, dry, waste places such as meadows, poorly kept gardens and fields, and pastures.	Waste places and gardens, or wherever there is good sunlight, loose soil and some water.	Waste places, gardens and cultivated fields where the ground is not occupied by sod.
RANGE	Through temperate America and in Asia and Europe wherever soil and water conditions are suitable.	Throughout the United States and southern Canada. Naturalized from Europe; possibly introduced in commercial seed.	Now introduced practically everywhere man lives, although its abundance varies greatly. Native of Europe and Asia.	Now found throughout North America except in the extreme north. Came from tropical America by way of the Southwest.
CLASSIFICATION AND LIFE HISTORY	Class Monocotyledoneae. Family Typhaceae. Flowers in early summer. Pollen carried by wind from loose-spiked, staminate flowers to compact-spike of pistillate flowers just below or at a distance. One seed produced per flower but many per spike. Seedlings, grass-like. Fruits carried by wind on fluffy parachutes.	Class Dicotyledoneae. Family Polygonaceae. Flowers, perfect, with 6 sepals, the outer 3 spreading in the fruit and the inner making a sort of envelope around the 3-sided brown fruit. Flowers, individually inconspicuous, 1-fruited and 1-seeded. Stamens, 6. Fruits, pointed at one end and blunt at the other, polished. Wind-pollinated.	Class Dicotyledoneae. Family Chenopodiaceae. Flowers, small, greenish, in compact clusters close to stem. Calyx, 5-parted, more or less envelop mature fruit. Petals, inconspicuous. Stamens, five. Pollination of some species by wind; others, insects, but commonly self-pollinated. 1 fruit per flower and 1 seed per fruit.	Class Dicotyledoneae. Family Amarantaceae. Flowers, inconspicuous, 3-bracted, 5-stamened, greenish. The bracts are pointed, stiff and longer than the flowers, which may appear hidden among them. Pollinated by wind or by self in July, through to September. Each flower, 1-fruited and 1-seeded. May mature seeds from seeds in a few weeks or months.
FOOD RELATIONSHIPS	Serve as a host for the cat-tail moth, <i>Lymnaecia phragmitella</i> , and a weevil, <i>Calandra pertinax</i> , the latter of which also lives on corn. Erect leaves expose a maximum surface to sun at an angle, and a minimum, when it is directly above.	Leaves bear the maggot of the leaf-miner, a fly, <i>Pegomyia calypttrata</i> ; larvae of the moth, <i>Papaipema nitela</i> , which also eats corn, tomatoes and potatoes; a copper butterfly, <i>Chrysophanus thoe</i> ; a brilliant beetle, and others.	Host plant for a leaf-miner; a fly larva, <i>Pegomyia hyoscami</i> , which lives between leaf surfaces; a skipper butterfly caterpillar, <i>Pholisora cattullus</i> ; and of interesting sucking insects.	The host plant in July and August of the stalk-borer, <i>Papaipema nitela</i> , and of the larvae of the skipper butterfly, <i>Pholisora cattullus</i> .
PROTECTION AND SURVIVAL	The more or less permanent underground stems, well supplied with food and near water, insure protection from fires and other catastrophes that periodically sweep over swamps.	Rosettes of leaves in winter often large. Seeds and underground parts are hardy and endure many unfavorable conditions. Controlled by late ploughing and by frequent cultivation.	Easily adaptable to a varied environment and a rapid grower in competition with most cultivated plants; therefore, distinctly a weed. Control by cutting before flowering but seeds are long-lived and hardy. Not easily controlled by sprays.	Not a shade-lover. A rapid grower that competes all too successfully with cultivated plants for sun and water and space. Protection against cattle through tough nature and possibly the stiff bracts. Control by cultivation and burning.
USE TO MAN AND ROLE IN NATURE	Formerly a valuable source of starchy food for man; also leaves are used in making mats, insulation and rush-bottomed chairs. Leaves absorb moisture and swell; used as calking for boards; provide shelter for waterfowl. Muskrats eat roots.	The powdered root is used medicinally if harvested just after the fruits have matured. Fruits eaten freely by many winter seed-eating birds. Of some medicinal value.	Often used as a salad, particularly when young. Related to the wormseed plant, Mexican tea, beet and spinach.	Sometimes used as a salad when young. Provides abundant food and shelter in winter for many winter birds because of food-laden tops that stick above the snow.



<b>PEPPER-GRASS</b> <i>Lepidium apetalum</i>	<b>EVENING PRIMROSE</b> <i>Oenothera biennis</i>	<b>WILD CARROT</b> <b>QUEEN ANNE'S LACE</b> <i>Daucus carota</i>	<b>DOGBANE</b> <b>INDIAN HEMP</b> <i>Apocynum cannabinum</i>	<b>WHITE VERBENA</b> <b>WHITE VERVAIN</b> <i>Verbena urticifolia</i>
<p>Stems above ground, slender, 6 to 18 inches tall, well branched and spreading from a common erect stalk. In winter these bear a few flattened, egg-shaped fruits with thin edges that split to show seeds. Leaves, slender, usually toothed and nearly scentless, but somewhat peppery to the taste. Underground root a rather slender taproot. Annual.</p>	<p>Above-ground stems, 1 to 4 feet tall and well branched, coarse, and, in winter, bearing at branch tip the split fruits. Leaves, lance-shaped but broad, pointed at each end and often showing a pinkish cast to the mid-rib; velvety, alternate and larger near the base of the plant. When fresh, the stems are more or less fuzzy to hairy, or velvety. Taproot occasionally goes to 5 inches deep. Biennial.</p>	<p>Stem above ground from 1 to 3 feet tall and branched at top, making the branches end in flower-groups that are either open and flat-topped, or closed inward like a bird's nest. Stem, tough, bristly. Leaves, like leafy feathers, "pinately decomposed", with strong, not unpleasant fragrance. Root, a long, deep, fleshy taproot, that may become stringy. Biennial.</p>	<p>Height, 3 to 5 feet, erect and branching, with elliptical, opposite, entire leaves and perennial underground stems spreading just beneath the surface, sometimes 6 feet long. With erect stems that die each year. Plants, smooth and bark exceptionally tough.</p>	<p>Stems above ground, 2 to 5 feet tall, erect, slender and 4-sided; almost smooth. Leaves, opposite, shaped something like one of the nettles, petioled, with margins coarsely saw-toothed. Underground parts buried to depth of about 4 inches over a square yard. Dead tops persist through winter with no conspicuous winter rosettes. Tops slender and waving.</p>
<p>Roadsides, gardens and waste places, frequently where the ground has been packed hard.</p>	<p>Waste places and gardens, preferring dry areas to those that are too wet.</p>	<p>Fields, meadows and waste places, usually where there is sunshine and moderate moisture.</p>	<p>On gravelly, waste places, or in rocky banks or beaches; generally near abundant water.</p>	<p>Well-watered waste grounds and roadsides, being common on exposed bars in streams.</p>
<p>Maine to Ontario, California, the District of Columbia and Texas, perhaps being native in the West. Native of Eurasia and comparatively recently introduced.</p>	<p>Labrador to Florida and west through the Mississippi Valley, with related species extending the range of the genus widely. Native of America.</p>	<p>Through eastern North America in particular, but found west to the Pacific Coast and there locally abundant. Naturalized from Europe.</p>	<p>Quebec to Saskatchewan and British Columbia, and south to Maine, central New York, Ohio, Kansas, Colorado and California, being more common to the West. Native to North America.</p>	<p>Now found from New Brunswick to South Dakota, Texas and Florida and elsewhere in the United States. Native of tropical America.</p>
<p>Class Dicotyledoneae. Family Cruciferae. Flowers, inconspicuous, with petals usually wanting, 2 stamens and a pistil about the length of the stamens, which make self pollination simple and effective. Seeds, orange brown and common as a seed impurity, expelled from fruit by explosion. Flower June through October; from seed to seed in few weeks.</p>	<p>Class Dicotyledoneae. Family Onagraceae. Flowers, yellow, with petals nearly an inch long and calyx tube even longer. Petals, 4. Stamens, 8. Fruit, 4-parted. Pollination by bees and by night-flying insects since the flowers open when light is not intense. Flowers, 1-fruited but many seeded. Flower through July to October.</p>	<p>Class Dicotyledoneae. Family Umbelliferae. Flowers, small, varying from white to roseate or yellow and arranged in an open flat-topped formation with usually the central floret dark purple to black. Pollination by insects. Fruits, like halves of flattened elongate eggs with rows of delicate spines running the length, pointed at the ends.</p>	<p>Class Dicotyledoneae. Family Apocynaceae. Small, white, waxy flowers, borne in pairs, bloom in July and through summer. Pollinated by butterflies to whose tongues the pollen becomes cemented and is rubbed off on some other flower. Fruits, long, slender; spindle-shaped pods, which open to free many feathery, plumed seeds to the wind.</p>	<p>Class Dicotyledoneae. Family Verbenaceae. Flowers, minute, white (one blue), with tubular calyx and tubular corolla, which encloses 4 stamens, the upper pair being without anthers. Flower through the summer. Flowers in loose, open spikes, pollinated by insects, each producing 4 nutlets, each like a quartered cylinder.</p>
<p>The host plant in July and August for the black cherry aphid, <i>Mysus cerasi</i>.</p>	<p>Seeds scattered by wind from splitting fruits. Not favored as food by cattle, for some reason or other.</p>	<p>Host plant of the root maggot of the carrot-rust fly, <i>Psila rosae</i>, and black swallowtail butterfly caterpillar, <i>Papilio polyxenes</i>, which lives on leaves.</p>	<p>Serves as food for a beautiful, bronzed beetle.</p>	
<p>Not commonly found in shade or where there is too much moisture. Somewhat sticky seeds adhere to wet animals and take up water quickly when planted. Low rosettes of many small leaves may preserve some plants through the winter. Controlled by frequent cultivation.</p>	<p>Sensitive to light, closing flowers when light is intense. Forms rosettes in fall.</p>	<p>Flower clusters definitely sensitive to moisture, opening when it is dry and closing when wet. Fall rosettes, well formed close to the ground. Protection by underground part. Leaves distasteful to cattle.</p>	<p>Able to survive difficult conditions because of unpalatable and persistent underground parts that cannot be destroyed easily. Enormous numbers of seeds produced should assure perpetuity, although few have the opportunity to develop into plants. Destroy with salt or cutting.</p>	<p>Plants protected from destruction by underground parts and abundance of long-lived fruits. Not shade lovers and must have abundance of water within reach of underground parts. Do not survive frequent burning.</p>
<p>Plant used occasionally as a salad and the seeds used by birds.</p>	<p>A related species figured prominently in DeVries' mutation theory of evolution. Plant might be an ornamental if it were not a weed. Has no economic value although by some believed to have some slight medicinal value.</p>	<p>The cultivated carrot has been developed from this species and this has excellent commercial and food values. The wild plant is a troublesome weed, destroyed best by cultivating and preventing seed formation. Oil used medicinally.</p>	<p>Indians said to have used bark as a fiber in cloth-making, as a hemp substitute. Certainly twisted dry bark makes an excellent, strong cord. Fresh roots produce a juice used medicinally. The family includes many tropical, poisonous plants</p>	<p>Provide cover for waste ground and anchorage for loose soil in streambeds. Controlled easily by plowing and repeated burning. Flowers too small to be thought of as ornamental, although whole plant is not unattractive.</p>

NAME	AMERICAN OR MOCK PENNYROYAL <i>Hedeoma pulegioides</i>	MOTHERWORT <i>Leonurus cardiaca</i>	HEAL-ALL, SELF-HEAL BRUNELLA CARPENTER WEEED <i>Prunella vulgaris</i>	COMMON MULLEIN <i>Verbascum thapsus</i>
DESCRIPTION	Stems, erect, branching and hairy, rarely 15 inches high and usually curving upward from a horizontal beginning. Leaves, small, blunt-pointed, narrow, sparingly toothed, light olive to green and extending up the stem to among the flower clusters; opposite. Strong odored, but fragrantly so to most people.	Stem above ground, 1 to 5 feet tall, with erect, ascending branches, and conspicuously square, relatively slender, stems. Leaves, opposite, long-petioled, not persistent in winter, about as wide as long, with deeply-cut margins, the flower leaves being wedge-shaped at base and almost entire. Fall and winter rosettes of long-petioled leaves.	Stem above ground, 2 to 24 inches tall, oppositely branched with the central stem usually the longest. Stem, square like most other mints. Leaves, oblong to egg-shaped, petioled, hairy or smooth, entire or toothed, and, in fall and winter, forming rosettes close to the ground as tangled mats. Flower clusters persist in winter at the ends of the branches.	Stem above ground, 2 to 8 feet tall, unbranched or only sparingly so; woolly, fluted and stout. Leaves woolly, light green, oblong and acute with bases extending down the stem. Seedling leaves egg-shaped, smooth and about 1/8 inch long. Deep tap-root serves as anchor and helps in drought. Biennial. Stem and branches terminating in closely-crowded flower spikes.
HABITAT	In dry soil generally poor in quality and either in or out of sunlight. Best possibly in pastures.	Waste places, particularly if well-watered. Thrives in shade; among tall plants; buildings.	Lawns, fields, meadows and waste places generally; also not infrequent in woods.	Common in waste grounds and particularly in pastures, where grazing animals avoid it.
RANGE	A native American plant ranging from Nova Scotia to the Dakotas and southward, being locally abundant in this area and absent from other areas.	Nova Scotia to North Carolina and west through South Dakota and Kansas. Naturalized from Europe.	Newfoundland to Florida and westward across the continent. Native of Europe; said to have been introduced at Washington, D. C., possibly as ornamental or as seed impurity.	Nova Scotia to South Dakota, Florida and Kansas, having been naturalized from Europe. May have been introduced as a weed seed impurity of commercial seeds.
CLASSIFICATION AND LIFE HISTORY	Class Dicotyledoneae. Family Labiatae. Flowers, pale, light violet, in few-flowered whorls along the stem. Corolla, up to 1/2 inch long; upper lip, 2-parted; lower lip, 3-parted. Calyx, tubular, expanded at the base, with 13 nerves. Nutlets, 4. Pollination by small bees such as honey bees and sometimes by bumblebees.	Class Dicotyledoneae. Family Labiatae. Flowers in axils of leaves, with persistent, top-shaped calyx with 5 spiny-pointed teeth, 4 stamens; two-lipped corolla, pale purple, the upper lip being bearded. Pollination by hive bees and bumblebees. Each flower produces 4 seeds, which are shed by the wind. Fruits, crowded on stem at base of branches.	Class Dicotyledoneae. Family Labiatae. Flowers, violet or flesh-colored, rarely white, with corolla not twice the length of the purplish, persistent calyx; in cylindrical heads or short, thick spikes. Pollination mostly by bees, but self-pollination possible in case no insects make visits. Each flower 1-fruited and 4-seeded. Flower, July through August.	Class Dicotyledoneae. Family Scrophulariaceae. Flowers, yellow or rarely white, 5-lobed and 5-parted calyx and globular fruit capsule, which is crowded with small, pitted seeds. Flower from July through September, self-pollination being common, although insect-pollination is possible. Seeds distributed by being shaken from the fruits like a sling.
FOOD RELATIONSHIPS		Green currant aphids, which curl currant leaves and are a real pest, live on motherwort in the summer.		The host plant of some small black thrips, which are found among the hairs in the fall.
PROTECTION AND SURVIVAL	Favors dryness but not particular about light. Winter stems generously supplied with fruits which persist even though the leaves may wither and drop off.	Requires water, but little sun. Protected by underground rootstalk that spreads just under the surface. Controlled easily by plowing and frequent cultivation.	Aided in survival by perennial root stalk just beneath the surface of the soil. Easily destroyed by cultivation or by hoe; in some cases in lawns may be controlled by weed sprays applied when plant is dry.	Protected by hairs with a stinging property, making it distasteful to cattle, and by the rosettes, which are close to the ground.
USE TO MAN AND ROLE IN NATURE	The oil from the plant is much like that of the true pennyroyal of Europe, <i>Meniba pulegium</i> , also commonly used to repel mosquitoes. The plant may be rubbed on the skin safely.	Can hardly be justified economically and should be kept down near currants. Once believed to have medicinal value but now considered worthless.	Formerly believed to be of medicinal value particularly in curing the German <i>braune</i> , a disease of the throat. Seeds, shaken out of heads by the wind, eaten by birds.	Has been regarded by some as ornamental, but by more as a noxious weed. A sun-lover that can prosper on some wastelands not suitable for other plants. Seeds and plant believed to have some medicinal property, part as emetic.

<b>MOTH-MULLEIN</b> <i>Verbascum blattaria</i>	<b>RIB-GRASS NARROW-LEAVED PLANTAIN RIPPLE-GRASS</b> <i>Plantago lanceolata</i>	<b>WILD TEASEL</b> <i>Dipsacus sylvestris</i>	<b>YARROW</b> <i>Achillea millefolium</i>	<b>COMMON RAGWEED HOGWEED BITTERWEED ROMAN WORMWOOD</b> <i>Ambrosia artemisiifolia</i>
<p>Stems above ground, to around 5 feet tall, erect, slender, rather tough, green, generally smooth or only slightly sticky-hairy. Leaves, alternate, the lower ones on long petioles, oblong in outline, with doubly toothed margins and coarse veins. Color light or rather dark green, and wholly unlike that of the common mullein. Persists erect in winter.</p>	<p>Stem above ground, short, leaves apparently arising directly from the roots. Leaves, narrow, prominently veined, coarse, erect or prostrate depending upon environment and season. In summer, commonly more erect. Fruit-stalk persists above the snow in winter, topped by the short, thick spike of fruits. Roots branch abundantly and penetrate ground 2 to 8 inches. Perennial.</p>	<p>Stem above ground, 3 to 5 feet tall, stiff, erect and branching with a conspicuously coarse-prickled surface. Leaves, opposite, long, coarse, toothed on the margins. Well-formed rosettes of prickled leaves formed at the end of the first season. A main taproot with finer side roots.</p>	<p>Stem above ground, 1 to 2 feet tall and well-branched at the top to make a flat-topped formation. Leaves, finely-cut and somewhat fern-like, with a strong, aromatic odor; arranged along the stem, numbering 8 to 15, and smooth or loosely short-hairy. A perennial root-stalk just under the surface of the ground with many, smaller roots. Stem, tough and fibrous, aromatic. In clumps.</p>	<p>Stem above ground, 1 to 5 feet tall, branching to form a ball-shaped plant body, the branches in winter ending with slender recurve-tipped, fine, naked stems, which bore the staminate flowers in summer. Leaves, finely divided and more or less feathery, the upper being alternate and the lower opposite. Leaves do not persist conspicuously on winter tops. Roots 9 inches. Annual.</p>
<p>Roadsides and waste grounds generally of the poorer types, either stony or loam, mostly exposed.</p>	<p>On lawns, in fields and waste places of great variety.</p>	<p>Roadsides and waste grounds within the range.</p>	<p>Fields and waste places, usually where there is good exposure to the sun.</p>	<p>Fields and roadside, pastures and waste places; more commonly in the sun.</p>
<p>Rather generally established from Maine through Ontario to Kansas and south, although not universally common. Naturalized from Europe.</p>	<p>New Brunswick to British Columbia, and south to Kansas and Florida. Naturalized from Europe and widely spread, possibly through impurity of commercial seeds.</p>	<p>Maine to Virginia and west to Michigan, being naturalized from Europe. Locally common and conspicuous.</p>	<p>Common from the Atlantic to the Pacific, although a native of Eurasia. Fruits commonly found as weed seed impurity so may have been introduced in this way, or as ornamental.</p>	<p>Nova Scotia to Florida and west to British Columbia and Mexico, the northern limit possibly determined by period of frost to frost.</p>
<p>Class Dicotyledoneae. Family Scrophulariaceae. Flowers numerous, white, tinged with purple or yellow, with the stamens bearded with violet wool and 5 in number. Corolla open, with petals widely spread; petals, 5. Fruit in general like that of common mullein but on long stems. Seeds almost undistinguishable from those of common mullein.</p>	<p>Class Dicotyledoneae. Family Plantaginaceae. Flowers, whitish, small, in short, compact spikes. Pistils, maturing first, appear as whitish feathery followed by stamens, which bear anthers on long, slender filaments. Pollination mostly by wind but occasionally by insects. Flowers, 1-fruited, and 2-seeded capsule, like small boats. Flower, June-August.</p>	<p>Class Dicotyledoneae. Family Dipsacaceae. Flowers, blue, purple or lavender, 4-parted, with calyx-tube fastened to ovary and corolla nearly regular. Flowers in compact cone-shaped heads that flower first in the middle and mature up and down simultaneously. Pollination by insects or by self if necessary. Fruits, 4-sided with grooves on each face.</p>	<p>Class Dicotyledoneae. Family Compositae. Flowers in small clusters, some in the center being tubular and the outer rays either white, or sometimes red, and only about 1/2 as long as the bracts, which enclose the cluster. Flower from July through November. Pollination commonly by insects. Fruits, like thin, gray, long wafers blown by wind.</p>	<p>Class Dicotyledoneae. Family Compositae. Staminate flowers borne in crowded, slender spikes at branch-tips and well supplied with stamens; pistillate, in clusters at the base of branches. Some plants solely pistillate. Flowers generally inconspicuous. Pollination by wind. Fruits, top-shaped, small and eaten by birds or shaken out of tops by wind.</p>
<p>Not a shade-lover nor an inhabitant of wet places. Long blooming season, from June through September. Fall rosettes not so conspicuous as might be expected. Requires two seasons to reach maturity.</p>	<p>Serve as host with other plants for larvae of some tiger moths and the buckeye butterfly. In summer, the rosy aphid, <i>Aphis sorbi</i>, which is a pest of apples, lives on this too-common weed.</p>	<p>Bases of the lower leaves surround the stem to form cups that hold water. This may prevent crawling insects from climbing the plants because of the little moats they must pass, although no purpose should be implied in this connection.</p>	<p>While the plants have a strong odor they are not inedible to cattle even though tough if old. Not easily destroyed by grazing because of underground parts. May be eliminated where not desired by cultivating the land or rotating the crop.</p>	<p>Host for a bronzed beetle, a long-horn beetle, <i>Hippopsis lemniscata</i>, and others. Host plant for a stalk-borer, <i>Papaipema nitela</i> (See Burdock) reported on burdock found here.</p>
<p>Survives a variety of light, soil and water conditions. A real pest of cultivated lands and a common seed impurity. May be controlled by frequent use of the cultivator and hoe. Seeds persist in soil for a number of years, maintaining their vitality.</p>	<p>Not ordinarily a shade lover. Since it is a biennial it must have protection for at least two seasons to mature fruits. Juice disagreeable to taste of cattle.</p>	<p>While the plants have a strong odor they are not inedible to cattle even though tough if old. Not easily destroyed by grazing because of underground parts. May be eliminated where not desired by cultivating the land or rotating the crop.</p>	<p>Protection by abundance of hardy fruits. Undoubtedly the pollen of this plant is responsible for much hay fever for which cures are known and preventives procurable from a physician. Plants can be controlled by frequent and early cutting to prevent seeding.</p>	<p>Formerly believed to have medicinal value, being used frequently on sores. Not now so used. Seeds eaten by birds.</p>
<p>Of no economic importance and not a serious weed since it yields readily to cultivation. Fully as attractive as many plants that are grown in flower gardens.</p>	<p>Easily controlled by cultivation. A related species, the Fullers' teasel, has heads whose bracts are used in carding wool.</p>	<p>Recommended as a forage plant in Europe. Supposed to have medicinal properties discovered by Achilles, hence the name.</p>	<p>Plants are probably useless to man. Fruits are food for quail, pheasants and smaller birds.</p>	

NAME	<b>BURDOCK</b> <i>Arctium minus</i>	<b>CLAMMY EVERLASTING</b> <i>Gnaphalium decurrens</i>
<b>DESCRIPTION</b>	Stem above ground, 3 to 6 feet tall, much branched, coarse, rough, with round, armed heads that easily break loose and become attached to passers-by. Leaves, large, unarmed, heart-shaped or rounded; larger in the rosettes, which form at end of first season close to the ground. Tap root, to 40 inches deep with smaller roots covering 150 square inches. Biennial.	Stem above ground, 1 to 3 feet tall, branched at the top and, even in winter, well covered with leaves that persist; tough and somewhat woody, white woolly. Leaves, narrow with partly clasping bases that extend down the stem. Dark green above and white beneath, covered with a felt of hairs. Roots, tough and woody with strong branching roots. Annual or biennial.
<b>HABITAT</b>	Common in waste places, gardens, fields, woods and roadsides where cultivation has been poor.	Waste places of many kinds, but more particularly in dry fields and meadows with poor soil.
<b>RANGE</b>	New Brunswick to Alabama and west to the Pacific Coast. Naturalized from Europe and found elsewhere in the world where ground is cultivated.	Nova Scotia and Pennsylvania to British Columbia and south in the mountains to Arizona and, in East, south to Ohio. A native plant.
<b>CLASSIFICATION AND LIFE HISTORY</b>	Class Dicotyledoneae. Family Compositae. Flowers, blue or white, in compact heads, with outer bracts making armed prickles. Heads sometimes an inch or more across. Flowers, tubular, perfect, all alike. Pollination by bees, but self-pollination, while difficult, is possible. Flowers, 1-fruited, 1-seeded, but heads many-flowered. Seedlings, with egg-shaped seed leaves.	Class Dicotyledoneae. Family Compositae. Flowers, in heads, each being tubular; the outer ones, pistillate and slender; the inner ones, perfect. This gives appearance of a yellow-centered, white flower. Bloom in August and September and produce small, light-colored, smooth fruits bearing parachutes, which are carried by wind.
<b>FOOD RELATIONSHIPS</b>	Flower from August through November. Host-plant for a stalk borer, <i>Papaipema nitela</i> , a moth caterpillar, which in early August is 1½ inches long, inside the stem; the Painted Lady butterfly caterpillar, <i>Pyrameis cardui</i> , and other insects in fruits.	
<b>PROTECTION AND SURVIVAL</b>	Able to survive varying dampness and sunlight.	Prosper best in the sunlight in dry areas. Fall rosettes of narrow, woolly leaves with even margins, clustered close to the ground. Not particularly troublesome as weeds since they yield readily to agricultural activities.
<b>USE TO MAN AND ROLE IN NATURE</b>	Young shoots are sometimes eaten as salad but soon become strong. Believed to have some medical value but this is little. Controlled by cutting tops during spring and early summer.	Of little value, although they make an attractive bouquet, and related species are used as ornamentals. A closely-related form has leaves that are used medicinally.

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common weeds. Notice by looking beneath the weed whether the birds seem to show any preference, and then try a handful of the seeds that the birds favor and try to guess why preferences are given.

There are a few suggestions that it may be well to make to those who may begin making a hobby of photographing winter weed-tops against the snow. Most snow pictures are flat because of the lack of shadows. This may be due to the usual practice of taking pictures with the sun from the back. To get pictures with good contrast the camera must face into the sun or across the sun's rays. This means that in most cases care should be taken to shade the lens. With this hint you may start hunting the wild weed as it lurks in the snowbank. It is more fun than you can imagine until you get into the game, and into the snowbank too.

Weed-tops in winter may resemble the summer plants, or be decidedly different.

Insect injury provides another angle of interest in winter weed study. Many of these injuries appear as galls, such as are found on goldenrod from one end of the continent to the other. Any of these are worth investigating to see whether the creature that caused the injury is still present. In winter, some of these creatures may be in the adult stage; others, in the larval, egg, or pupal stage. Some may be beetles; some flies; others wasps, moths or representatives of other groups of insects. Some galls are made by mites and others by fungi. Some are well insulated. Some are used by more than one host and some are used more than once by a given host. All of these variations provide subjects for study by one who is interested.

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