

Learning Plants for Food, Medicine, and Bushcraft



**MUST-KNOW
GO-TO SURVIVAL PLANTS
OF NORTH AMERICA**

Christopher & Helen Nyerges

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Learning Plants for Food, Medicine, and Bushcraft

First Edition

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Must-Know Go-To SURVIVAL PLANTS OF NORTH AMERICA

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CREDITS

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Drawings by Christopher Nyerges.

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Dedication

We dedicate this book to the two most influential botany teachers in our lives

Dr. Leonid Enari and Professor Wayne Saywer

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INTRODUCTION

In our work, many students have told us that they are overwhelmed by the number of plants featured in all the plant books. They don't even know which book to pick or to start with.

Repeatedly, the most common questions both of us have been asked over the years are

“Where do I start?” “How do I go about learning all these wild plants?”

“How did you get started?”

We often say to them, *“Start with one.” “Learn one plant at a time; learn that plant well.”*

“Just take one step at a time.” “Grow at your own pace, one class at a time.”

This book was created for those who want to start learning about wild foods, wildcraft medicine, and bushcraft plants to improve their health and well-being, primitive skills, or emergency preparedness.

It is designed to help you learn how to identify and use a selection of the most common and widely available wild plants that can be found all over North America, with some exceptions of a few plants that are not found in every State.

These are what we call the “must-know go-to” survival plants.

Most of these plants can be found in the wilderness or in urban settings; they can even be grown in backyards or available land. One can also create resourceful gardens with many of these plants for foraging or survival use.







We've learned over the years – Christopher's 50 years and Helen's 30 years – in our own experiences and feedback from our students, what's helpful for students when it comes to studying plants. We also recognize that everyone learns differently; what works for one may not work for another. We have produced many different forms of classes, trainings, and presentations to address students' needs, based on their comments and requests.

We created this book in our hope to provide a more engaging, encouraging, and fruitful learning experience. We weaved in learning elements that students said they liked and found helpful to their learning: line drawings, plant-use analysis chart, edibility indicator bubbles, and size-indicating photos.

We hope you enjoy this effort, and we welcome your comments that we may continue to improve this book.

Christopher and Helen Nyerges

PLANT ANALYSIS RATING CHART

FOOD-4 	MEDICINE-5 	WATER-2 	FIRE-3 	SHELTER-2 	OTHER-3 
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Explanation of Analysis chart: Each plant has been analyzed according to its importance in the following 6 categories, with a rating of 1 to 5, 5 being best. The above example is the analysis of California Bay.

FOOD: If the plant is an excellent food source, it gets a 5. If it is marginal, it gets a 1. If it is not a food source per se, but it helps you to obtain food (e.g., making a bow, or a spear, or traps), then it gets a good rating.

MEDICINE: Nearly all plants have *some* medicinal properties. However, we rated these based on the ready-availability of a quick medicine, and the likeliness that the plant would be used as such. Nutritional content is included in this category.

WATER: We used two primary factors for scoring plants on the basis of Water. If the plant is highly succulent and is itself a source of water, it scores high, such as cactus. Also, if it only grows in water, such as cattails, it scores high as a water indicator.

FIRE: Though everything can potentially burn when dry, we are looking at those plants whose leaves or branches can be used in the manufacture of primitive fire-making devices.

SHELTER: If you needed to make a shelter, certain plants, such as willow poles, would be very advantageous to making that shelter. Some plants might cover the shelter or be used as bedding.

OTHER: This refers to such uses as fibre and cordage, clothing, basket-making, tool-making, soaps, weapons (such as bows, arrows, atlatls, etc.), and other uses.

Explanation of Bubbles:

Assuming a food plant, can the plant be eaten RAW or COOKED? Generally, every edible plant can be eaten raw or cooked, though some greens – like nettle – must be cooked, so it's not used raw. Acorns must be leached, so they are not eaten raw.







Assuming a food plant that you want to store for future use, can it be DRIED, FROZEN, or PICKLED. In general, though it is possible to dry, freeze, or pickle *anything*, we're focusing upon the more obvious ways in which the plant discussed is preserved.

TREES

ELDERBERRY (*Sambucus spp.*)

Muskroot Family (Adoxaceae)
(formerly Honeysuckle Family, Caprifoliaceae)

FOOD-4 	MEDICINE-5 	WATER-2 	FIRE-3 	SHELTER-2 	OTHER-3 
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DESCRIPTION

KEY FEATURES

- Pinnately divided leaf
- Distinct aroma of crushed leaf
- Yellowish-white flowers in tight clusters

Elders are shrubs or small trees, growing to perhaps 10 feet tall. They can be quite inconspicuous in the winter, but become more noticeable as the pinnately divided leaves begin to appear in the spring. The leaves are slightly serrated, and are divided into five to 11 leaflets.

Elder becomes much more conspicuous when the clusters of small, white flowers appear, growing in flat-topped clusters or conical clusters of two to six inches across. The flowers are followed by small 1/8 to 1/4 inch purple, black, red, or white berries, depending on the particular species.





Sambucus caerulea. Photo by Helen

WHERE FOUND: URBAN/ WILDERNESS

Elder trees are common throughout the world, and are found in all U.S. states, and can be found in most environments throughout North America.

HABITAT: It does well along rivers and streams. Elder can be found in diverse locations, ranging from chaparral hillsides, high elevations, low canyon bottoms, open fields, and even vacant lots. The tree is easily cultivated in farm lands, and urban yards.

USES

FOOD

The dark purple berries, rich in vitamin A, with fair amounts of potassium and calcium, can be cleaned, cooked, and blended with applesauce for a unique dessert, especially if you are using wild apples. The berries can also be used for making wines, jellies, jams, and pies.

The fruits can be easily dried, and used as simple snacks.

Though many people can eat a small amount of the raw fruits with no ill effects, there have been many reports of nausea and sickness from eating as little as two small handfuls of the ripe berries. To be safe, you should dry or cook them before eating.

The red berries are not recommended for food, some having toxic qualities.

The whole flower cluster can be gathered, dipped in batter, and fried, producing a wholesome pancake. Try dipping the flower clusters in a batter of the sweet yellow cattail pollen and frying it like pancakes.

The dried flowers, removed from the cluster, can also be mixed into flour for baking pastries, breads, and more.

MEDICINE

The flowers and fruits of the elder have long been used as a medication for flus and colds. In the case of the flowers, the fresh or dried flowers can be infused and drunk. They can also be soaked in a wine, or liqueur, and a small amount of that liquid drunk as needed.

The fruits are commonly made into a syrup for coughs, sore throats, colds, and flus. In fact, any elder syrup or jam sold for eating could be used as a medicine. This is a superior medicine.

Tea (infusion) made from the flowers induces sweating; as such, it is said to be useful for colds, fevers, and headaches associated with colds. According to Dr. James Adams, the infusion from the flowers would also be good for treating Covid conditions, and other flu conditions.

A poultice of the leaves is used for wounds, sprains, and swellings.

OTHER

The straight branches have a soft pith, and can easily be hollowed out and used as a straw to blow on your ember, or your coals, to get your fire going.

The long, hollowed-out sections of branches can also be used for pipe stems, and elbows can be used for pipes.

The long hollowed sections can be used for blow-guns, and straws. The stems are easily hollowed with a wire coat hanger, or a similar piece of wire.

The fibre stripped from the older branches has been used by indigenous peoples for making mats, dresses for women, hats, and bags. The fibre is soft, and not a high tensile fibre.



Barbara Kolander with elder berries

Elder's botanical name, Sambucus, comes from the sambuke, a musical instrument made of elder wood. This is because the branches have a central pith (core) that is soft and can be easily scooped out; the branch is then made into a flute.

CAUTIONS

The foliage and root are toxic if eaten. It affects like a purgative. The red berries are not recommended for food, though there are some who seem to be able to eat them without getting sick. The edible purple and black berries cause nausea for some if eaten raw. Cooked or dried, they are usually harmless. When eating elderberries for the first time, eat sparingly to see how your body reacts.

OAK TREES (*Quercus spp.*)

Beech or Oak Family (Fagaceae)

FOOD-5 	MEDICINE-3 	WATER-2 	FIRE-3 	SHELTER-3 	OTHER-2 
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DESCRIPTION

KEY FEATURES

Fruit is the distinctive acorn,
a nut set in a scaly cap

Tree can be evergreen or deciduous

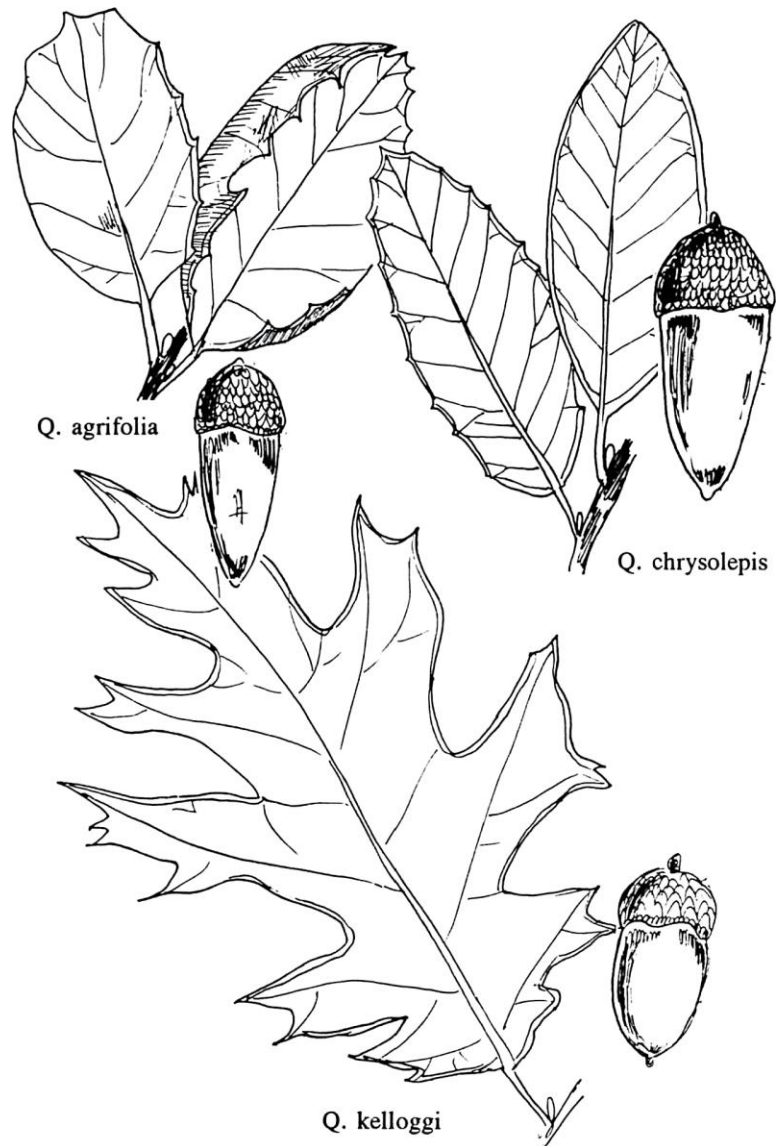
Quercus is a large genus of more than 200 species including deciduous and evergreen trees and shrubs.

The most obvious identifying characteristic of all oak trees are the acorns, which are nuts set in scaly caps. Acorns mature and fall from the trees during September and October. They come in an assortment of sizes, from narrow and pointy, to fat and round, to everything in between.

Among the many varieties, the leaves, which are always arranged alternately, vary in shape from small, hard, oval, and toothed to large, flexible, and almost like a maple leaf. Oak trees can be evergreen, or deciduous (losing their leaves in winter).

HABITAT: URBAN/ WILDERNESS

Oaks are native both to the temperate regions of the northern hemisphere and to the mountains of the tropics. Oak trees can be found world-wide, in cities, mountains, deserts, valleys, and chaparral areas. They are relatively easy to grow from acorns.



WHERE FOUND

There are native oaks to just about every area of the United States. Oaks are common, and each area has perhaps half a dozen native species.

Oaks are a popular street and park tree, and they are widely planted. Often the planted oaks are not native to a given area.

USES

FOOD

The staff of life of some Native Americans was acorns. The Native Americans usually gathered the acorns before they fell from the trees, storing up to 500 pounds per family for a year's supply.

Acorns are an excellent food, though they must be leached of the tannic acid before eating. Harvest them off the ground. If you don't intend to process them right away, dry them so they will preserve better. If you don't dry them (in the sun, oven, or food dryer), they will get moldy, bug infested, or both.

When you are ready to eat them, proceed as follows:

1. Shell the acorns.
2. Grind the raw acorns into a flour.
3. Put a clean cotton cloth (a tea cloth is ideal) into a colander, which you can set outside on a table. Put your raw flour into the cloth.
4. Pour cold water into the raw flour. This will remove the tannic acid. Continue to pour water through the flour until the flour is no longer bitter.

In the past, sometimes shelled acorns were wrapped in a cloth container (such as a burlap bag) and submerged in a river overnight. The flowing water would leach the water-soluble tannin from the acorns by morning. Modern leaching methods vary, and there are several methods that different people use for removing the tannic acid.

If time is a factor, boiling might be the quickest way for rendering acorns edible. Boil the shelled acorns and change the water whenever it becomes brown. Repeat the process until the bitterness is gone when you taste the acorns. Though this method may take only 45 minutes, it does result in a loss of oils and flavor.

Once leached by this boiling method, you can grind or mash the acorns and eat them right away. If you want to store them for later, the acorns must be ground into flour and then dried. If you have a meat grinder, you can coarsely grind the just-leached acorns while they are still wet and easy to grind. The coarse grind should be dried and then finely ground with a hand mill, stone grinder, or heavy-duty blender. If you're camping, the acorn meal can be ground between rocks.



Quercus agrifolia acorns

The resulting flour is used in foods, such as bread, muffins, pancakes, grits, and soup, either alone or mixed with wheat or corn flour.

Here's one favorite acorn bread recipe.

- 1 cup acorn flour
- ¾ cup whole wheat flour
- ¼ cup carob flour
- 3 teaspoons baking powder
- 1/2 teaspoon sea salt (optional)
- 3 tablespoons honey
- 1 egg
- 1 cup raw milk
- 3 tablespoons oil

Mix well and bake in greased bread pan for about 45 minutes (or longer) at 250° F. We use this exact same recipe for making pancakes simply by adding more milk or water until the consistency is correct for pancake batter.



Students shelling and grinding acorns

SIMPLE RECIPE

However, an even simpler recipe is to simply mix equal amounts of acorn flour with other flour (or pancake mix), add water, and make pancakes.

Analysis of acorn meal has shown it to be 65 percent carbohydrates, 18 percent fat, and 6 percent protein. These percentages will vary from species to species.

MEDICINE

The bark is used medicinally to treat chronic diarrhea and as an internal astringent. Externally, an oak bark decoction is used for skin sores and as a sore throat gargle, according to Alma Hutchens, author of *Indian Herbiology of North America*.

The tannic acid within the oak tree (the bark, leaves, acorns) has long been used as an astringent to wash wounds, rashes, and even poison oak rash. An infusion from oak bark can be used as a gargle, and can be drunk for some stomach pains, and as a treatment for diarrhea.

A simple backwoods toothbrush is made by chewing on a frayed young twig of the oak tree.

Doctors disagree as to the relative effectiveness of tannic acid for all of these conditions.

OTHER

When you boil any part of the oak tree (the acorns, bark, leaves, or galls), you will get a brown solution rich in tannic acid, and you can use that tannic acid for a number of purposes. One of the common uses is to tan animal hides to soften them. We have soaked animal skins, and even snake skins, in a tannic acid-rich solution made from the boiled acorns.

This tannic acid solution is sometimes used as a brown dye for dying fabrics, or to make paints and inks.

Acorn caps have many uses. They are easy to make into little blow whistles. If large enough, they can be the bearing piece for the bow and drill. They can be used for little paint containers. We have also seen them used as substitutes for buttons.

Kat High has used the acorn caps, filled with wax and wick, to make little candles. She's also made attractive earrings from small acorns.

CAUTIONS

Livestock that have eaten large amounts of the young foliage and buds have become ill and in some cases died within a few days. Eating large amounts of the raw acorns can lead to toxicity due to the tannic acid. Humans rarely eat toxic amounts of raw acorns because of the extreme bitterness. Those who have persisted in eating raw acorns have nearly always been stopped short of death because of the onset of frequent urination and constipation, abdominal pains, and extreme thirst. However, anyone with a normal sense of taste would find it nearly impossible to consume raw acorns in large amounts, unless they were either coerced into doing so or needed to do so to prevent starvation.



Acorn pancakes

WILLOW (*Salix spp.*)

Willow Family (Salicacea)

FOOD-1 	MEDICINE-4 	WATER-3 	FIRE-5 	SHELTER-5 	OTHER-4 
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DESCRIPTION

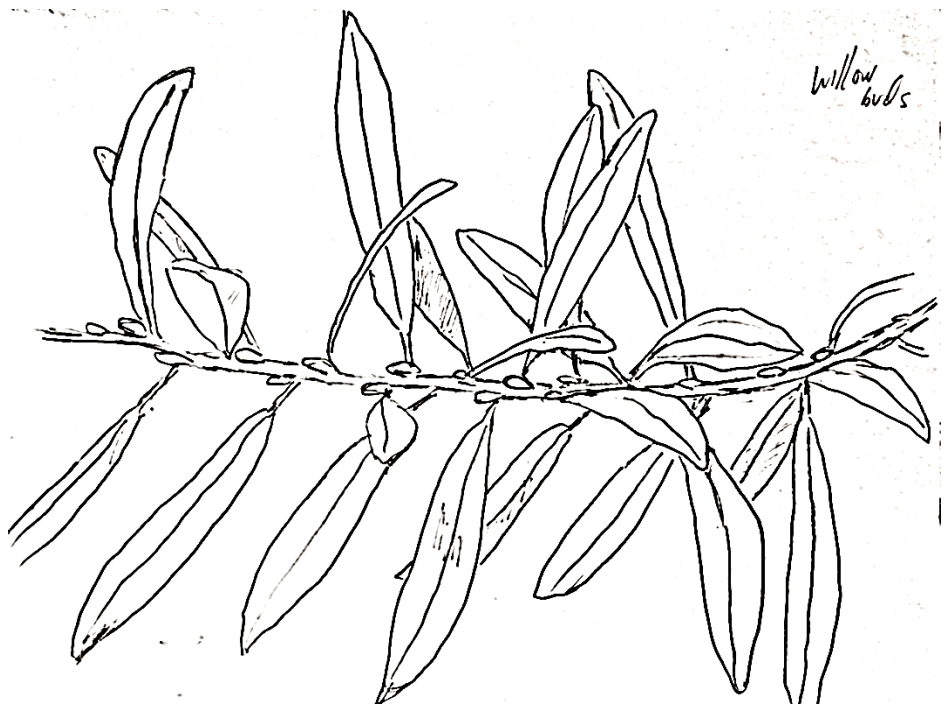
KEY FEATURES

Typically near water

Linear leaves, usually lighter on the bottom.

Seeds mature in wads of cotton.

Willow is a deciduous tree or bush, found widely throughout the world, typically right along streams, though not exclusively so. Native species are found all throughout North America in the wild. Various native and non-native species are commonly planted as yard and garden trees because they are easily propagated and grow quickly.



Willow is noted for its linear leaves, often duller on the bottom side than the top of the leaves. It is noted for its prominent buds, and for the hanging catkins of the flowers. The bark, which usually peels easily, is somewhat bitter or astringent to the taste.

The many species of willow are quite diverse in general appearance. Some are small and bushy, others are leggy shrubs, and others are tall trees.

Willow leaves are nearly all thin and lance shaped, though the light-green coloration can vary significantly from species to species. Look for the small bud at the base of each leaf. The winter buds are covered with a single scale.

Willows produce both male (staminate) and female (pistillate) flowers. They form in catkins of various sizes. As these flowers mature, they produce a silky down that blows through the willow forest. If your timing is right (or wrong, depending on your point of view), the willow down will be everywhere in the air.

HABITAT: URBAN/ WILDERNESS

In the wild, willows are nearly always found along streams. We have seen them at sea level and higher than 8,000 feet. They are found throughout North America and much of the rest of the world.

However, they are easy to grow, and are often found in the urban environment if they have been planted.

WHERE FOUND: NATIVE/INTRODUCED

In general, most willows you encounter will be native to the area you're in, but some willows are planted as ornamentals.

USES**FOOD**

Willow plants should be considered a very marginal source of food, if at all. For example, the inner bark of willows has often been described as an emergency food, which is another way of saying that you'd probably never eat willow bark unless you were literally starving. As a practical matter, it is difficult to scrape out the inner part of the bark, and you generally end up eating all of the bark. Cooking renders it a bit more palatable. If dried and ground into flour and then cooked, it is even more palatable, though still in the realm of emergency food. I have sampled this bark while backpacking with my brother and a friend. We rarely brought much food with us, preferring to catch fish and collect wild plants. We jokingly called our willow bark wild spaghetti, which is a disservice to spaghetti.

Euell Gibbons describes two species of arctic willows (*S. alexensis* and *S. pulchra*) whose tender young leaves can be eaten as a salad, or mixed into a salad. The flavor is said to be improved by cooking the leaves first. We have nibbled on the wild willows of southern California and would not include them in salads. They are a bit bitter, but are improved by steaming or boiling.



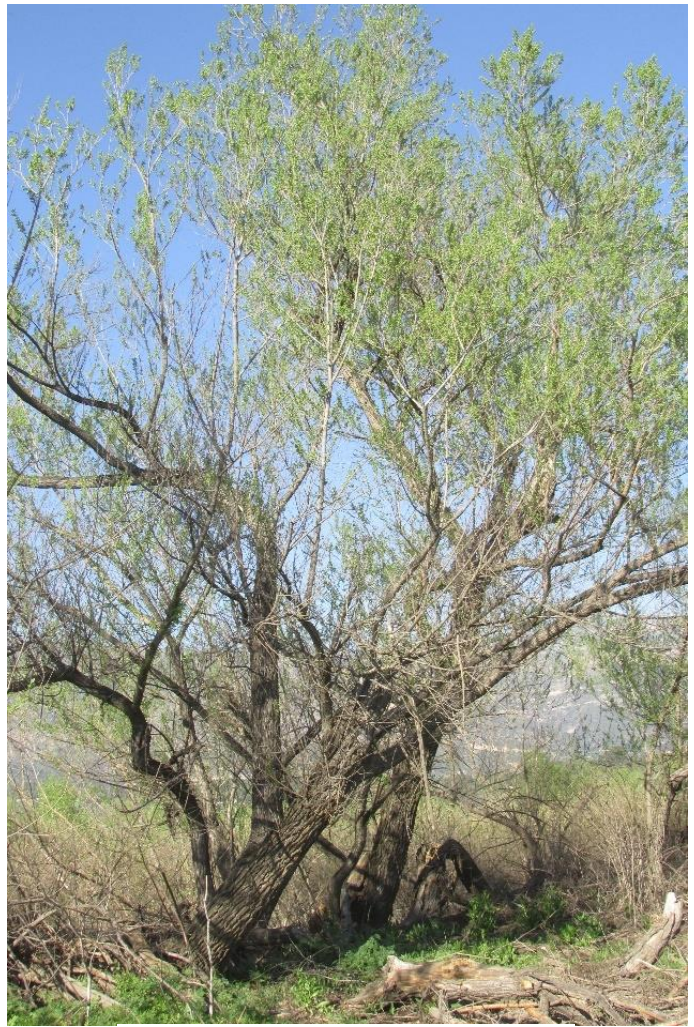
Buds of Arroyo willow

MEDICINE

In general, you should think of willow as a medicine tree, not a food source. The inner bark of willow contains salicin, the source of the original aspirin. The bark of the younger shoots is strongest, and it is fairly easy to harvest. When steeped in water, willow tea is good for headaches, toothaches, fevers, and even hay fever. Due to its strong antiseptic properties, the tea can also be used as a good mouthwash or used externally on wounds. A willow wash is said to work wonders for rheumatism sufferers.



Peeling the medicinal bark of Arroyo willow



An Arroyo willow

OTHER

According to Dr. James Bauml at the Los Angeles County Arboretum in Arcadia, horticulturalists have noted that willow cuttings put in water add some unidentified substance to the water, which helps other cuttings develop roots. So if you want to root cuttings of various trees or vines, you can put them all in a bucket of water with willow cuttings. We have had good results with this method for rooting apples, roses, figs, jujube, and blackberries.

Willow is also one of the best sources of craft material. Whenever we collect willow, we go into the thickest patches and carefully cut only those branches we need with a sharp ratchet cutter. In all cases when we have returned to those areas, we find the best and healthiest growths of new willow where we had done my careful pruning.

We collect straight dead pieces of willow branches for use in the primitive bow and drill for fire making. Dried willow makes the best drill for fire making. It is also an ideal wood to use for the base plate—the flat piece of wood on which the drill is spun.

The cottony-seed tufts of spring make an excellent tinder for turning a spark into a flame. Simply collect a handful of the seed tufts, fluff it up a bit, and then direct a spark from a ferrocerium rod into the tinder. It burns quickly, if not moist.

Long straight willow stems are perhaps the single most useful plant in basket weaving. Willow is one of the most traditional materials used in baskets because it is light, easily worked, and flexible after being soaked in water for about five minutes. Always scrape off the bark before using willow in your basketry projects. We have used the long dried willow stems as pipes, and—following in the tradition of Native Americans—We dry the bark of red willow and add it to my smoking mixture



Straight branches of willow can be made into archery bows

WATER-related

Willow wands figure prominently in folklore and magic. Many dowzers claim they get the best results from a Y-shaped willow rod. Case in point was dowser Ralph Harris, who found all the water needed for General George S. Patton's troops in North Africa. Patton's geologists reported that there was no water to be found by drilling. Private Ralph Harris meekly told Patton that he could find water by dowsing but that he needed a willow twig. Patton had an entire willow tree flown in the next day. Ralph Harris then cut a Y-shaped piece of willow, dowsed, and told Patton where to drill. They found water at every site where Harris said to drill.



Flower buds of Arroyo willow



Willow flower fluff for fire-making

When Christopher took a class in dowsing at Los Angeles City Class, taught by Ralph Harris and Legory O’Loughlin of the Dowsing Society, Harris claimed that everyone can learn to dowse if you can control your thinking and concentrate. Harris, who was a fourth-generation dowser, always provided documentation for every one of his dowsing successes. He said it was a gift from God. O’Loughlin often reminded his students that “the light of dowsing shines brightest when helping humanity.”



Also, willow is an ideal tree to use to obtain water with the transpiration bag. This is the method where you place a clear plastic bag over a branch of a tree, and seal the base of the bag, and wait for a few hours (no more than 48 hours). The bag traps transpiring water in the bottom of the bag, and this can be drunk. If you try this, be sure to move the bag at least every two days, otherwise, the leaves inside the bag will “cook” and will die back and will no longer transpire.

CAUTIONS

Some people experience allergic reactions when they are walking through a willow thicket when the down from the catkins is blowing in the air.

Also, if you’re allergic to aspirin, you should exercise caution when trying willow bark tea.

A Parable on Learning how to Learn

SPEAK TO US ON THE WAYS OF THE WILLOW

The wise man of the forest had been hailed by the people of the land, the eager pilgrims, to teach another lesson in the ways of nature. “Speak to us on the ways of the willow, oh kind sir,” asked one of the pilgrims. “The people are in great need, and it would benefit them greatly to learn the secrets of the prolific willow.”

The wise man listened intently, and told the pilgrim that he would teach the lesson on the morrow, and that the pilgrim should bring the families to the spot in the river where the willows grow around mid-day.

“Oh thank you kind sir,” said the pilgrim. “We shall be there, eager and ready to receive your lessons.”

On the following mid-day, the wise man was at the willows early, as the pilgrims began to trickle in.

It was a cool day as the pilgrims gathered around the riverbed area, near the tall and drooping willows.

“Oh, kind sir,” asked the elder pilgrim. “It is so chilly in this area. Perhaps we can build a small fire to warm up before you begin your talk?”

Without speaking, the wise man of the forest collected a long straight piece of dried willow. It was about as thick as a pencil, and about a foot and a half long. He took another dead and dried piece of willow branch, about as big around as his fist and maybe a foot long. As the pilgrims watched, the man of the forest first took his large knife and split the branch in half, and then further split the half so he had a flat rectangular piece of willow. All the pilgrims watched carefully as the wise man made a little triangular cut into the edge of the wood, and then he began to press the pencil-shaped piece of willow onto the flat piece. The wise man pressed hard, and began to spin the willow drill onto the flat piece of willow, and soon smoke flowed from the friction. The wise man continued to spin thusly, and smoke poured out from the drilling. Soon, there was a red-hot ember in the dust that the wise man created.

The wise man quickly collected a bunch of dried willow bark from a dead branch, and scraped it with his knife to create a fluffy bunch of thin bark. He deftly placed the little ember into his nest of fluffy willow bark, and carefully blew on it until it puffed into a flame. He then placed it into a circle of stones, and added dry willow sticks so that the fire could grow and the pilgrims could warm themselves.

The wise man then began to collect his thoughts for his talk, when the leader of the pilgrims spoke up again. “Kind sir, I don’t want to trouble you, but we have an elder here with pain in his legs. He cannot stand or sit comfortably on the floor. Is there something we can do for him?”

The wise man nodded, and then proceeded to cut some of the dried and dead willow branches, those that were the straightest. He also peeled some long strands of the willow bark and put it to the side. First, the man of the woods created a square from the willows, and securely lashed the square. He then carefully measured, and then cut, willow branches that he then lashed to the square like legs, and the square because

the seat of a chair. Taking a few more thick willow logs, he split them so they were flat, and secured these to the seat of the make-shift chair.

The wise man then helped the elder into the chair, cautioning him to sit carefully.

By now, the pilgrims had warmed some rice and vegetables on the fire, and one lamented to the wise man, “Too bad we didn’t bring forks and spoons.” The wise man whirled around back to the willows, and carefully trimmed pencil-thin twigs about 10 inches long. He passed several pairs of these to the pilgrim, saying only “chop sticks.” The pilgrims eagerly took these and began to eat their vegetables and rice.

By now, much time had passed and the sky was darkening.

As the wise man considered how to deliver his talk on the virtues of the willow, another pilgrim spoke up saying, “Kind sir, I have a terrible headache. Is there anything that I can do to help?”

The wise man nodded, and then carefully peeled off some fresh willow bark. He put the shredded green bark into a metal can, added water, and set it into the coals of the fire. After a few minutes, the wise man poured the tea-colored water into the pilgrim’s cup, and asked him to drink it. “The willow bark is nature’s aspirin,” he explained.

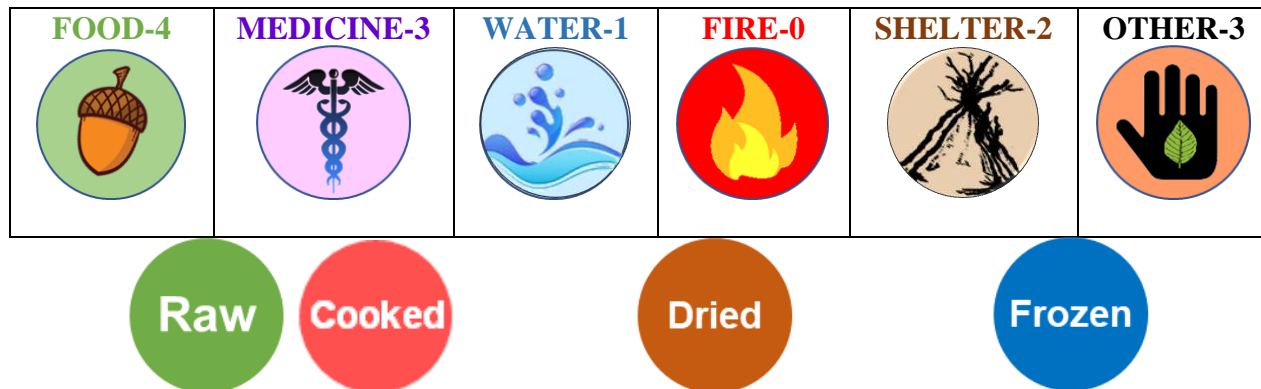
By now, the sky was darker, the children restless, and a cold wind began to pick up. The leader of the pilgrims looked about and decided they should depart for the day. As everyone was packing and getting ready to depart, he spoke up loudly for all to hear, saying, “We are all so thankful that the wise man of the woods came here to teach us about the wonderful willow, but we are very sorry that there was no time for him to teach us anything.”

The wise man tried to conceal his smile as he walked out of the canyon with the pilgrims.

SHRUBS (and shrub-like)

BLACKBERRY (*Rubus spp.*)

Rose Family (Rosaceae)



DESCRIPTION

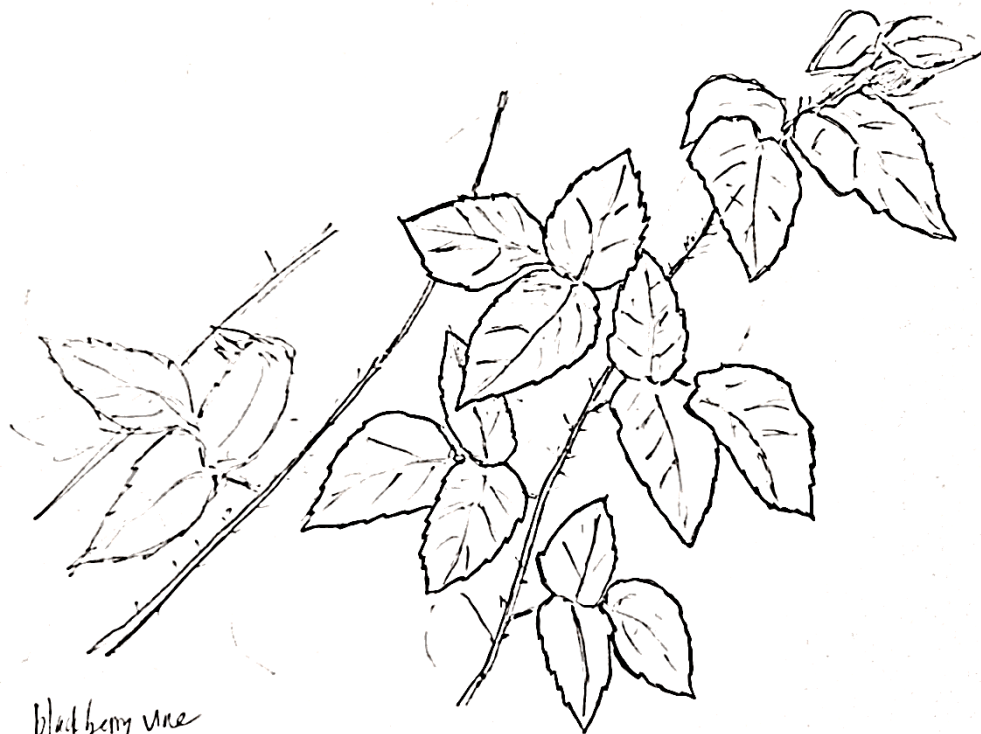
KEY FEATURES

A vining plant with stems that can be several feet long

Leaves are three-parted, with teeth on the margins.

White flowers are five-petaled.

Fruits are aggregate fruits, easy to recognize.



There are about 400–750 species of *Rubus* worldwide. The natives include blackberry and thimbleberry (*R. parviflorus*). Some are known as raspberries.

Even non-botanists can usually identify the vine and fruit of the very common blackberry.

The leaves are palmately divided (like a hand) into usually 3 segments, but sometimes 5 or 7 segments. The vines are twining on the ground or over low hedges and are characterized by their thorns, which make it difficult to wade too deep into any of the old hedge-like stands of wild blackberries.



Example of a blackberry species

The white, 5-petaled flowers are followed by the aggregate fruits, which are a collection of sweet drupelets, with the fruit separating from the flower stalk to form a somewhat hollow, thimble-like shape. Most people instantly recognize the shape of the blackberry because they've seen it so often in the markets.

HABITAT: Blackberries are found in wilderness and urban areas. Easily cultivated.

WHERE FOUND: Native, and species found world-wide.

USES

FOOD

A blackberry is easily recognized, and everyone who sees the ripe ones ventures to eat them. The key is to avoid the thorns and to make sure they are not immature and tart. If the fruit is black, soft, and easily picked, it's ripe! You can eat it right away, or pick a bunch and mash them for a topping for pancakes, biscuits, or cake. Even better, add them to vanilla ice cream.

You could also make a conserve, a jam, a jelly, a pie filling, or a juice. It's very versatile. And though we rarely have ripe blackberries around long enough to dry them, they can be dried in any food dryer and will keep for quite a while. The dried fruits can then be eaten as is or reconstituted for juices or desserts. An infusion of the leaves has long been used among Native Americans for diarrhea and childbirth pains.

MEDICINE

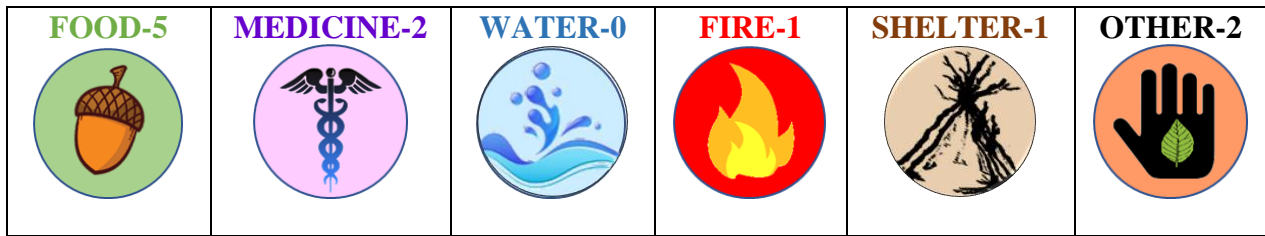
Leaves, vines, and roots have a history among Native Americans as an infusion to treat diarrhea.

OTHER

The long vines of the blackberry can be cut, coiled, and dried, and later used for basketry. Because of the spines, the dried vines need to be cleaned by pulling the vines through a rock with a hole in it, or in some other fashion.

WILD BUCKWHEAT (*Eriogonum fasciculatum*)

Buckwheat Family (Polygonaceae)



Cooked

Dried

DESCRIPTION

KEY FEATURES

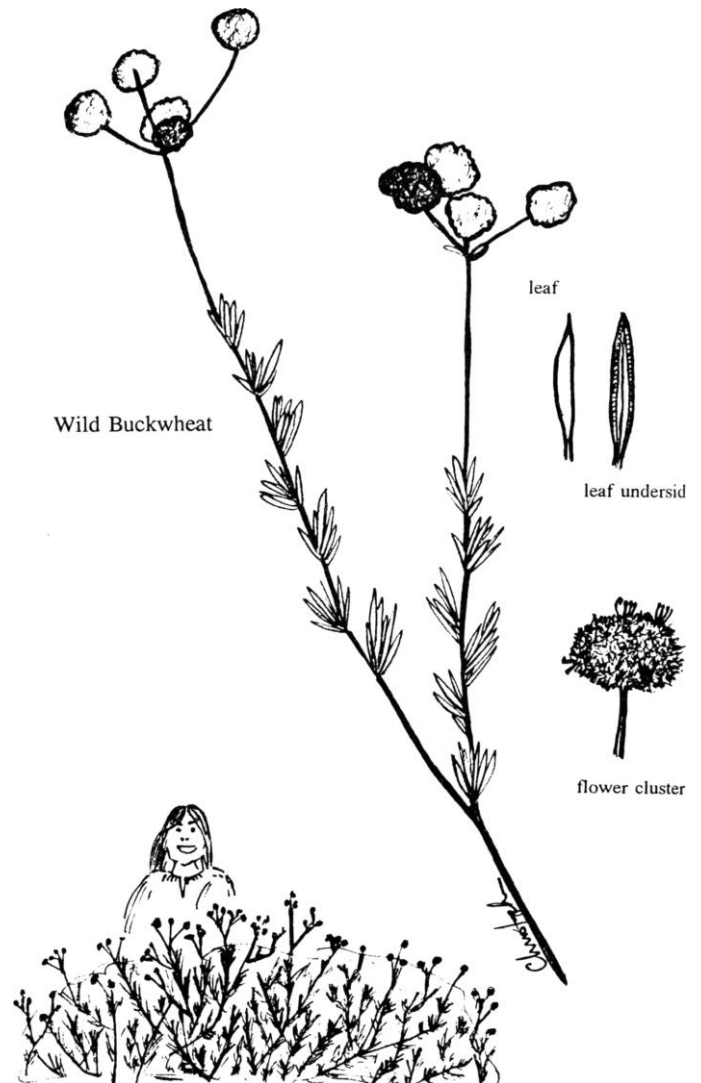
Leaves are small and linear, appearing like a rosemary leaf but without the aroma

Flowers are clustered like white balls on thin stalks.
Mature flower clusters turn into brown balls

Wild buckwheat, one of the most common chaparral plants of the Southwest, found throughout the regions of Southern California, and Arizona, and beyond. It grows from a woody base, usually rising to a maximum of three feet. The overall appearance of the shrubs is green mounds with the round flower heads rising above the mounds.

The non-aromatic leaves are linear with the margins rolled under, wooly white below, and green above. When not in flower, buckwheat resembles rosemary. Rosemary, however, has small blue flowers, glossy green leaves, and a very strong perfumelike odor, whereas buckwheat has no strong aroma.

The flower clusters form approximately one-inch diameter heads (round, spherical clusters) in groups of two or three. These heads are pinkish white and eventually turn reddish brown when they mature and dry out.



HABITAT: WILDERNESS (though it is sometimes cultivated in “native gardens”)

WHERE FOUND: NATIVE to the Southwest. Wild buckwheat is found on canyon floors, rocky hillsides, dry slopes, and ridges. It is very common throughout the chaparral regions and much of the desert areas. Found widely in California, Arizona, Utah, and Arizona. And other species of *Eriogonum* are found widely in North America, except in the Northeast.



Buckwheat flowers (*Eriogonum fasciculatum*) are white, maturing to brown

USES

FOOD

The white flowers begin blooming in spring; as they age, they become brown – almost reddish-brown as the seeds mature. The round mature flower heads can be gathered easily, sifted, and used with half wheat flour and half corn flour to make dishes such as pancakes and bread.

Native peoples generally did not winnow the buckwheat, and consumed the entire mature seed head. We've followed this custom, and, when making bread or pancakes, we mix the buckwheat with other flours in a 50/50 ratio, and cook. We just pick out any stems and other twigs, and rub the seed heads between our hands before cooking. Sometimes we run the brown seed heads through a wheat grinder to get a finer flour.

Buckwheat used alone with no other flour is certainly edible but also gritty and bland, and it should be ground fine if you're making a pastry product.

It can also be cooked like a cereal mush, and then sweetened or flavored as desired.

MEDICINE

A decoction of the leaves is said to alleviate stomach pains and headaches. The decoction used externally as a wash is claimed to cure poison oak rash.

Tea made from the fresh flowers was used by some Native American tribes as an eye wash.

OTHER

The long stems of the buckwheat can be used as the primary warp of baskets, especially cornucopia-style baskets. Cut the long stems, and strip off the smaller stems and leaves.





Early buckwheat flowers (*Eriogonum fasciculatum*)

Later buckwheat flower heads, containing seeds, are dried and crumbly

CATTAIL (*Typha spp.*)

Cattail Family (Typhaceae)

FOOD-5 	MEDICINE-3 	WATER-3 	FIRE-4 	SHELTER-3 	OTHER-3 
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DESCRIPTION

KEY FEATURES

The flower spike resembles a hotdog on a stick

Long fleshy linear leaves

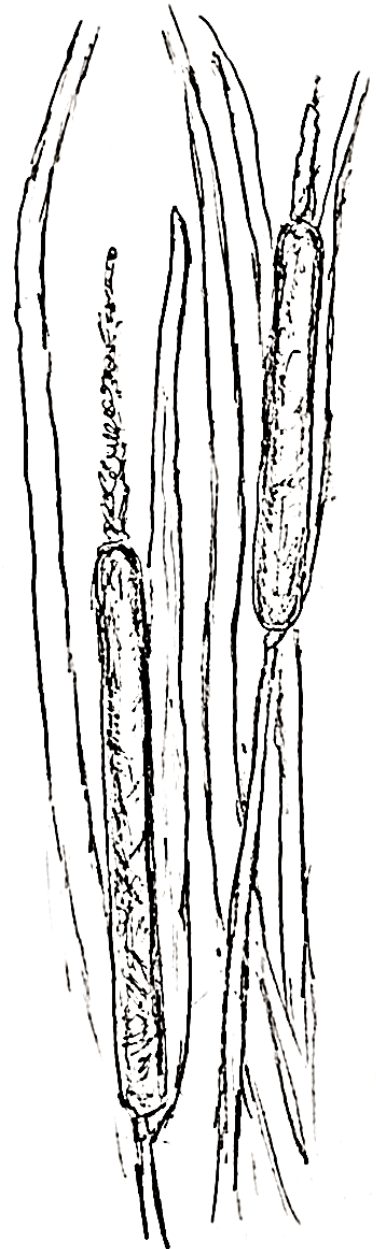
Always growing in swampy areas, or standing water

The Cattail Family consists only of cattails, so once you've seen any cattail anywhere in the world, you will know cattails. Cattails are found world-wide, growing directly in slow moving waters, or on the banks. They are reed-like, with long flat leaves that are about an inch thick and about five feet long.

When these plants flower, they produce the familiar hot dog on a stick flowering spike, which is green at first. Then, as it matures, the top of the flowering spike will produce yellow pollen, and the lower part of the flowering spike turns brown, and eventually breaks apart to produce voluminous airborne seeds that go adrift by the attached fluff.

HABITAT: Wilderness wet areas.

WHERE FOUND: These are riparian plants, always growing in the slow-moving edges of streams and lakes. They are found all over the world.





Angelo shows the edible green cattail flower spikes

USES

FOOD

Cattail is a great source of food. The yellow pollen at the top of the spike can be shaken out, sifted, and added to bread products. The green (female) flower spike can be cut, boiled, and eaten like corn on the cob. The young shoots, peeled of the outer green leaves, are eaten raw or cooked, and are reminiscent of cucumbers. These are the so-called Cossack asparagus. The rhizomes (the horizontal roots) can be pulled from the ground, cleaned, the outer layer removed, and the inner core eaten for its sweet starchiness.

MEDICINE

The fluff from the mature seed spikes can be used to stop bleeding. The gel from the inner leaves has been used for burns and rashes.

FIRE

The dried cattail spike, when broken, produces a cottony material that is one of the best tinders for fire-starting.



Edible young shoot of cattail, all white



Mature cattail flower spikes are used for making fire, or insulation

OTHER

The stems can be used for hand-drills, though the wood is soft. The straight stems can also be used as arrow shafts, though often a foreshaft made with a harder wood is desirable. The stems make great chop sticks.

SHELTER

The long leaves of the cattail have been used historically as the primary cover or wrapping of the traditional homes of Southern California indigenous peoples. The frame would be willow, and the outer covering would be layers of cattail leaves. The leaves can also be used to wrap frames together, and for the bedding or mats of the floor.

WEAVING

The leaves have been used for any project requiring low tensile strength fibre, such as mats, sandals, baskets, chair coverings, hats, etc.

We've made some "soft baskets" using the leaves of cattail, as well as traditional woven sandals. Typically, we collect the green leaves, let them dry, and then moisten them before the weaving and twining so they have greater flexibility during the weaving process.



David Martinez holding mature cattail spikes which are no longer edible

MULEFAT aka SEEP WILLOW

(Baccharis salicifolia)

Sunflower Family (Asteraceae)



Dried

DESCRIPTION

KEY FEATURES

Found in riparian areas

Stalks are striated, and are long like pencils

Leaves are linear, willow-like

Mulefat is a common plant along the fringes of streams and wet areas throughout the Southwest. It is often confused for willow because of the similar linear leaves.

But mulefat is never a tree. It consists of very long branches of an even thickness, with obvious striations along its length. It will often occur in thickets, and the individual stems will be very evenly thick, thinner towards the top. One stem can be six or seven feet tall, and it might be $\frac{3}{4}$ of an inch at the bottom, and perhaps a quarter inch towards the top.

HABITAT: WILDERNESS

Mulefat usually grows along the edges of streams, or not far from the wet areas such as in a tidal flat area.

It can readily be cultivated, but is most often found in the wilderness riparian areas.

WHERE FOUND: NATIVE

Mulefat is native to the entire Southwestern U.S.



USES

FOOD

Mulefat is not a food, not even for mules, though mules and horses have been known to eat it and “get fat” (swollen stomachs). However, mulefat might help you to obtain a meal by means of the arrows or spears you can make from the long stems. And the mulefat stems make great chopsticks.

MEDICINE

Mulefat leaves, along with the leaves of its relative coyotebush, have been used in a wash to cure poison oak. A tea from these leaves reputedly prevents baldness, but we’re not so sure about that claim.

OTHER

Mulefat sticks are long and straight with an even thickness. They are the ideal hand drill for making fire. The slightly fatter sticks are great for the drill in the bow-and-drill.

The very thick mulefat branches – which you might find as thick as 2 ½ inches -- can be split and used for the hearth in fire-making



Alan Halcon checks a mulefat stem for straightness, for an arrow shaft or hand-drill

Typically, when harvesting mulefat for hand drills and arrow wood, we go into a thicket of mulefat and prune away a lot of the dead wood. This allows the younger growth a better chance to grow.

Then, going from plant to plant, we cleanly cut about 20 of the straightest branches, about 18 inches long, and about as thick as a pencil. We bundle these tightly together so they will dry straight and not curve as they dry. Nearly all of these will make good hand drills.

Some of the mulefat sticks bundled and dried this way will also make nearly perfect shafts for arrow-making. The arrow shafts should always be slightly longer than you need since then you have some leeway in case you need to cut off a cracked end.

Mulefat grows long, flexible branches, which are ideal for making the type of half-dome shelter employed by the indigenous peoples of Southern California. The long stems are also used for sweat lodge frames, and lean-to frames.

Mulefat stems, bundled together, make a good “quick bow,” though generally not as good as a regular long bow. The long stems are the ideal material for arrow shafts, and atlatl spears.

These stems are also ideal for making the quail trap, and the trigger parts for deadfalls.

Mulefat stems also work well as chopsticks.

TOOLS: Clippers, saw, knife, sandpaper (or suitable rock), twine.



Halcon makes fire with a mulefat hand-drill

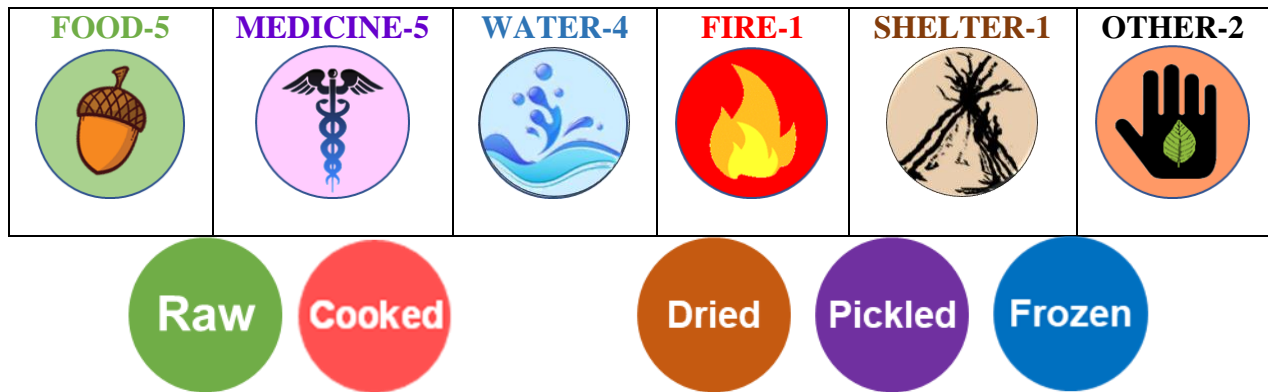


A selection of mulefat drills for fire-making



PRICKLY PEAR CACTUS (*Opuntia spp.*)

Cactus Family (Cactaceae)



DESCRIPTION

KEY FEATURES

Fleshy and succulent oval pads, covered with spines

Typically in dry and desert locations, but easily Cultivated

Oval fruits grow on the edges of the flat pads

Prickly pear grows in clusters with flat, broad, oval fleshy pads, which are its stems, and is covered with numerous spines, which are its leaves. The plant puts forth its new growth in the spring, and flowers in the spring. The fruits mature by summer, and generally peak around September.

The many-petaled flowers are purple, yellow, orange, or red. The petals are somewhat fleshy. The corolla (petals united) is circular in outline or wheel-shaped from above. The sepals are thick and green or partly colored.

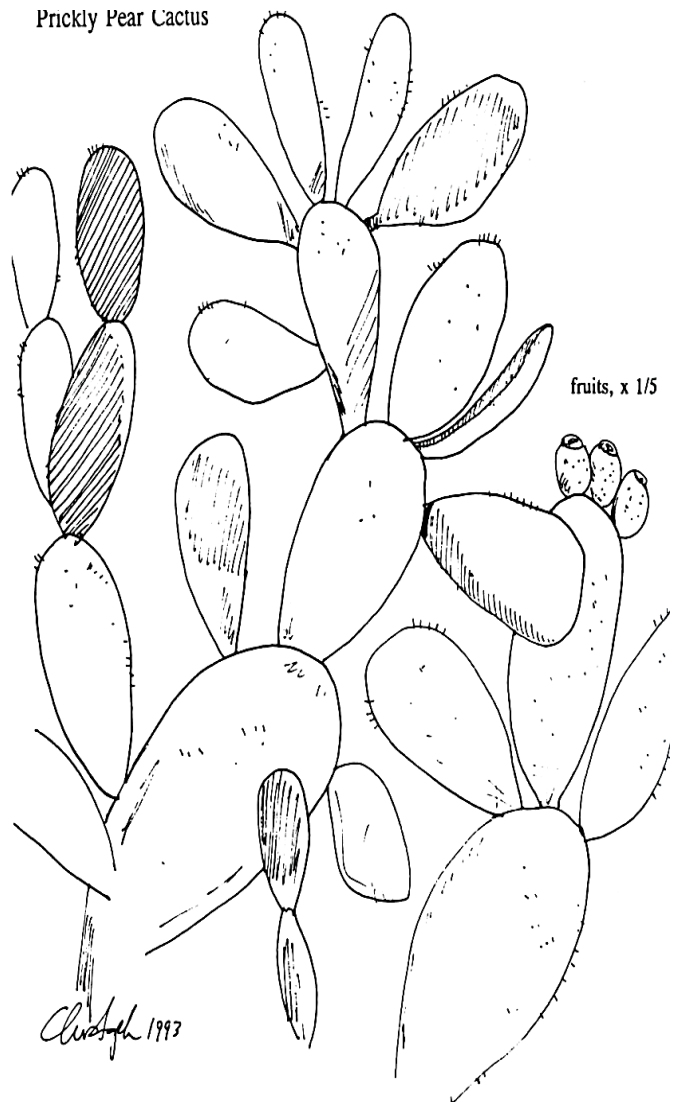
Throughout the summer and early fall, the mature purple, red, or yellow fruits grow from the tips of the pads. The fruits, which are full of seeds, are covered with small hairlike spines called glochids.

HABITAT: URBAN and WILDERNESS

Commonly found throughout North America, especially in the Southwest in dry and arid areas. The plant grows best in the upper parts of alluvial plains near the base of mountains and coastal canyons.

Also widely planted in urban and suburban areas.

Prickly Pear Cactus



WHERE FOUND: Commonly associated with the southwestern United States, the prickly pears are found in city and desert alike. However, *Opuntia* is not restricted to the Southwest. Various species are found in every U.S. state, and at least two species are known to grow along the Atlantic Coast.

USES

FOOD

All of the many varieties of *Opuntia* produce edible fruit and pads. The ripened fruits are succulent, somewhat sweet, and delicious. The fruits need to be twisted off (or cut from) the pads, then carefully peeled, and enjoyed fresh. Once chilled (in the refrigerator or in a stream), these fruits taste very much like melon. Even eaten unchilled along the trail, they'll satisfy both thirst and appetite.



The cactus fruit, or “tuna”

Drinks, pies, jams, ice creams, and so forth can also be made from this fine fruit. Juice can be made simply by pressing the peeled fruits and then pouring the pressed fruit through a colander to remove the pulp and seed. Ice cream can be made by replacing prickly pear pulp (with or without seeds) for the sugar and flavoring in an ice cream recipe. You can also flavor vanilla ice cream by mixing prickly pear pulp with soft vanilla ice cream, then refreezing before serving. Peeled fruits can also be sliced thin and dried (seeds left in). The flavor is sweet with somewhat of a burnt aftertaste.

When you eat the fruits, you'll notice the abundance of small seeds. You can either eat them with the fruit, save them to grow new cactus, or follow the Native Americans' example of drying the seeds, and grinding them into flour. If you're processing a lot of cactus fruit, the seeds add up quickly, and you'll soon have enough for a few loaves of cactus seed bread.

For years when reading cactus fruit recipes, we saw the phrase “first remove seeds.” Nowhere did we find details on how to easily remove these seeds. After several experiments during the summer of 1989, Nathaniel Schleimer and Christopher discovered the easiest method: we blended the raw peeled fruit in a food processor until it was a watery pulp full of seeds. Then we poured the blend through a colander. Approximately 98 percent of the cactus pulp went right through the colander as a liquid, leaving behind a colander full of pure seeds.

The fresh young pads, called nopales, can be found for sale in many predominantly Mexican markets. When still small and glossy green, the nutritious pads will fry up into a delectable vegetable. Scrape, peel, and slice before frying. The texture is slimy like that of okra, but the flavor is good. These can be cooked alone, or with the other vegetables, such as onions, tomatoes, and bell peppers. Nopales are also good gently cooked, lightly baked like squash, or diced and mixed into omelettes. In all these recipes, onions mix well with the cactus.



Another popular use of the prickly pear is to pickle the peeled slices (or buy them pickled). These are generally served in much the same way you’d serve string beans.

Raw, these pads have the flavor of slightly sour green peppers. The tender pads can be peeled, diced, and added to salads.



Monica Montoya cuts a tender piece from the inner part of an older cactus pad

Since their water content is high, the pads and fruit can be literal lifesavers when water is scarce. Chewing the raw cactus (spines removed) may not quench your thirst in the same way that drinking a tall glass of iced tea would, but it will provide the body moisture necessary to save your life.

TOOLS NEEDED

Metal tongs are desirable with both the pads and fruits, but especially with the fruits, which are typically covered in more and finer glochids.

Once collected, a **flat knife** can be used to scrape the surfaces of the fruit and the pads to remove all glochids and spines. As a pre-treatment, the pads and fruits can be held with metal tongs and then passed through a flame to burn off the glochid and spines.

WATER

Both the pads and the fruits are about 90% water, though this is not “water” that you would use to fill your canteen. The water is locked within the fibre and pulp of the plant, and so you are eating your water.

In the case of the pads, you first clean them, and then peel off the skin and outer layer of fibres, if it is an old pad. Then you eat as much of the pad as you need to fulfil your water needs. If you find it too mucilaginous to eat a lot, eat slowly, and let the cleaned pieces dry out just a bit on the outer surface before eating.

MEDICINE

An elderly Mexican lady whom Christopher met at the L.A. New Earth Exposition in 1978 told him that she was cured of diabetes by including raw and cooked prickly pear pads in her diet. Since then, we have met at least three people who claim to have stopped their insulin injections as a result of eating prickly pear cactus. This was long considered folklore by the American medical community, but in recent decades, research has shown that the prickly pear cactus is indeed an effective way to treat both diabetes and high cholesterol levels. For a thorough treatment of the medicinal properties of the prickly pear cactus, see *Prickly Pear Cactus Medicine* by Ran Knishinsky.

OTHER

Small chunks of the peeled cactus can be mixed with a container of water; the resultant slimy water can be used as a hair rinse and conditioner.

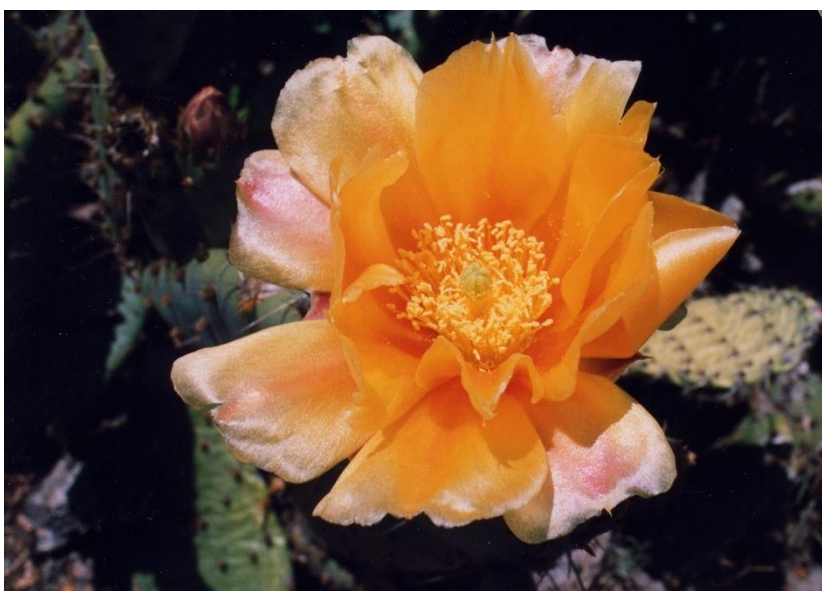
The dried stalks of the older prickly pear plants consist of a network of coarse fiber. Sections of this stalk can be used as scouring pads for washing pots and pans.

Periodically, a white fuzz can be observed on the prickly pear pads. Within that fuzz is a tiny crimson cochineal bug (*Dactylopius coccus*) that produces a red pigment when crushed. The pigment can be used as a paint, as a fabric dye, and as an entirely safe food coloring.

According to the research of Sara E. Valdes-Martinez from the National Autonomous University of Mexico in Cuautitlan, the cochineal pigment produces a stable, long-lasting food coloring. Her research team found that the red hue remains stable for years, even at a temperature of 50°C. However, the pigment fades if the food's acidity increases or decreases sharply.

CAUTIONS

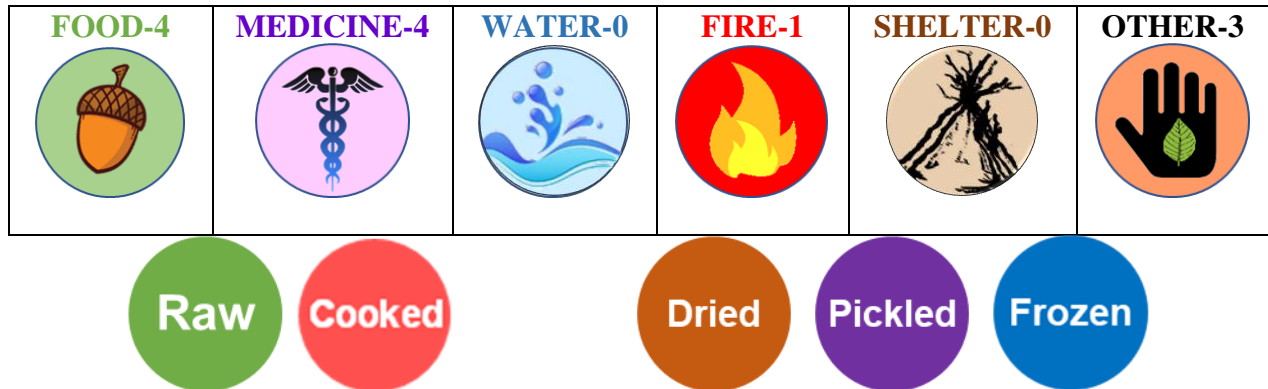
You can't exercise too much caution when gathering the fruits and pads, to protect your skin from the spines and the tiny glochids at the base of each spine. Fruits are best collected with metal tongs, and the older pads can be collected with gloves. Then, scrape or peel off the entire skin surface of the fruit or pads with a knife, or burn off the stickers.



The young cactus pad, or nopal, is the ideal stage for eating. *Opuntia ficus-indica*

ROSE, WILD (*Rosa spp.*)

Rose Family (Rosaceae)

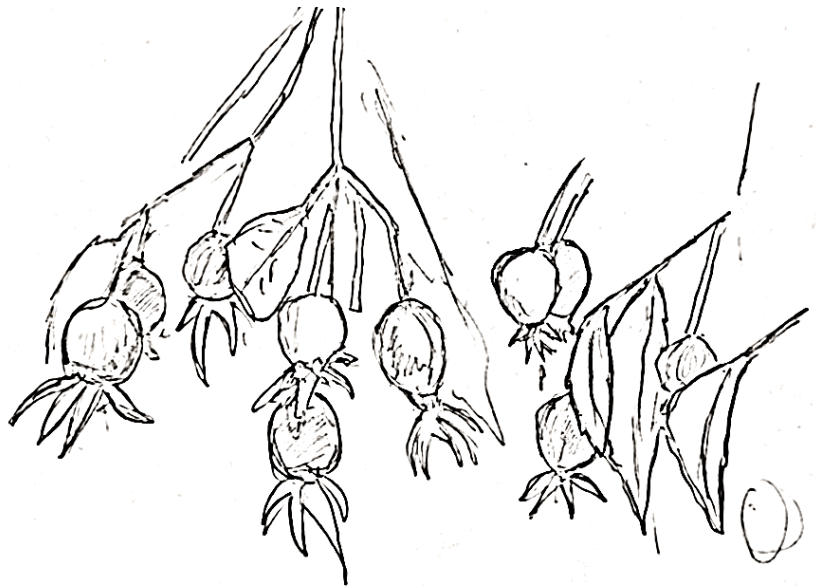


DESCRIPTION

KEY FEATURES

- Vining stalks full of thorns
- Leaves are divided into 3, 5, or 7 leaflet, with the leaflets being toothed.
- Flowers are five-petaled
- Fruits are orange, full of fibrous seeds

There are about 100 species of *Rosa* worldwide, which hybridize freely. Wild roses are more common than most people think. They are typically found in wet areas, though this is not a fast rule. The wild rose flowers are 5 petaled, not the multiple-petaled flowers that you find on the hybridized roses. After the flowers mature and fade, the fruit, called the hip, develops; it is usually bright orange and smaller than a grape.



The leaves are oddly divided into 3, 5, or 7 leaflets, and the stalks are covered in thorns. If you've ever had rose bushes in your yard, you have a pretty good idea of what the wild rose looks like.

HABITAT: NATIVE -- and many species world-wide.

WHERE FOUND: Though roses can be found in all environments, and are widely planted, wild roses prefer wet and riparian areas.



Mature rose hips, left. Right, wild rose flowers have five petals

The wild rose often grows in dense thickets. If it gets cut down, or after a burn, there will be many straight shoots in the new growth.

USES

FOOD

For food, we have the flower and the fruits. The flowers have long been used to make rose water and can also be used to make a mild-flavored infusion. The petals make a flavorful, colorful, and nutritious garnish to soups and salads.

The rose hips are one of the richest sources of vitamin C. The fruits can be eaten fresh, but you first should split them open and scrape out the fibrous insides. The fruit is typically a bit fibrous, with a hint of bitterness. More commonly, the fruits can be infused into a tea or made into jellies.

MEDICINE

According to Dr. James Adams, “A maceration made from mashing a few of the petals of this plant in cold water is useful for colic, teething, and constipation in babies. According to Cecilia Garcia (Chumash), “Drinking the rose tea relieves anxiety, helps soothe people, so they’re not so irritated at the world.”

OTHER

Some old-school archers (such as Alton “Longbow” Safford) consider the rose shaft one of the finest woods to use for making arrows, assuming you cut the new straight shoots. To remove the thorns, you need to then ream the shaft through a rock with a hole in it.

HERBACEOUS PLANTS

CHICKWEED (*Stellaria media*)

Pink Family (Caryophyllaceae)



DESCRIPTION

KEY FEATURES

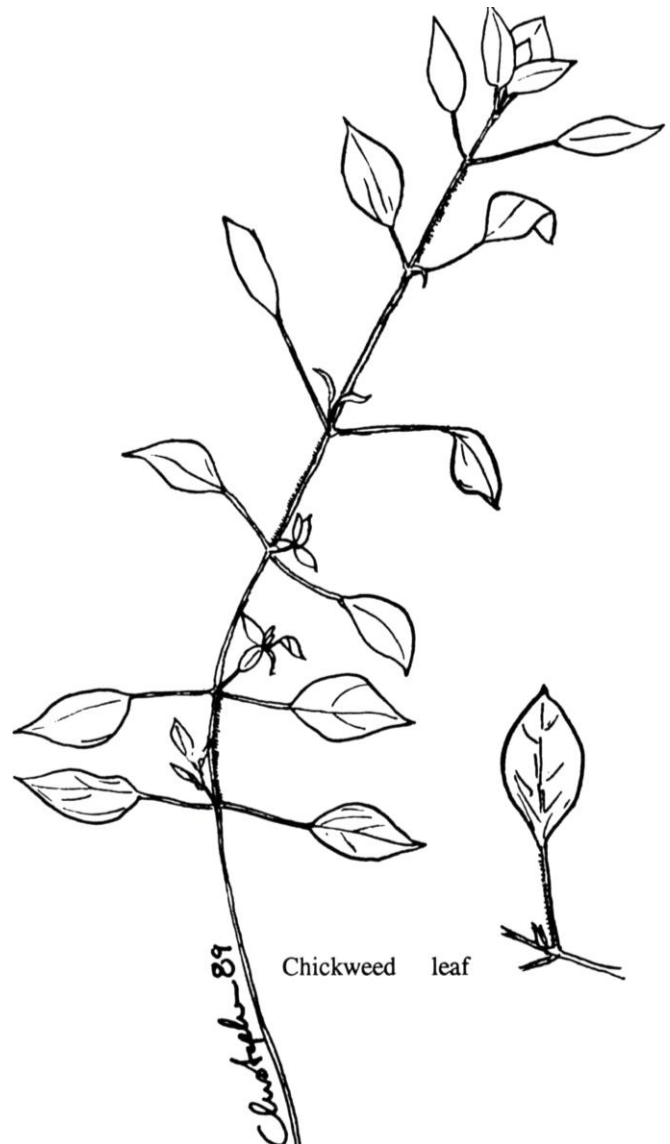
- Small white 5-petaled flower
- Weak stems so plant sprawls on ground
- Opposing leaves which come to a sharp point
- Single line of fine white hairs on the stem

Chickweed appears as bright green patches with the weak stem barely able to support the plant more than six inches (or so) off the ground. Since these delicate plants often grow in such dense patches, the entire patch may reach up to a foot in height.

This annual has a succulent (and therefore weak) stem of up to a foot in length. Because of the weak stem, it's usually found growing low to the ground in a clump, or in clumped, intertwined masses. With close observation, you can see a single line of tiny, fine white hairs that runs along one side of the main stem.

The small, oval-shaped leaves grow opposite, their margins are untoothed, and they come to a point. The lower leaves are petioled (have a stalk), whereas the upper leaves lack a petiole (join the stem directly).

The tiny flowers are white, ¼ inch in diameter, and have five petals. Each petal has a deep cleft, thus giving the illusion of having ten petals. (Dr. Enari, botanist with the Los Angeles County Arboretum in Arcadia, has referred to this cleft petal as a Mickey Mouse petal because it resembled a pair of Mickey Mouse ears.) The flowers occur singly in the axils of the upper leaves.



HABITAT

Found widely in the urban areas as well as wilderness areas. It prefers secluded areas that are shady and moist, but will grow for a short time in full sun. In canyons, it is quite common along little-traveled roads and close to bushes and trees where shade is provided. This plant flourishes in urban gardens, and lends itself easily to cultivation.

WHERE FOUND: Chickweed is originally from Europe. Today it can be found world-wide

USES

FOOD

The entire visible plant is edible raw. Try to pick the taller, more mature plants so that the tender young plants can continue to grow. The best way to collect chickweed is to use a sharp knife or scissors, and trim off handfuls of the plant from the patch. Uprooting the plants is neither necessary nor desirable. A brief cold-water rinse and this succulent salad green is ready to be enjoyed. A simple oil and vinegar dressing with a bit of avocado

creates a wonderful chickweed salad! The distinguishable flavor is mild and unobjectionable. Chickweed can also be lightly cooked and prepared like spinach, making it a healthful addition to any meal.

The seeds are relished by birds and poultry.

The name *chickweed* apparently has its origins in the fact that chickens (and other birds) feasted on this plant first whenever it was available. Chickens will eat not only the seeds of chickweed but all of the leaves and tender stems as well.

MEDICINE

One hundred grams (½ cup) of chickweed leaf contains 350 milligrams of vitamin C, 160 milligrams of calcium, 49 milligrams of phosphorus, 29 milligrams of iron, and 243 milligrams of potassium.

Chickweed is one of the best bronchial decongestants. It is said to help reduce inflammation of the lungs, bronchials, bowels, and stomach. To receive these benefits, you are directed to either eat the raw or cooked herb or drink a tea made from the dried or fresh herb.



Chickweed has also been used as a salve and/or poultice to deal with skin problems, such as acne, burns, and small cuts and scratches. Apply the crushed raw herb (or chickweed tea) directly to the affected area. Chickweed is regarded as an effective diuretic. The fresh leaves and stems can be infused for a tea. (Dried and powdered leaves can also be used.)



Weak, sprawling stems of Chickweed

Common spurge (*Euphorbia peplus*) can be mistaken for chickweed.

CAUTION

Make sure you've identified chickweed. It frequently will grow side by side with common spurge (*Euphorbia peplus*), and foragers who are not meticulous can inadvertently add spurge leaves to their chickweed salad bag. Eating a small amount of this spurge will probably result in no ill effects, but consuming enough can cause vomiting. Spurge typically grows upright with an erect, somewhat red stem, and alternate rounded leaves. If you break the stem of spurge, you will see white sap.








In the spring, chickweed is found in these sprawling mats

THREE COMMON MEMBERS OF
THE CHICORY TRIBE OF THE SUNFLOWER FAMILY:
CHICORY, DANDELION, and SOW THISTLE.

CHICORY (*Cichoreum intybus*)

Sunflower Family (Asteraceae) formerly Compositae

Common Names French dandelion, blue dandelion, ragged sailors, succory

FOOD-4	MEDICINE-3	WATER-0	FIRE-0	SHELTER-0	OTHER-0
					



DESCRIPTION

KEY FEATURES

Grows tall, up to several feet tall

Flowers are conspicuously sky blue

Upper leaves clasp stem

The chicory plant grows from one foot to six feet tall, is highly branched, and the main stalk is usually erect.

The rigid, branching main stalk grows as high as six feet. The stalk, which is covered with minute, stiff white hairs, exudes a milky white sap when cut. The petioles are often tinted red. The leaves are covered with small coarse hairs. The leaves that cluster around the





base are shaped like dandelion leaves: lanceolate in outline, pinnately lobed to entire, three to six inches long, with the mid-veins often reddish. The upper leaves are smaller, not pinnately lobed, and they clasp the stem. The leaves exude a milky juice when cut

The heads of chicory's conspicuously brilliant sky-blue flowers blossom from June to October. The heads are clustered in the upper axils of the plant singly or in groups of up to six. The unopened flower buds measure about 1/8 inch wide by 1/2 inch long; the opened flowers measure about 1 inch to 1 1/2 inches across. Each blue petal has a ragged-looking edge, caused by the (usually) five teeth at each petal's end. Chicory has a deep, fleshy, dandelion-like taproot, which is generally thick and forked.

HABITAT

Though chicory can be grown in most soils, it seems to prefer disturbed soils, and even hard-packed soils.

WHERE FOUND: Chicory is native to Europe.

USES

FOOD

In those European countries where it is cultivated, the roots are grown in the open during summer, then dug up when the weather begins turning cold. The roots are then stored in cellars and forced to produce leaf throughout the winter. One method of forcing produces barbe de capucin, the loose, blanched leaves that are

considered a delicacy in France. There are other methods of forcing, each of which produces a slightly different quality of leaf (called “witloof” when the tight-clustered crown of leaves is blanched and eaten as a potherb).

The leaves are good in salad when young, or steamed. Older leaves become bitter and may need up to two boilings. One variety of chicory often finds its way into produce markets under the name of Italian dandelion.

The roots can be boiled, steamed, cooked in stews, or roasted. Roasted, pulverized roots are used as a coffee substitute or extender. To use the roots in this fashion, dig up several larger roots. Clean them well, and dry them in the sun or oven. Grind the roots in your hand mill and then roast until brown. Percolate as you would coffee grounds.

This is a good drink by itself or added to regular coffee.

The fresh root, collected in the spring, reportedly contains 36 percent inulin.

The plant is also grown as a fodder or herbage crop for cattle. *Note:* The entire Chicory Tribe of the Sunflower Family contains no poisonous members. These are generally tender-leaved plants with milky sap. However, some may be too fibrous or too bitter for food. See the Appendix on edible families.

MEDICINE

According to herbalist Gene Matlock, keeping the liver decongested is a key to good health. Since habitual coffee drinking can congest the liver to the point that it hardens and almost ceases to function, it is no wonder, says Matlock, that southerners and people in tropical Latin America (who drink a lot of coffee to overcome the lazy heat) add chicory to their coffee. Matlock says that chicory is “the herb for liver congestion,” counteracting the negative effects of coffee.

Chicory is recognized as a diuretic, laxative, and hepatic by herbalists. Analysis of 100 grams of raw chicory greens shows that it contains 86 milligrams of calcium, 40 milligrams of phosphorus, 420 milligrams of potassium, 22 milligrams of vitamin C, and approximately 4,000 international units of vitamin A.



Plump cultivated roots of chicory

DANDELION (*Taraxacum officinale*)

Sunflower Family (Asteraceae)

FOOD-4 	MEDICINE-5 	WATER-1 	FIRE-0 	SHELTER-0 	OTHER-0 
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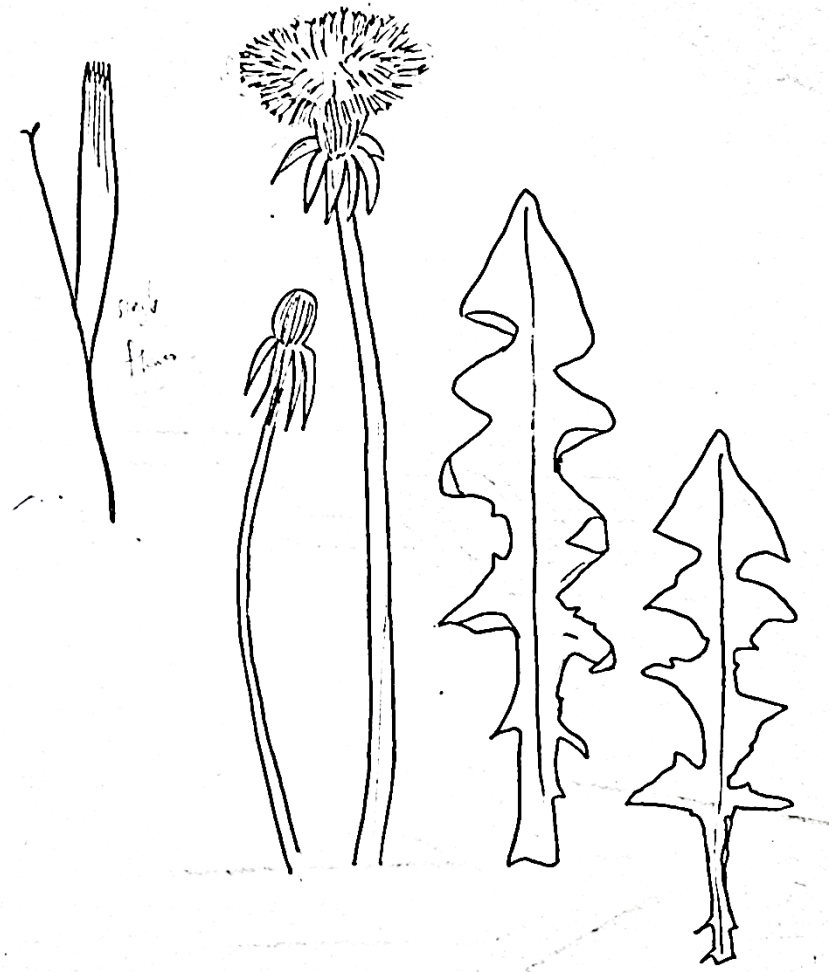


DESCRIPTION

KEY FEATURES

- All leaves are basal
- All leaves are toothed on their margins
- One yellow composite flower per stalk.

The word *dandelion* is derived from the French *dent de lion*, which translates to lion's tooth. This refers to the configuration of the jagged-edged leaves, which are pinnately divided into sharp lobes. The low-lying leaves often become prostrate and are thus able to hide among the blades and stems of grass. The leaves exude a milky juice when cut.





When the stalk has reached its full length, a bullet-shaped bud forms at the top, which bursts open into a globe of yellow flowers. The yellow flower heads grow singly at the tip of the vertical leafless hollow stalks. After a week to 10 days, these flowers change into a light gray ball of fuzzy seeds. This ball, if left undisturbed, waits for a gust of wind to blow its seeds away. The brown taproot resembles a small, knotty carrot or ginseng root, generally from three to five inches in length.

HABITAT: URBAN/WILDERNESS

It has established itself all over the United States (fortunately for the itinerant forager), and can be found on virtually any lawn, field, or similar area that has fairly consistent moisture.

WHERE FOUND: These perennials European native, possibly from Greece. It is now found world-wide.



USES

FOOD

The very young-to-early mature leaves are edible raw in salads or sandwiches. The older leaves become increasingly bitter and need to be cooked and prepared in much the same way one handles greens. Cooked dandelion leaves are similar to spinach.

The crown (the one-inch section between the lower leaves and the upper root section) can be eaten as a separate hot vegetable or added to mixed vegetable dishes. It should be steamed or boiled if too bitter.

The roots are commonly roasted to make a good-tasting noncaffeine coffee. To do this, you first dig up the largest roots available and thoroughly wash until free of dirt. Dry them (in the sun or oven at low heat), then

grind them in a grain or coffee grinder, mortar and pestle, or electric grinder. Roast in 225°F oven until brown, then percolate the same as with coffee grounds. Drink plain or try adding raw cream and/or honey. Unseasoned, it tastes something between coffee and Postum (a popular commercial cereal beverage made of barley, wheat, and molasses). The cleaned roots can also be cooked (steamed or boiled if older and bitter) and eaten (something like parsnips). The fresh, dew-covered flowers, carefully gathered in the early morning, are fermented to make the unique-tasting dandelion wine. Dandelion has been used as a binder for food items such as turkey stuffing, meatloaf, and walnut loaf.



MEDICINE

One analysis of 100 grams of raw dandelion leaves yielded 14,000 international units of vitamin A (hey, folks, that's a lot!), 35 milligrams of vitamin C, 187 milligrams of calcium, 76 milligrams of sodium, and 397 milligrams of potassium.

Herbalists believe that dandelion is the perfect herb for coping with anemia.

The leaves eaten fresh purge the uric acid from the blood and are said to be excellent for liver ailments. Dandelion is a mild diuretic and a mild laxative. The fresh leaves are used by herbalists for skin diseases, diabetes, pancreas and spleen problems, and fever. The root is a tonic, mild laxative, and diuretic.

Dandelion roots were included in the *United States Pharmacopoeia* from 1831 to 1926.

According to a study published in 1990 in the *Berkeley Wellness Letter*, dandelion greens are a rich source of beta carotene. (Beta carotene is one of a large group of substances called carotenoids.) It used to be thought that the benefits of beta carotene were due to its conversion to vitamin A, but research suggests that beta carotene itself is the more potent protector against cancer. Numerous animal studies have suggested that beta carotene can defend against tumors and enhance the immune system. At least 70 studies on humans concluded that humans who don't eat enough fruits and vegetables rich in carotenoids have an increased risk of cancer, and lung cancer in particular. One large study, presented at the London conference by Dr. George Comstock of Johns Hopkins University, found that individuals with low levels of beta carotene in the blood had a far greater risk of developing lung cancer as well as melanoma, a lethal form of skin cancer.

Interestingly, in the published report, there was an accompanying chart listing dandelion greens as the richest source of beta carotene: one cup of the cooked greens yields 8.4 milligrams. Yet, in spite of this, not a single mention of dandelion was made in either the headline or the article. One large carrot contains 6.6 milligrams of beta carotene, and carrots were mentioned in the headline—the article emphasized that “Mom was right! It is good for you to eat your carrots.” While we have no quarrels with eating carrots, this was a prime example of prejudice against weeds. Even though dandelion is found to be the richest source of beta carotene, it is virtually ignored in the reporting. (For the record, the other top beta carotene sources were one medium sweet potato [5.9 milligrams], $\frac{3}{4}$ cup cooked watercress [5.6 milligrams], $\frac{3}{4}$ cup cooked kale [5.3 milligrams], $\frac{1}{2}$ cup cooked spinach [4.9 milligrams], and $\frac{1}{2}$ medium mango [2.9 milligrams].) Since some beta carotene is destroyed by cooking (the longer you cook, the more is destroyed), the beta carotene content of dandelion and other foods would be even higher when consumed raw.

REAL LIFE TESTIMONIAL

In July 1998, Vonda White wrote me the following from the California Institute for Women:

One morning in May of this year, I awoke with what I realized was a bladder infection. I have long been accustomed to seeking herbal remedies when ill, so I looked into what was readily available to me. One of the most commonly found herbs growing here is dandelion—a specific remedy for such problems as mine. On my way into the dining room for breakfast, I saw some nice dandelion plants growing at the edge of the sidewalk, and I picked and ate a few tender leaves. The leaves were mildly bitter but tasted very good to me. Growing next to the dandelion was some young prickly lettuce, which I also ate. On my way out of the dining room, I picked and ate more of both. I did not notice any immediate or miraculous improvement in my condition through the day, but I continued to drink extra water. On my way to dinner that evening, I picked and ate more dandelion and prickly lettuce. The miracle was that the next morning there was no more problem.

Due to dandelion's richness in vitamins and minerals, the plant is sometimes called poor man's ginseng. It is readily available around the world, is far cheaper than ginseng, and will likely improve your health as much as ginseng—especially if you're out on fields and lawns collecting it yourself.

OTHER

During World War II, dandelion was used as a rubber source. The fresh plant contains 1 percent rubber, and the dried plant contains 16 to 17 percent rubber. Specially cultivated dandelion (such as the Russian species, *T. koksaghya*) can yield as high as 20 percent rubber. When, during World War II, the Germans invaded Poland (where dandelion grows best), they were amazed to see mile after mile of dandelion fields under cultivation for rubber production. Thereafter, they used the dandelions for their own purposes throughout the rest of the war. Today, some dandelion is still cultivated in Poland, as well as sections of western Asia and eastern Europe.

Because of all the foregoing usefulness issues, a Save the Dandelion organization was formed in England in 1973 to protect this versatile plant. As a result of a renewed interest in wild foods, there were fears that the plant might become extinct in England from so many people picking it.

DANDELION CELEBRATION

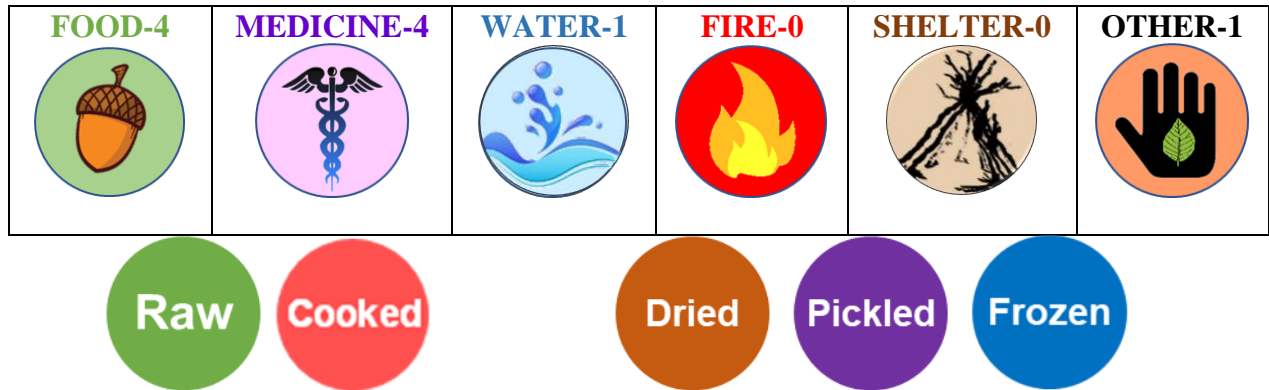
When we think of dandelions, we think of Peter Gail, author of *Dandelion Celebration*. Peter has been interested in wild plants since his childhood when necessity forced his family to utilize goosefoot and other wild greens for meals. eventually, he earned a Phd in plant ecology at Rutgers university. In the 1970s, Peter Gail worked with Euell Gibbons in developing the National Wilderness Survival training camps for the Boy Scouts National Council in New Jersey. Gail and Gibbons developed a wild food foraging course for Rutgers, and Gail was often Euell Gibbons's backup lecturer. Gail's *Dandelion Celebration* is the ultimate word on dandelion nutrition and cookery—everything you'd ever want to know about dandelions in 150 pages.

Dandelion is so nutritious that it is sometimes referred to as poor man's ginseng. Gail lists its many uses, such as a cure for liver diseases, a tonic, a way to dissolve kidney stones, a skin cleanser, a high blood pressure preventive measure, an aid in bowel functioning, a prevention or cure for anemia, and an assistant in controlling diabetes. Still, most folks think of dandelions as food, not medicine, so Gail provides us with recipes he has collected over the entire United States. Some of the recipes are Amish, some are his own, and many are from his travels throughout the United States.

SOW THISTLE (*Sonchus oleraceus*)

Sunflower Family (Asteraceae)

Common Names Milkweed, tall dandelion



DESCRIPTION

KEY FEATURES

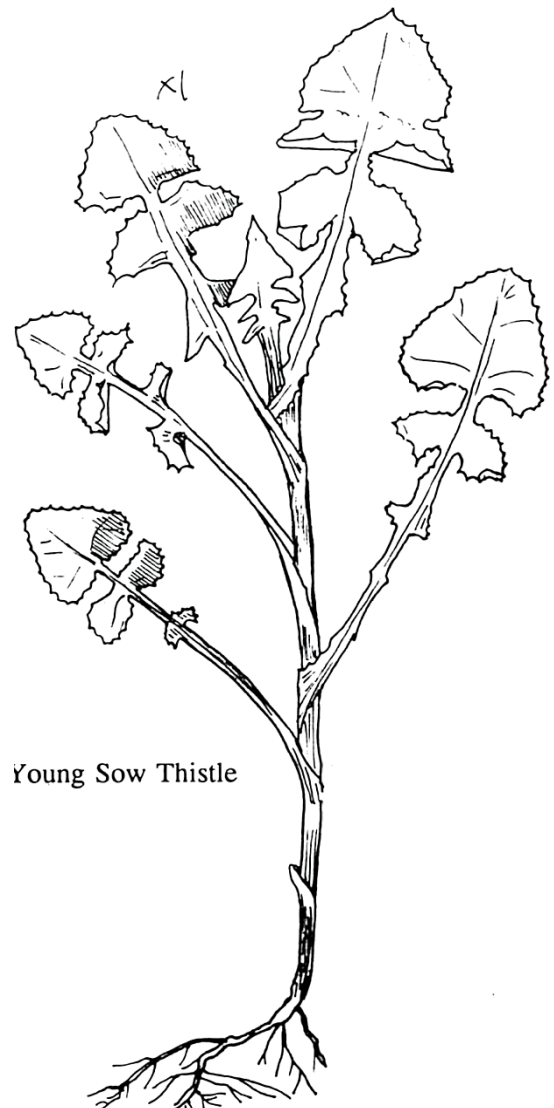
Flowers appear nearly identical to dandelion flowers

There are multiple flowers per stalk (whereas dandelion has one flower per stalk)

Can grow several feet tall, with leaves on the stalk.

Commonly mistaken for dandelion, sow thistle is an annual weed with a more or less erect leafy stem from one foot to four feet tall.

The young plant forms a rosette of large pinnately divided leaves, which are characterized by their almost triangular terminal lobe. The young sow thistle is distinguished from dandelion by its tender bluish-green leaves, which are coated with a type of powdery substance. The lower leaves on the mature plant are glaucous and pinnately divided. The upper leaves of the mature plant are more or less entire, and they clasp the stem. When a leaf is torn or the stem is cut, a white sap oozes out.



The yellow flower heads are clustered at the top of the plant. The flower heads closely resemble dandelion flowers except that the base of each sow thistle flower is somewhat swollen. Each flower head of sow thistle, like dandelion, is made up entirely of ray flowers. Sow thistle can be easily distinguished from dandelion since dandelion flowers appear singly on each flower stalk, whereas sow thistle flowers appear in groups on the stalk. Also, unlike sow thistle, dandelion flower stalks are leafless. The flowers of sow thistle mature into cottony heads that children love to blow away. Each seed has numerous soft hairs attached to it, which facilitate the seed's dispersal by the wind.



HABITAT: This is found in virtually all gardens and is vigorously pulled and discarded year after year. In most vacant lots, untended lawns, parks, and even in sidewalk cracks in downtown areas you can expect to find sow thistle. In the mountain areas, it is found mainly along the streams in sandy soil and occasionally in moist fields and meadows.

WHERE FOUND: Sow thistle is a European native; today it can be found nearly everywhere in North America.

USES

FOOD

Although raw sow thistle leaves are slightly bitter, many people still enjoy them in salads when mixed with other greens or covered with a light oil and vinegar dressing. The young cooked leaves make a mild dish similar to spinach popularly enjoyed the world over. Pinch off just the leaves for cooking, preferably the large lower ones. The upper leaves are also acceptable but tend to be more bitter and may require longer boiling. For an interesting dish, cook a pot of sow thistle leaves with onions, rice, chopped walnuts, and butter.

The stout stems of the just-beginning-to-flower plant are tasty eaten raw. They need to be first peeled of their thin (and slightly bitter) outer layer, which is usually tinged with red. These stems are good in salads and can be steamed or added to soups.

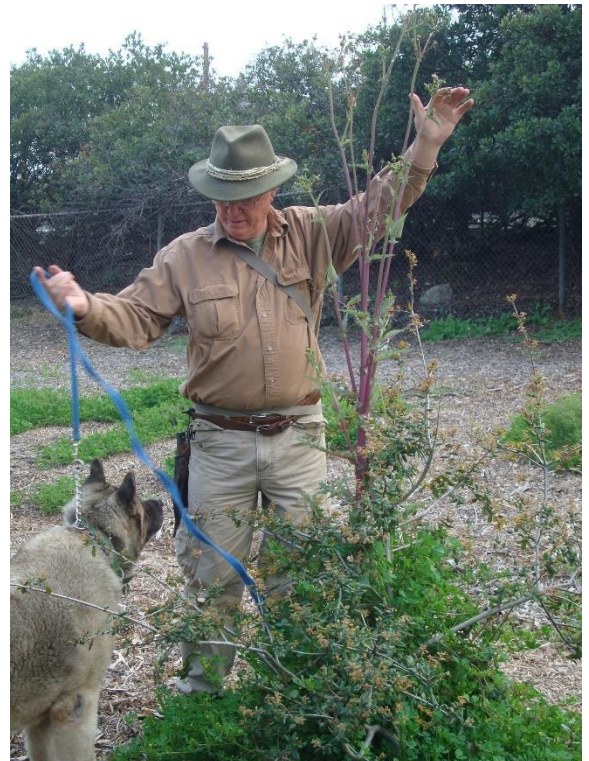
The roots can be used for a coffee substitute like the dandelion root, although the result is inferior to dandelion root coffee. The roots need to be dug, washed, dried, and then roasted dark brown. Then they are ground and percolated into your coffee.

MEDICINE

The bitter white sap of the stems and leaves has been used to formulate an agent to combat opium addiction. The work involved to do this, however, hardly justifies the results.

OTHER

For children, sow thistle is a source of joy. They love to blow the mature seed clusters and watch the tiny seeds float away on their cottony tufts of hair.

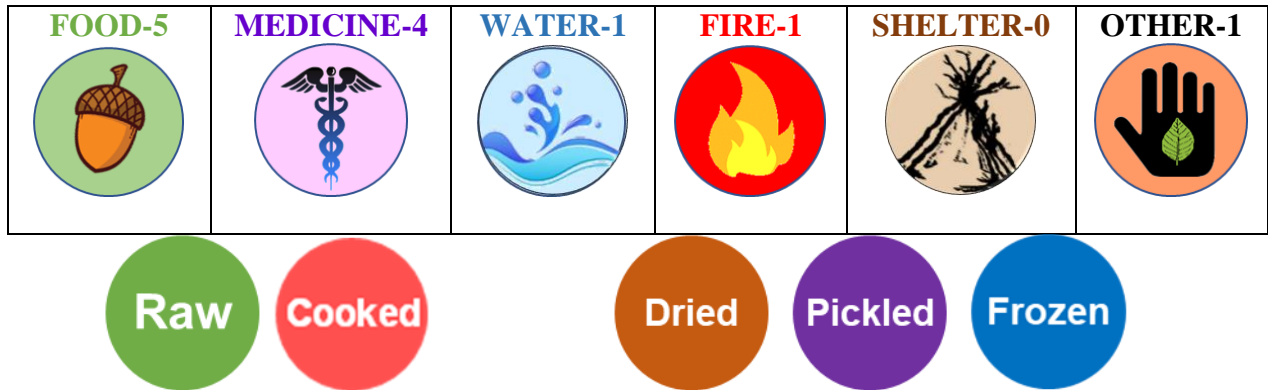


Dude McLean examines a tall sow thistle

CURLY DOCK (*Rumex crispus*)

Buckwheat Family (Polygonaceae)

Common Names *Curly dock, Indian dock, yellow dock*



DESCRIPTION

KEY FEATURES

Linear leaves, dark green with prominent mid rib

Flower spike first green

Somewhat persistent mature flower spike with coffee-brown seeds

The annual dock plant of spring appears as a tuft of long narrow leaves with the entire plant arising no more than a foot off the ground. As the flower stalk arises, and the lower leaves die off, the plant takes on a more vertical appearance, and rises up to four feet in ideal soil conditions.

Dock stalks can be up to $\frac{3}{8}$ inch thick. When mature, they are reddish brown with darker brown striations. The mature stalk is hollow and quite rigid.

Most of this perennial plant's dark-green leaves are basal, 4 to 10 inches in length, lanceolate-shaped, with wavy, curved margins. The older leaves often have scattered red splotches. The upper leaves are smaller and less numerous.

The light-green flowers, growing in dense whorls, are only $\frac{1}{8}$ inch broad and thus rather inconspicuous.



The mature, red-brown, papery, three-winged fruits, ¼ to 1 inch broad, are produced in abundance every late summer and autumn.



Left, immature dock seeds. Middle, mature dock seeds.

Stalk and the leaves. Photo by Doug Haip

HABITAT: URBAN/ WILDERNESS

Dock is found throughout the United States in a variety of habitats from fields to lawns, and dry, open areas to wet, swampy areas. It establishes itself quite readily, so be certain you want it before planting it in your yard or fields. Once established (by seed or root) in your yard, you'll most likely have it there as your companion "forever."

WHERE FOUND:

Native of Europe, now widespread throughout the world.

USES

FOOD

Dock leaves, best gathered in the spring, have a vinegar tartness when eaten raw. Thus, they add vigor to lettuce or wild green salads. Gather the leaves, add to hot water, and let steep or simmer until tender. Season lightly and enjoy the superb taste and texture



A dock root

One of Christopher’s favorite dock recipes was the result of an experiment one Christmas weekend while camping with Leo Weiskircher and friends north of Big Sur. Into our cast iron skillet we placed equal portions of chopped dock leaves, diced tomatoes, and diced brown onions. We covered the skillet and gently sautéed until everything was tender. We added no seasoning. The blend of sour (dock) and sweet (cooked onion) and salty (tomato) resulted in quite a toothsome dish, one that I’ve repeated often.

A tasty green dish can be made by steaming equal parts of chicory greens and dock greens. Season the greens with butter or soy sauce and mix in liberal amounts of chopped hickory nuts. I’ve named this dish Hickory, Chicory, Dock.

William Biewener of Studio City, California, takes the stems of the dock leaves and treats them as he’d treat rhubarb. Following a recipe for rhubarb pie, but substituting dock stems for rhubarb, he makes a delicious wild dock pie. As a longtime regular on my wild food outings, We’ve enjoyed many of Biewener’s unique pies from wild ingredients.



Dock seeds. Photo by Dude McLean

The dock plant sends up a three-to-five-foot stalk in late summer and autumn, deep brown in color. These seeds can be gathered, winnowed, ground, and used as flour (either by itself or mixed with other flours).

MEDICINE

Dock leaves are richer in vitamin C than oranges and richer in vitamin A than carrots. They have an abundance of easily digested plant iron. One hundred grams (about ½ cup) of the leaf contains 66 milligrams of calcium, 41 milligrams of phosphorus, 338 milligrams of potassium, 12,900 international units of vitamin A, and 119 milligrams of vitamin C.

The fresh leaves are said to promote healing when applied to ulcers, wounds, and raw, itching skin. Another folk remedy is that if you are stung by nettles, rub on dock leaves, the saying being “Nettle in, dock out.” We’ve experimented with this and, although the expressed juice of dock leaves does relieve the sting of nettle, the juice of aloe vera does a superior job. (See my comments in the Nettle listing.)

The dock seeds were made into tea by the Yuki Native Americans and used in cases of dysentery.

The root is said to have medicinal qualities. Dried, ground, and steeped in boiling water, it’s a mildly laxative tea and is said to also be a good general tonic.

OTHER

The Latin name *Rumex* comes from “to suck,” because the Romans used to suck the leaves—principally the leaf stems—to allay thirst.

CAUTIONS

Dock contains soluble oxalates, the amount varying from location to location. Oxalates are found in toxic quantities in some plant leaves (such as rhubarb) but rarely occur in toxic amounts in dock.



FILAREE (*Erodium spp.*)

Geranium Family (Geraniaceae)

FOOD-4 	MEDICINE-4 	WATER-1 	FIRE-0 	SHELTER-0 	OTHER-0 
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Filaree

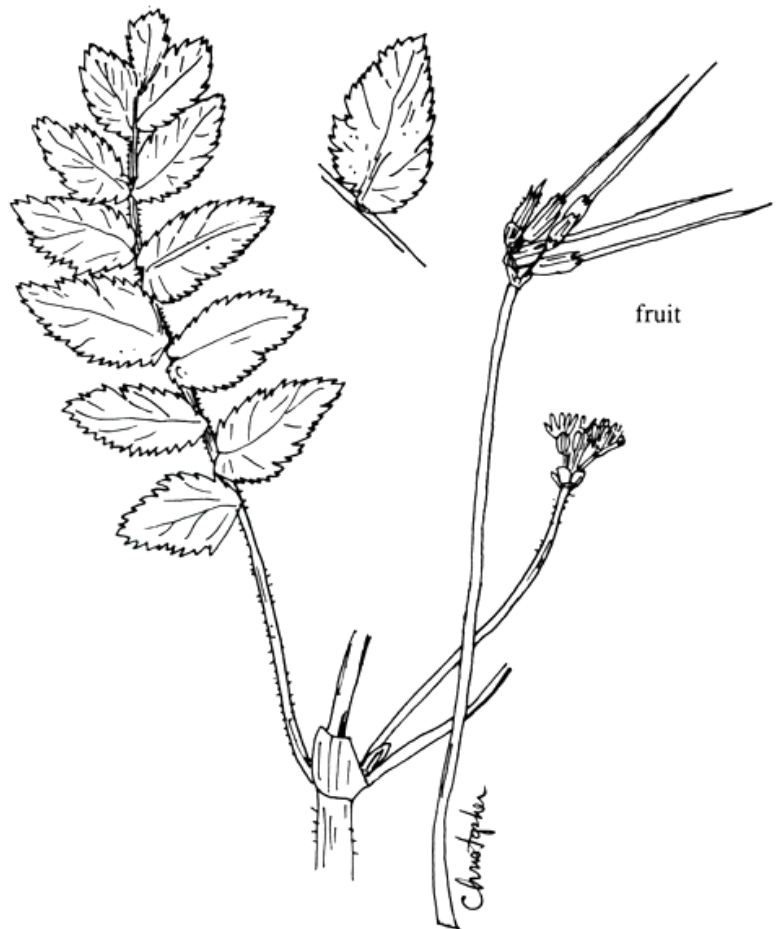
DESCRIPTION

KEY FEATURES

“Ferny”-appearing leaf, superficially resembling carrot leaves

Seed capsules forming pointy spikes

Leaves appearing in dense rosettes



Filaree is a low-growing plant which first manifests as a rosette of ferny leaves, then sends up a flower stalk of up to 1½ feet.

The leaves are pinnately compound and oppositely arranged. Each leaflet is ovate, petiolate, with a serrated margin, sparsely incised, and from ¾ inch to 1½ inches long. The leaves are covered with short, coarse, stiff hairs.

The erect flower stalks are stout and fleshy and vary from 1/16 to ¾ inch in diameter. The same is true of the leaf petioles, which, in ideal conditions, can be found up to 1½ feet long. Each flower stalk bears ¼-inch pink to rosy purple flowers. Each flower has five petals and 10 stamens (five of which lack anthers and are therefore infertile).

The conspicuous awl-shaped fruits measure about one inch long along their longitudinal axis. The plant's Spanish name, Alfilarea, refers to the fruit's pin-like appearance. The fruit consists of five carpels, each of which separates from the central axis when mature and, beginning at the apex of the fruit, coils up to form five spiral-shaped carpels, still attached to a common base.

HABITAT

Filaree prefers disturbed areas such as soil that has been recently cleared. It is also found in fields and lawns.

WHERE FOUND: From Europe. Today it's found nearly everywhere in North America except Florida.

USES

FOOD

The mild-flavored stems can be eaten raw. The green leaves, though slightly fibrous, can be eaten raw in salads, ideally chopped fine. They can also be cooked like spinach, and provide spinach-like flavor. Another way to enjoy the leaves is to juice them.

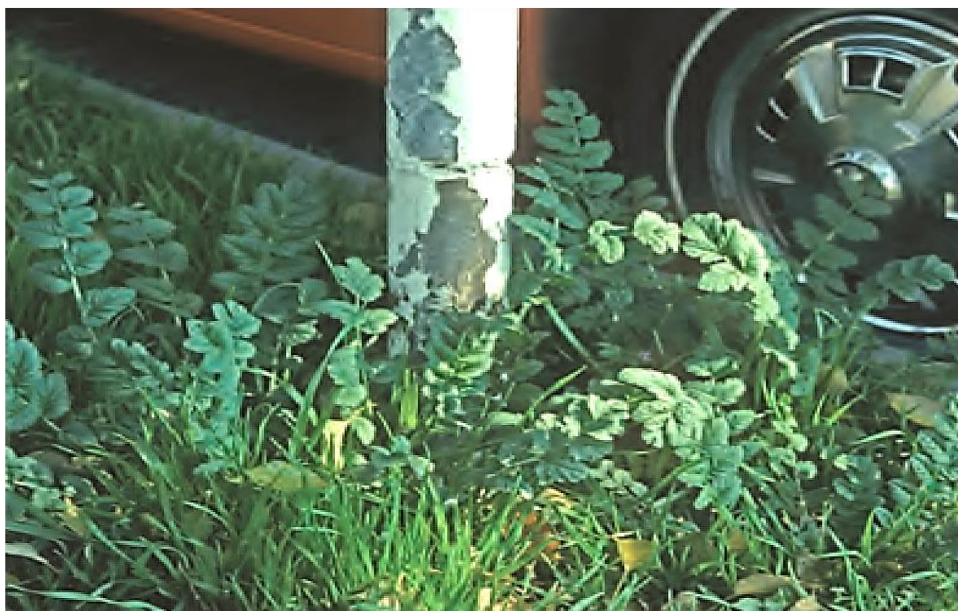


MEDICINE

According to *Healing Herbs of the Upper Rio Grande* (by L. S. M. Curtin), when a diuretic was needed, a handful of “alfilerillo” leaves were made into a decoction with a pint of water and drunk while tepid. A bath from the leaves was used for rheumatism.




Young leaves can be used chopped in salad, cooked, or juiced



Common filaree can be found just about everywhere

GRASS

Grass Family (Poaceae) formerly Gramineae

FOOD-5	MEDICINE-4	WATER-2	FIRE-3	SHELTER-4	OTHER-3
					

Raw

Cooked

Dried

DESCRIPTION

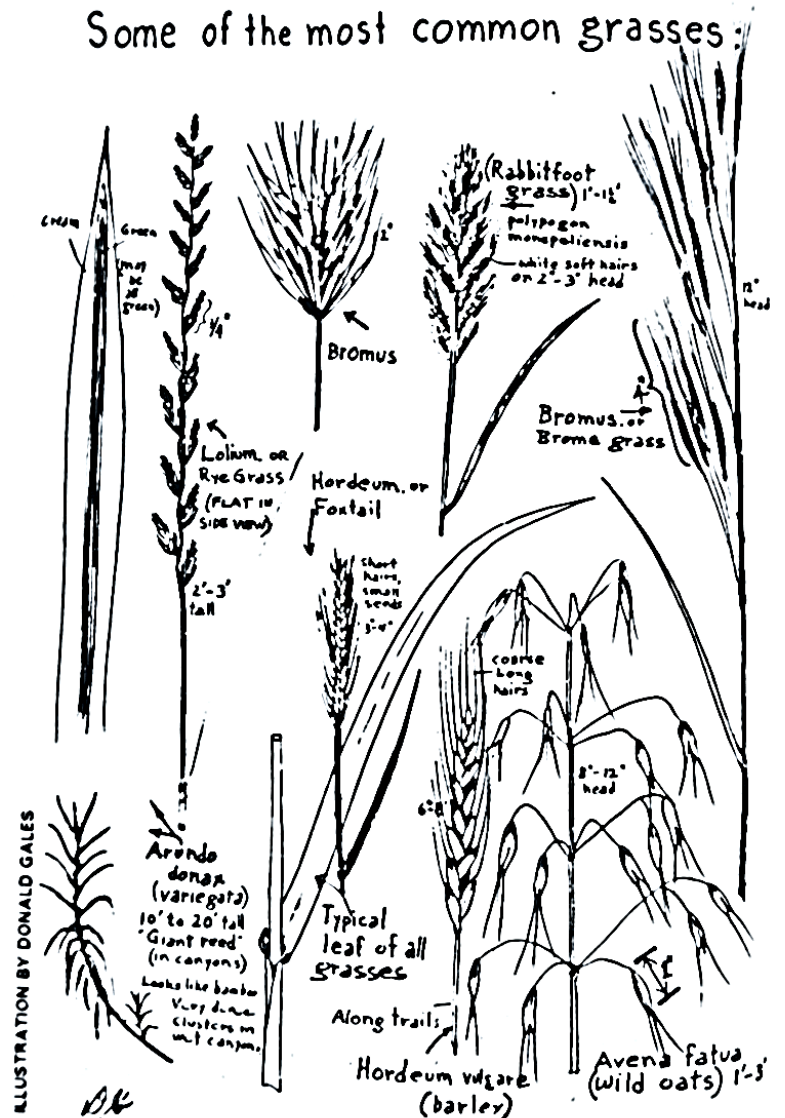
Of the 15 crops that are traditionally considered to stand between man and starvation, 10 are grasses. These included the grains of wheat, rice, corn, rye, oats, barley, millet, and sorghum.

The grains of every grass plant—even the wild weeds that everyone is so bent on getting rid of—can be eaten. Harvesting may be more difficult with the uncultivated species, but for the food value returned, harvesting is not a serious problem.

There are numerous varieties of grasses. Some are ground-hugging, lateral-spreading, carpetlike plants (such as crabgrass, St. Augustine, rye, and bluegrass). Then there are the tall, erect, agriculturally important grasses such as corn, wheat, rice, sorghum, and sugar cane. And there are the forest grasses—those unmistakably towering plants called bamboos.

The stalks and stems are usually round in cross section and are hollow except at the nodes where the leaves are attached. The nodes—easily seen and felt—create a visible bulge. Hollow stems such as these are commonly referred to as culms. The stems can be solid (such as in corn or sorghum), woody (as in bamboo), or succulent (as in most lawn and grain grasses).

Some of the most common grasses:



The parallel veined leaves consist of two basic parts: the sheath, which envelops the stem, and the blade, which projects forth in a linear shape. There is also a hairlike membranous projection called a ligule inside of the grass sheath (where it meets the blade). The flowers are usually -- but not always -- quite small--nearly all contain a functional pistil and stamens. They are, however, without distinct petals or sepals. Flowers are arranged in spikelets from which grow either one or many flowers. Spikelets consist of a straight axis (rachilla), two empty scales (or bracts) at the bottom, and then two more bracts in which grows the flower. Grass flowers are usually composed of three stamens, each bearing delicate filaments and two-celled anthers, one pistil (which has two styles), and feathery projecting stigmas.

The fruit, or grain, is technically referred to as a caryopsis. These grains are composed of the familiar exterior hard, starchy substance (endosperm) that surrounds an embryo (commonly called the germ). The germ is a concentrated source of vitamins and protein; the endosperm a storehouse of minerals and carbohydrates. Grain's extremely low moisture content makes it easy to store and transport, which is why it has become a major food source.

Many of the grasses spread by means of rhizomes (horizontal stems). Rhizomes can send out their roots and shoots either above or below ground. The roots tend to be extremely tough and fibrous, and usually grow in dense, extensively branched clusters or clumps. In one well-publicized study, the root cluster of a single four-month-old rye plant was spread out and each root strand measured; the total combined length was 387 miles!

HABITAT: URBAN/ WILDERNESS. Grasses are found “everywhere.”

WHERE: NATIVE/INTRODUCED. Yes, there are still native grasses to be found, though most of the grasses you're likely to encounter today -- especially in developed or farm lands -- will be exotics.



USES

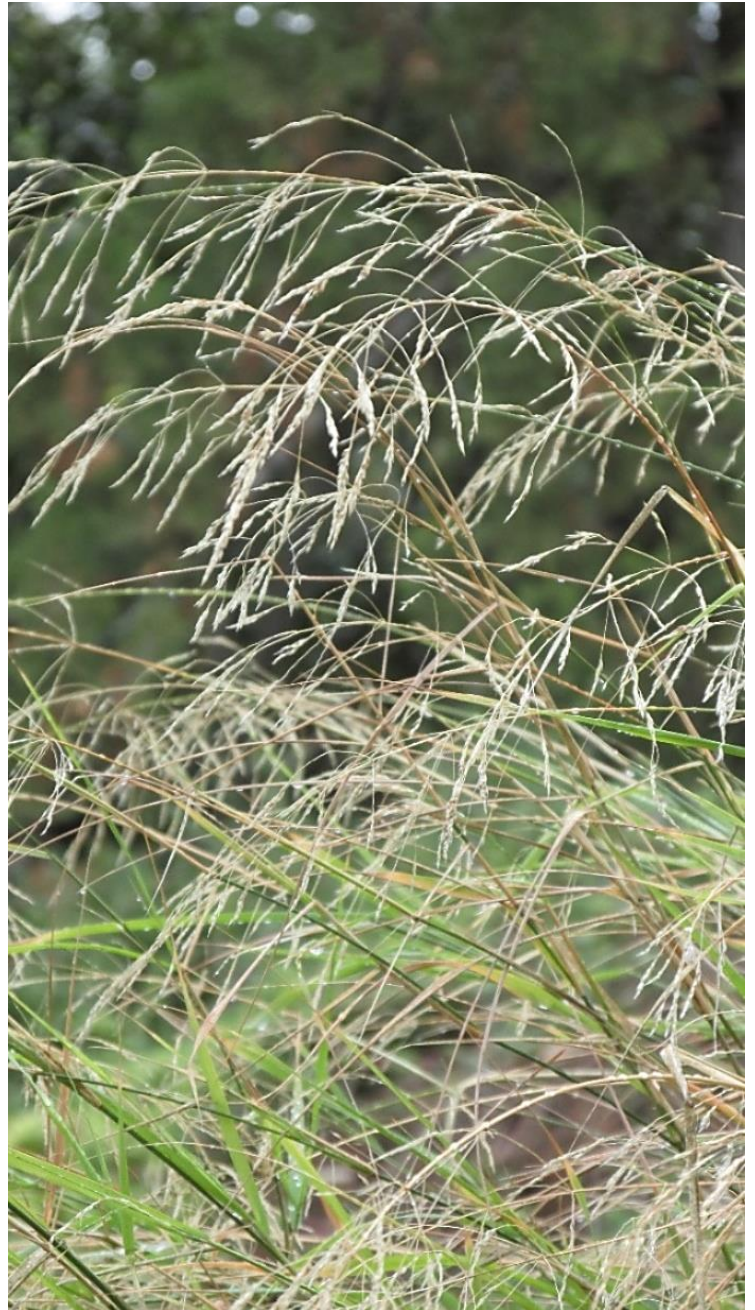
FOOD

THE YOUNG SHOOTS

The very young, newly emerging grass shoots, under six inches, can be eaten raw in salads or cooked. Generally, these have little flavor, with the exception of some bamboos, which can be bitter. Mature grass leaves become so fibrous that they're just too tough for the human digestive system; however, they can provide lifesaving nutrition to anyone willing to chew and chew them. Grass leaves can also be juiced in a wheat grass juicer.

Acres USA, the journal of organic farming, published two features on grass in their December 1979 and January 1980 issues. The articles revealed that very young grass leaves are the ideal supplement to the grain of the same plant. The grasses must be used at or before the jointed stage. (Unjointed grass has no stem; what appears to be a stem is several leaves rolled together.) Once the jointed stage is reached, the protein and vitamin content drops quickly since the growing plant uses up much of it. Grass picked at or before the jointing stage typically has approximately 40 percent protein, compared with approximately 4 percent protein at the mature stage.

Most cereal grasses joint about three weeks after being planted. Grass picked at this stage can be eaten as is in survival situations, or it can be dried and powdered and added to other staples. A grass culm will grow up again and again if it is cut before the first joint forms.



SEEDS

Grass seeds can be roasted and ground into meal for bread and cakes, or soaked in water and boiled into mush.

Since one is likely to encounter grass almost anywhere in the world, this is probably the most valuable plant family to become familiar with.

Seeds that are readily harvested are easy to collect, easy to dry and grind, and work well in recipes you're probably already familiar with: breads, pancakes, pasta, biscuits, and such. Just make sure the seeds are mature, with no molds growing on them.

Many of the wild grasses might take a bit of work to harvest and to process. Timing is important, of course, since the seeds will fall to the ground if you're a little too late. Grasses like the foxtails have a seed in there, though in this case, you would harvest the mature seed heads, and burn or scorch them over the fire to remove all but the seed. I have found this easiest to do with a metal strainer or colander. If you experiment with wild grasses in your area, you'll discover that certain grasses will yield the most seed, and some will be too marginal to bother trying to harvest.

Don't forget the possibility of making sprouts. Wheat isn't the only grass seed that makes a good sprout. Any readily harvestable edible seed is a good candidate for making sprouts.

MEDICINE

Here is a list of the vitamin content of 100 grams of dehydrated cereal grasses cut when the first joint forms: carotene, 30–70 milligrams; vitamin C, 300–700 milligrams; riboflavin, 2,000–2,800 milligrams; thiamin, 300–500 international units; vitamin K, 30,000–80,000 standard units; nicotinic acid, 7.5–15 milligrams; vitamin E, 20–44 milligrams. In the ethnographic record, there are scattered references to Native American medicinal uses of grasses.

UTILITY

Of all the grasses, the bamboo has the broadest range of uses. Bamboos have supplied—and still do supply—untold numbers of cultures with virtually every needed item: house and temple construction; water-piping; ladders, stairs, and scaffolding; home and outdoor furniture; knives, swords, and spears; tools; kitchen utensils; bowls and cups; shingles and siding; motor vehicles and airplanes; and more.

Less woody grasses can be twined into cord or rope.

A good whistle can be made with any blade of grass: When you hold your hands and fingers together, notice the narrow elliptical opening at the base of where the thumbs meet. Place a blade of grass in this opening so that it is held tight between the top joints of the thumb meeting place and where the thumbs meet again at their bases. The edge of the grass must face you as you look at it. Held thus, the grass serves as a reed, and can be loosened or tightened by small movements of your thumbs. By blowing through the aforementioned elliptical opening (across which the grass blade is stretched), you can produce anything from a soft buzzing to a loud shrieking whistle, similar to a peacock call. With practice, many sounds can be produced. These noises can be useful for beckoning help, for attempting to attract animals for food, or for scaring away unwanted company.

CAUTIONS

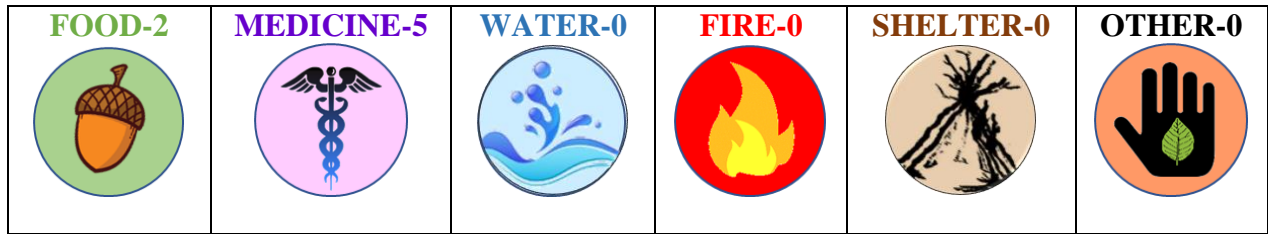
Although 99 percent of grass seed is entirely safe to eat, the seeds of Darnel (*Lolium temulentum*) and some sorghums are said to be toxic. Cyanide, the usual cause of their toxicity, can be eliminated by cooking or thoroughly drying the grain. Since only a few grasses exhibit this toxicity, and since most grains are cooked or dried before consumption, there is virtually no chance of poisoning if one is cautious. Grazing cattle have sometimes been poisoned by consuming these few grasses, but this is rare.

Never eat grains that have a mold or funguslike growth on them. In the Middle Ages, whole towns in Europe suffered intoxication, insanity, and even death when they ate ergot-infected rye.

If you plan to taste-test the young grass leaves of a cultivated lawn, first ascertain that the lawn has not been sprayed within the present growing season with chemical herbicides or chemical fertilizers.

HOREHOUND (*Marrubium vulgare*)

Mint Family (Lamiaceae)



Cooked

Dried

DESCRIPTION

KEY FEATURES

Square stem, typical of the Mint Family
Opposite leaves

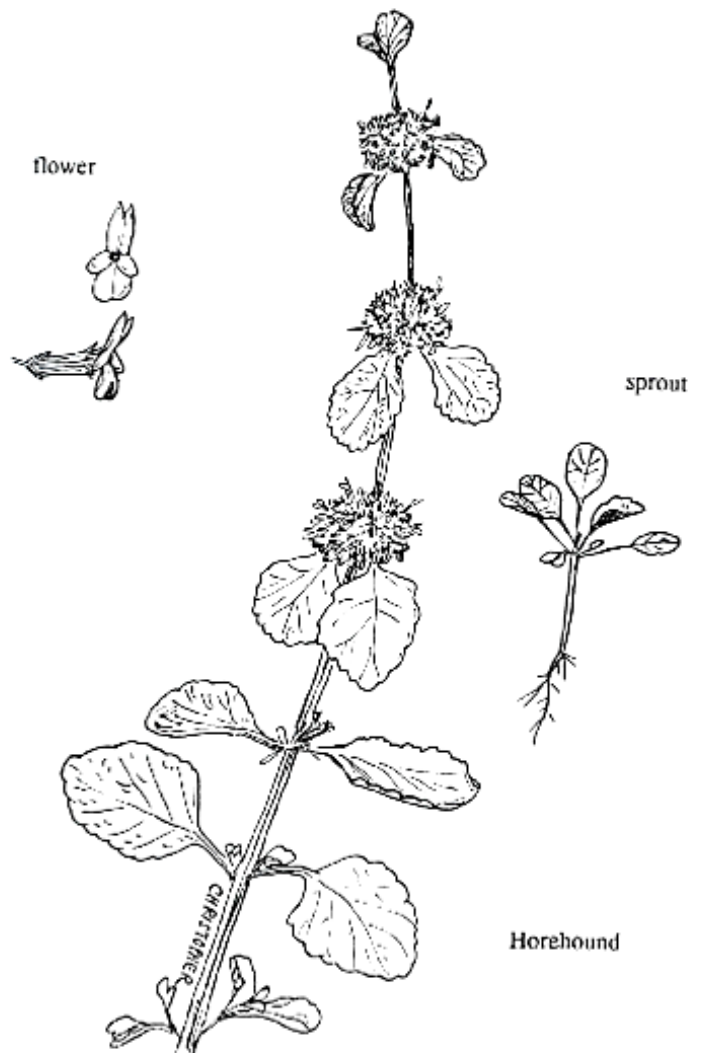
Leaves with a “wrinkled” appearance

Seed capsules clustered like balls along the stem

Horehound is a perennial herb that seldom rises more than two feet. The square stem, whorled flower clusters, and opposite leaves are characteristic features of the mint family. The squarish stems and the leaves are conspicuously covered with a fine, downy white hair. The oval, toothed, opposite leaves have the appearance of wrinkled skin.

HABITAT: Horehound will grow in most environments. In the wild, it tends to be found in areas of poor soil, and arid areas.

WHERE FOUND: This European native can be found almost everywhere in North America.



USES

MEDICINE

Though it's a member of the mint family, if you chew a raw horehound leaf while hiking, you probably won't notice any strong minty flavor. Rather, it will be uniquely bitter.

The dried or fresh leaves of horehound can be made into tea. As a hot tea, horehound has been commonly used as a tonic and for chronic sore throat, coughs, colds, and breathing problems associated with asthma. The tea has a strong bitter mint flavor, improved greatly by adding honey. Horehound leaves should be gathered in the spring when the plant is young and the leaves are large.

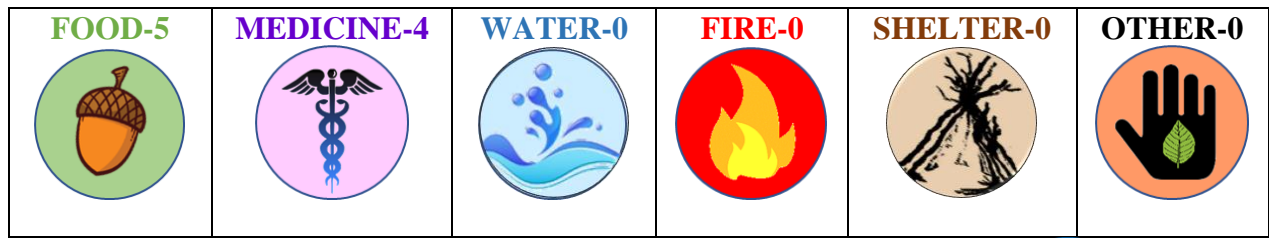
This plant provides the raw ingredients for horehound candy, which has long been sold in drugstores and markets as a mild cough drop. Here is a recipe for those of you who'd like to try to make the candy yourself. Cook (don't boil) one cup of the fresh herb (or ¼ cup of the dried herb) with two cups of water for about 15 minutes. Strain. To each cup of liquid, add one cup of honey. Cook until the mixture thickens. Keep at a low heat or it will run over. Pour onto a cookie sheet and let it cool. Break (or scoop) off pieces as you need or want it. It is best to refrigerate it, since it tends to spread. This candy is pleasant as a snack or energy food on the trail, as well as being useful for sore throats.



Helen Sweany shows her home-made horehound candy

LAMB'S QUARTERS (*Chenopodium album*)

Goosefoot family (Chenopodiaceae)



DESCRIPTION

KEY FEATURES

An erect stem

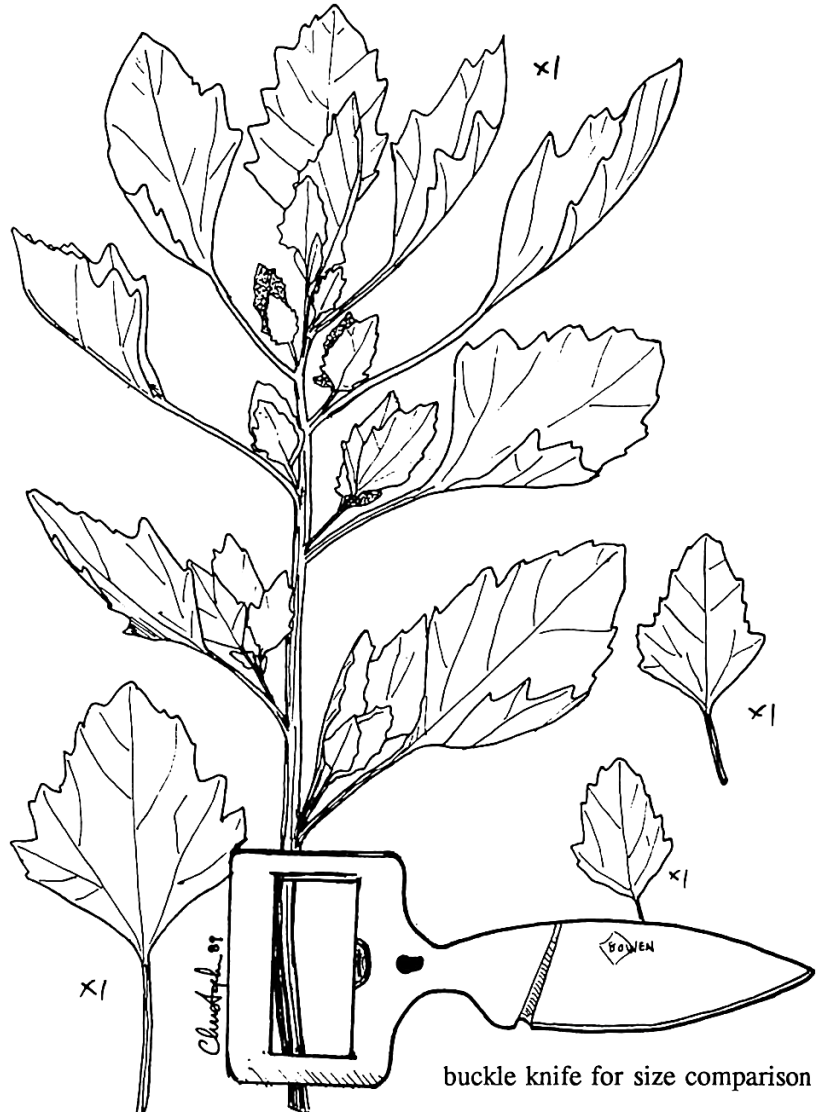
Roughly triangular leaves

Whitish coating to leaf, especially the underside.

Lamb's quarter is an annual with an erect stem that normally reaches one to three feet high, reaching above five feet in ideal conditions. Characteristic vertical red markings are often observed on the plant's mature main stem.

The alternate roughly toothed leaves are either ovoid or somewhat triangular in shape and about two to four inches long. The whole plant (and the leaf undersides in particular) is covered with a white meal-like powder, which gives the plant a sparkly appearance and causes raindrops to bead up on the leaves

The tiny, light-green, inconspicuous flowers are clustered at the top of the plant in spikes. As the flowers mature, numerous small black seeds develop.





Chenopodium murale, green lambs quarters



Chenopodium album, white lambs quarters

HABITAT: Introduced. Lambs quarters plants can be found thriving in rich soils, such as gardens and farms, and will also be found in drier, poor soils.

WHERE FOUND: This European native is today found just about “everywhere” in North America.

USES

FOOD

The leaves and tender tips can be briefly steamed or cooked with onions or garlic and lightly seasoned with powdered herbs for a delightful, hearty dish. They are equally tasty (and far more nutritious) when added raw to salads. This plant is one of the finest tasting wild edibles, the flavor being similar to (but better than) spinach. The plant is, in fact, related to our common spinach and beets.

The tender greens and stems can be cooked in water as you’d cook spinach. You can season with butter, sour cream, or whatever you wish. And save that water! It’s delicious as a broth, and it can also be used for soup stock.

The seed clusters of late summer can be ground, winnowed, and added to pancakes and breads, or used alone, replacing flour in baked products. It gives the finished product a unique hearty flavor. I have used lamb’s quarter seeds instead of wheat flour in my acorn bread recipe (see RECIPE section).



Young, white lambs quarters

MEDICINE

According to the United States Department of Agriculture (USDA), 100 grams of lamb's quarter leaf contains 4.2 grams of protein, 1036 milligrams of calcium, 340 milligrams of phosphorus, 11,600 international units of vitamin A, and 80 milligrams of vitamin C. Another analysis (Duke and Atchley) shows 684 milligrams of potassium per 100 grams.

Lamb's quarter is a classic example of Hippocrates's dictum that your food should be your medicine and your medicine should be your food. I have often eaten lamb's quarter greens (cooked, or in salad), or drank the broth, when I didn't feel well.

OTHER

A related species, *C. californicum*, has been used as a soap. The entire plant is used while still young (before the flowering and seeding stage). The best part to use for soap is the grated root. The plant's tender portions or grated root are mixed with water and then agitated between the hands, resulting in a frothy soap. Though this can be done with lamb's quarter, an inferior soap results.



Lambs quarter growing in a driveway crack



Mature seeds of *Chenopodium album*.



Note the red in the stalk of the *Chenopodium album*

CAUTIONS

Sometimes, when lamb's quarter leaves are consumed raw, there is an irritating sensation in the mouth and throat. This effect is rarely noted when lamb's quarter is cooked or prepared with salad dressing.

MALLOW (*Malva neglecta*)

Mallow Family (Malvaceae)

Common Names *Malva*, *cheeseweed*

FOOD-4 	MEDICINE-4 	WATER-1 	FIRE-0 	SHELTER-0 	OTHER-0 
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Raw

Cooked

Dried

Pickled

Frozen

DESCRIPTION

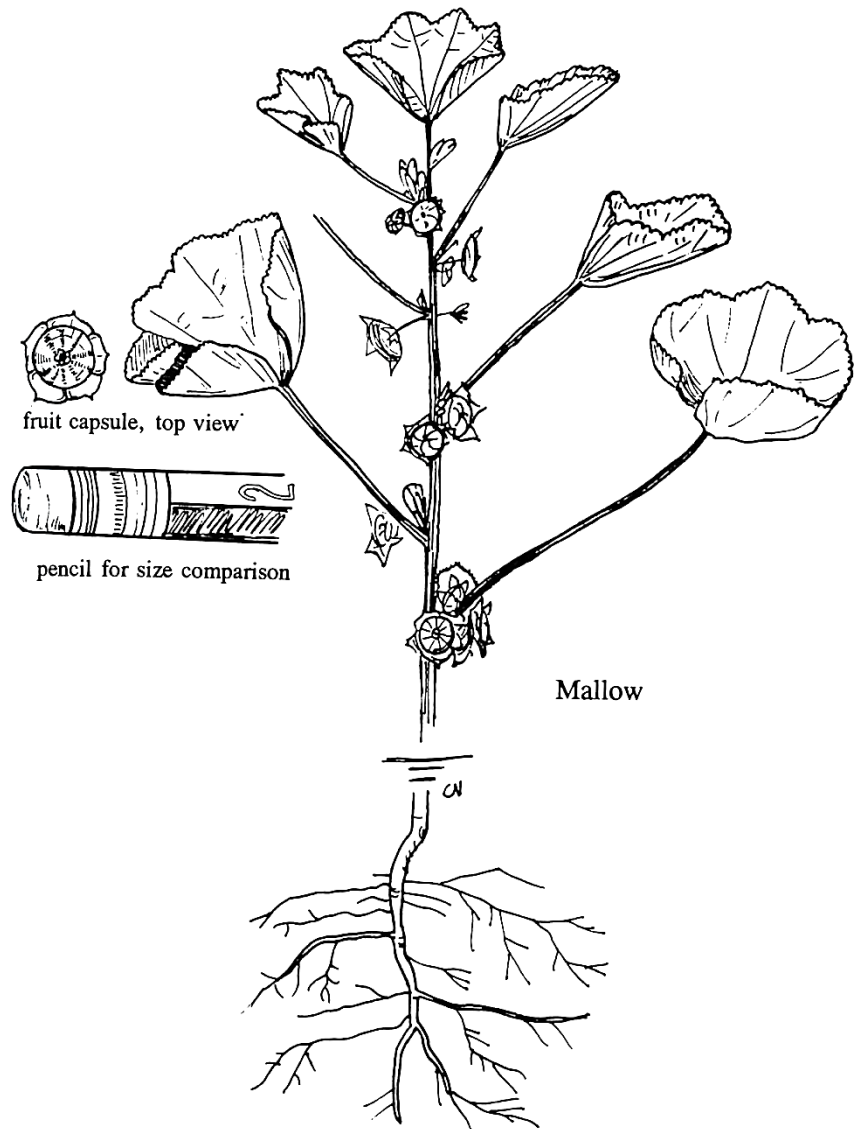
KEY FEATURES

Leaves are round, with shallow lobes

The plant grows either erect, or as a low-growing “bush”

Fruits are flat and round

Mallow is one of the most common wild plants of vacant lots. This spreading and highly branched annual reaches to about three feet tall and is seen as mounds of green in the lots.





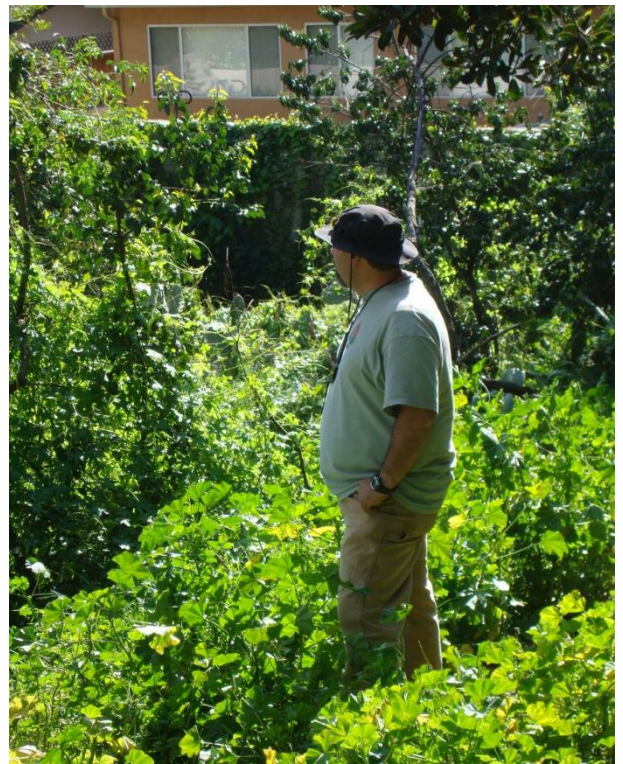
Each petiole is usually three times as long as the leaf blade. The leaf is roundish in outline, palmately divided into 7 to 11 shallow lobes, and has a margin of small teeth. Where the petiole meets the base of the leaf blade, you will notice a red spot on the upper surface of the leaf. The leaves are alternate and almost hairless.

The flowers are arranged in close axillary clusters along the branches. There are bracts at the base of each of these rose-colored flowers, and each petal is notched at its apex. The floral parts are five sepals, five petals about 1/8 inch long, numerous stamens, and one pistil.

Circular flat fruits develop from the flowers. These 1/4-inch green fruits split when ripe into up to a dozen nutlets, resembling packaged cheese, thus its common name: cheeseweed; some say they taste like cheese. The taproots are long, thin, and fibrous.

HABITAT: URBAN and WILDERNESS

It is almost always found around civilization and tends to be absent from wilderness areas. Look for this plant in vacant lots and waste areas.



Frank Loaiza observes the tall mallow plants of spring

WHERE FOUND:

Mallow has naturalized here from Europe.

USES

FOOD

There are no poisonous Malvas. Mallow leaves are edible raw in salads, and they impart a slightly mucilaginous texture. The leaves are commonly cooked and eaten like spinach; they can also be added to soup. The leaves can be dried and infused into tea, and although bland, are a good source of vitamins and minerals.

The raw round fruits can be eaten as is, having a nutty flavor. The mature fruits can be gathered, dried, and then the seeds separated from the chaff and other debris by winnowing the plant through a soft breeze. Then wash the seeds, dry them, and grind them for flour. The seeds can also be simmered in water until they swell up. Then they are lightly cooked and eaten like rice.

Mature mallow plants can be gathered in abundance in some areas and the seeds easily harvested.

MEDICINE

Herbalists use this mucilaginous herb as a demulcent and emollient. An infusion of its leaves is used for coughs. In Mexico, the raw leaves are chewed to alleviate minor sore throats. The leaves were used externally by Native Americans as a poultice on sores and swellings.

According to the USDA, 100 grams (½ cup) of the mallow leaf contains 249 milligrams of calcium, 69 milligrams of phosphorus, 2,190 international units of vitamin A, and 35 milligrams of vitamin C. An analysis of the same volume of mallow leaf by Duke and Atchley showed 90 milligrams of calcium, 42 milligrams of phosphorus, 410 milligrams of potassium, and 24 milligrams of vitamin C. This second analysis also revealed 3,315 micrograms of beta carotene.

Interestingly, this plant is related to the marshmallow (*Althea officinalis*), the root of which was boiled to yield a slimy juice. This was whipped into a froth and made into a medicine for sore throats, bronchial troubles, and coughs. Today, marshmallows have no marshmallow root extract, but are made of eggs, sugar, and other ingredients and sold as candy. Common mallow root (*Malva parviflora*) will not yield as thick and slimy a juice when boiled, but the green fruits (and the roots) can be boiled and the water beaten for an inferior substitute.

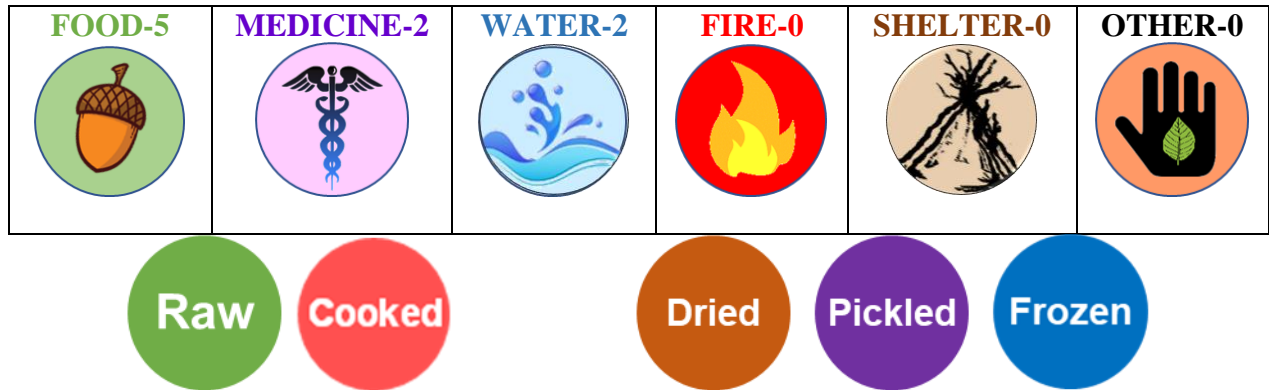


Flowers and fruits. Disk shape fruits can taste like cheese

INDIAN LETTUCE aka MINERS LETTUCE

(Claytonia perfoliata)

Miners Lettuce Family (Montiaceae)



DESCRIPTION

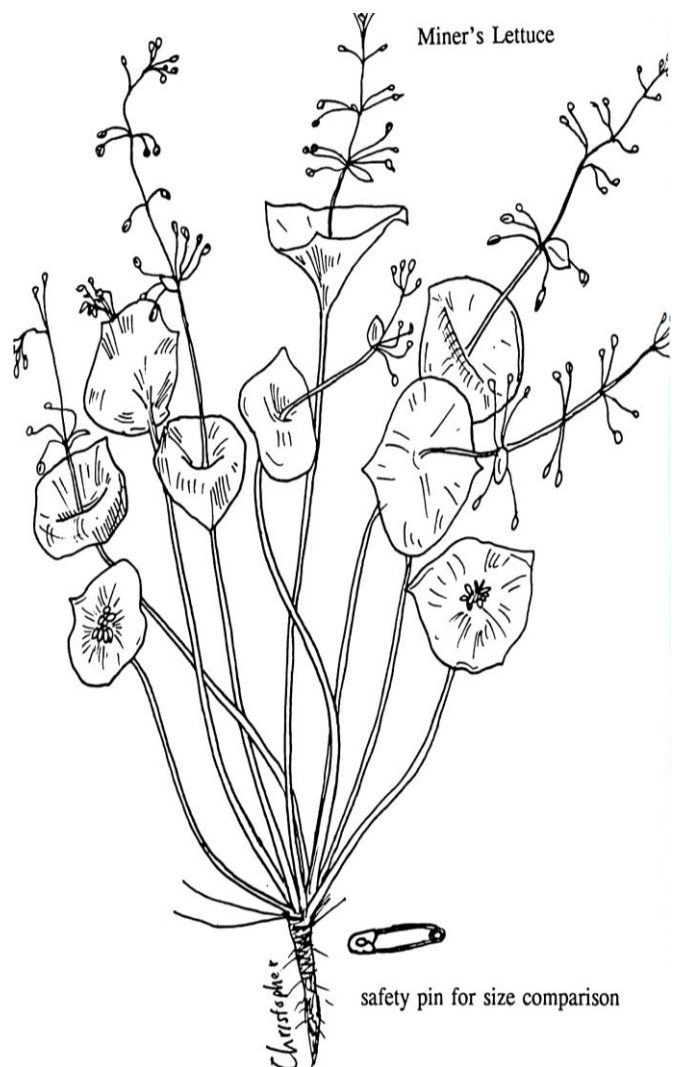
KEY FEATURES

- When flowering, the flower stalk arises from a conspicuous cup-shaped leaf
- The leaves all arise from the root, in a cluster, akin to a head of lettuce
- Fleshy and succulent, and short-lived in the spring.

Miners lettuce is a delicate annual plant, and a native to the western states. It appears in shady areas after spring rains, and usually dries up within a few months.

Its most characteristic feature is the cup-shaped leaf through which the flower stalk arises, making it one of the most easily recognizable wild plants of the western states. The first leaves are delicate, and roughly triangular or quadrangular, on weak stems. Only the flower stalks produce the conspicuous cup-shaped leaf.

Many leaves arise from a common root, so if you pull out the entire plant, you can see where the comparison to a head of lettuce came from – it's somewhat like a small loose-leaf head of lettuce. However, we encourage you to only pick the leaves you plan to eat, and leave the root in the ground.





HABITAT: This short-lived annual prefers wet and shady areas. It is easily cultivated by seed.

WHERE FOUND

Widely distributed in western U.S. states and Canada, and found in a few southern states.

USES

FOOD

Miners lettuce makes a superlative food. Everything above the root can be eaten. It has a high water content, and its flavor is mild.

It can be used in nearly any dish where you might use lettuce or spinach. It makes a good salad, a good soup, and goes well with eggs and stir fries.

WATER

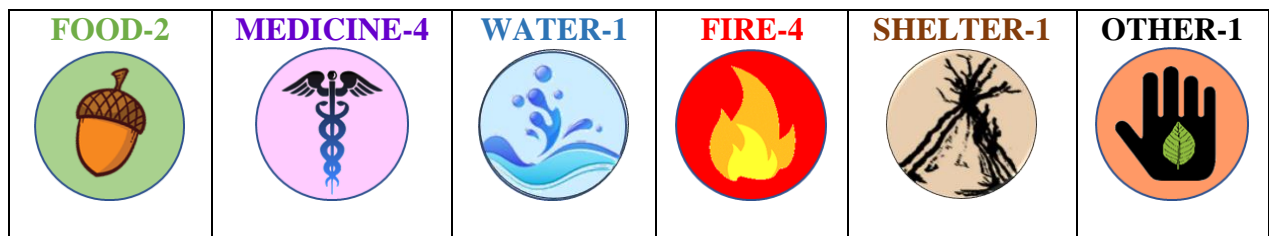
The plant is delicate and full of water. In cases of hardship where you had no water, you could quench your thirst by eating the leaves and stalks of the miner's lettuce.

MEDICINE

Miners lettuce is a good source of vitamin C, and its name came from the fact that California goldminers of the 1840s (the "49ers") ate the miners lettuce to prevent scurvy.

MUGWORT (*Artemisia* sp.)

Sunflower Family (Asteraceae)



Cooked

Dried

DESCRIPTION

KEY FEATURES

Linear leaves with irregularly toothed margins

Leaves are darker green on top, and whitish on bottom

Distinctive aroma, sagey

Found primarily near riparian areas

Different species of *Artemisia* are widespread throughout the world, though not all are called Mugwort. These are often found along streams, and in sandy well-drained soils. Some are found in meadows, and these are readily cultivated in gardens.

There are several related species of mugwort, and they all have a distinctly characteristic aroma.

The leaves are generally irregularly toothed, with a dull green top and whitish on the underside.

WHERE FOUND: Specifically, *Artemisia douglasiana* is native in the western states of California, Oregon, Washington, Idaho, and Nevada. Other *Artemisias* grow throughout North America.



Mugwort

HABITAT: Native. Mugwort is generally found in riparian areas, or close to riparian areas. Sometimes it's found some ways from the river, and sometimes it's found in someone's garden. It is easily cultivated.

USES

FOOD

Mugwort is not a food plant, though it is sometimes used as a flavoring in some Asian dishes, such as rice paste. It is also used instead of hops in the making of simple beers.

To be fair, we know at least a few people who boil mugwort greens and enjoy it as you might spinach, but the flavor is a bit strong for the average palate.

FIRE

Because the leaves of mugwort are aromatic, they contain volatile oils and would be useful in getting your initial fire started. We have long found that the dried leaves of mugwort, collected from the lower stalk of the plants, are the best tinder for growing an ember that you might produce from the hand drill, bow drill, or flint and steel. We have also experimented with igniting various tinders with a magnifying glass or Fresnel lens, and found that the mugwort tinder is the very best.



Don Hoover demonstrates how to use dried Mugwort leaves to start a fire



A green Mugwort leaf, and a handful of the dried leaves, used for tinder

MEDICINE

Mugwort leaves, infused, have long been used for cramps, and stomach pains. It is often spoken of as a “woman’s herb.” The infusion is good for colds, and may help one sleep.

The fresh leaves can be mashed between the hands, and then rubbed over skin that has been exposed to poison oak.

OTHER

Mugwort leaves can be added into herbal tobacco mixes, to which it imparts a pleasant aroma.

Sleeping with mugwort near your pillow induces colorful dreams with some people.









Mugwort flowering stage



Mugwort early foliage stage

MULLEIN (*Verbascum thapsus*)

Figwort Family (Scrophulariaceae)

FOOD-0 	MEDICINE-5 	WATER-0 	FIRE-3 	SHELTER-0 	OTHER-2 
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Dried

DESCRIPTION

KEY FEATURES

- Leaves feel like flannel
- Large soft ovate leaf
- In second year, a tall flowering stalk with yellow flowers arises.

Mullein is a European native that can now be found throughout much of North America. The plant produces large light green leaves that are covered in fine hairs. When you touch the leaves, it feels like flannel! In the first year, a large rosette of these leaves are produced, and then it dies back in the fall. In its second (and final) year, it sends up a towering flower spike with small yellow flowers. We've seen them seven feet tall, though four to five feet is probably more average.

The plant can be found in the sandy areas around rivers, in farm fields, along the road, and in both wet and dry environments. It seems to grow everywhere. Once planted in your urban yard, it will reseed and grow again year after year.



**HABITAT**

Widely distributed in diverse soil types. Can be found in dry roadside conditions, along riparian streams in the sand, and in gardens.

WHERE FOUND: This European native can be found all over North America.

USES**FOOD**

Mullein is not a food, though you could serve food on a mullein leaf, or use one as a napkin.

MEDICINE

To make a tea, use the first year leaves of mullein, and infuse them. There is not much flavor, so we typically add mint to mullein tea. Mullein acts like a mild sedative on the lungs, and it helps to relieve the roughness in the throat common with coughs and some fevers.

An infusion of the leaves is made and drunk for upper respiratory problems, as well as minor asthmatic problems. Don't boil it. Put a few leaves into your tea pot, add hot water, and just let it steep before you drink it.

The use of mullein for medicinal purposes increased dramatically during the Pandemic. The leaves have also commonly been smoked to alleviate difficult breathing. This seems very anti-intuitive to smoke something when you have a breathing issue, but I can attest that it does work.

OTHER

The large soft, fresh leaves make ideal toilet paper and napkins.

The dried flower spike has been used as a hand drill to make fire with varied success.

When the dried flower spike is dipped in oil or wax, it can serve as a satisfactory torch.

The dried leaves can be used as a non-nicotine tobacco, or used to extend tobacco supplies.

A dried leaf, rolled and held together with a thread or clip, is useful as a wick in a slush lamp or oil lamp, when a regular cotton wick is unavailable.

Peter Gail of Cleveland Ohio worked giving tours of Amish areas and teaching his clients about Amish ways. Gail told me that Amish girls and women sometimes rubbed the mullein leaf on their cheeks, since the fine hairs would cause a reddening effect. This was apparently desirable, keeping in mind that makeup was not allowed in Amish communities.



Moth leaf Mullein plant, **not to be used medicinally**, have similar flower stock. Notice the leaf shape is more linear and pointed than the medicinal mullein



Drying mullein leaf for future use



Second year mullein plants getting ready to send up a tall flower stock

MUSTARD (*Brassica spp.*)

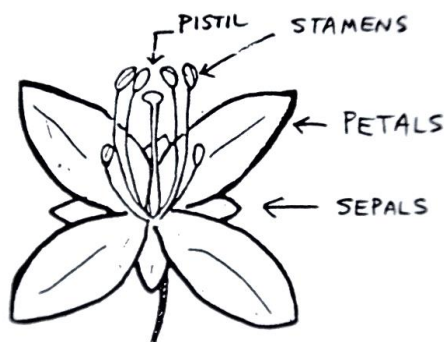
Mustard Family (Brassicaceae)

FOOD-5 	MEDICINE-3 	WATER-0 	FIRE-0 	SHELTER-0 	OTHER-0 
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DESCRIPTION

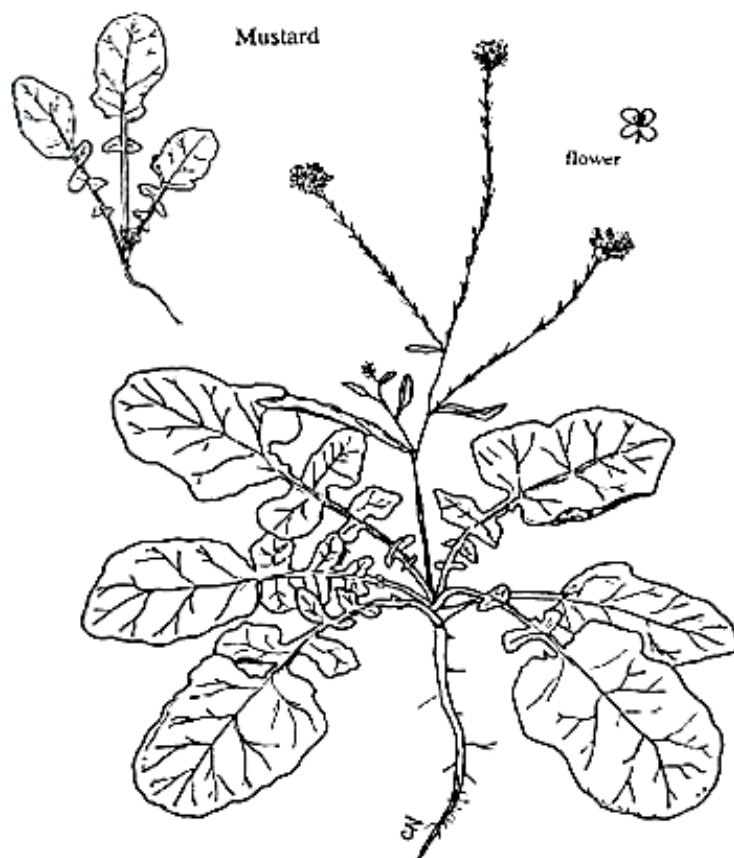
KEY FEATURES



Flower usually yellow, conspicuous, with 4 petals, and 4 sepals underneath, one pistil and 6 stamens.

Seeds forms in linear pods.

Typical leaf-outline is lyrate pinnately-divided. Picture a guitar, with the neck of the guitar corresponding to the stem of the mustard leaf.



There are 35 species of *Brassica* worldwide.

Though you should learn to recognize the common mustards even when the plant is not in

flower, it is the flower that will initially draw you to the plant. The bright yellow flower has the typical Mustard family flora arrangement: 4 petals (shaped in an X or cross), 4 sepals (1 under each petal), 6 stamens (4 tall and 2 short), and 1 pistil. These are formed in a raceme with the buds toward the tops, then the mature flowers, and then, lower on the stalk, the seedpods form. The needle-thin seedpods are about 1" long.

The initial basal leaves are lyrate-pinnately divided, meaning that they have the appearance of a guitar with a large, round lateral lobe and smaller side lobes. Not exactly like a guitar, but it gives you a good mental picture. As the plant matures, the leaves that form on the upper stalks are smaller and linear and look nothing like the young basal leaves.

HABITAT: Brassicas are often found in poor and hard-packed soils, though they will also thrive in rich soils of farms and gardens.

WHERE FOUND: Introduced. **Non-Native.** All Brassicas are from Europe. Today, Brassicas are everywhere in North America.

USES

FOOD

Mustard is one of the first wild foods that we began to eat, partly because it is so common and partly because it is so easy to identify.

We began with the young mustard greens, chewing the raw leaves and enjoying the spicy flavor, despite the fine hairs covering the leaves (not all *Brassicas* are hairy). We then moved on to chopping them up and adding them to salads, which was good. We then began to boil the leaves and served at family meals with butter. Everyone enjoyed it!

Eventually, we found that we could add mustard greens to just about any dish: soups, mixed salads, omelets, stir-fries, potatoes, you name it! The fact that we could collect these greens year-round in California was also a big plus.

The flower buds and flowers have also been a good trail treat, and they make a good, colorful garnish to salads and soups. We give them to children and tell them that they taste similar to broccoli, and most of the children say they enjoy the flowers.

The tender tops of the stems with the flower buds can also be snapped off the upper parts of the plant, steamed, and served with some sauce or cheese. The flavor is similar to the Chinese broccoli that you buy at farmers' markets

The seeds can be collected in the fall, when the leaves are dried up and the tops are just tan-colored stems with small seedpods. Collect the pods in a bag (a pillowcase is ideal), and break them all up. The seeds go to the bottom of the bag, and you can discard the pod shell. The seeds are then used as a seasoning for various dishes calling for mustard, or you can try making your own mustard condiment from the brown seeds.



Christopher with a large springtime leaf of *Brassica nigra*. Photo by Helen



Tender tips of Mediterranean mustard, readied for stir-frying

MEDICINE

The seeds of most species can be removed easily after the pod has dried on the plant. These seeds are winnowed, then ground very fine to make a plaster for chest colds, muscles, and aching backs. The plaster is made by grinding one part mustard seed to four parts whole wheat flour into a paste with warm water. Make it thick enough so it will spread over a piece of cloth that will cover the irritated area. The heat generated from the plaster can sometimes be sufficient to blister sensitive skin. Blistering can be prevented by mixing the mustard and flour with egg whites instead of water.

In 1984, the American Cancer Society cited seven ways to prevent cancer. They included on their list:

Include cruciferous [mustard family] vegetables in your diet. Certain vegetables in this family—cabbage, broccoli, brussell sprouts, kohlrabi, and cauliflower—may help prevent certain cancers from developing.



Three other recommendations on their list would certainly apply to those who eat wild foods:

Cut down on total fat intake.

Eat more high-fiber foods.

Include foods rich in vitamins A and C in your daily diet.

NOTE: The Mustard family is a large botanical family, comprising more than 330 genera worldwide and about 3,780 species.

The floral characteristics that define the Mustard family are 4 free petals, 4 sepals (generally white or yellow but other colors as well), 6 stamens (4 long, 2 short), 1 pistil, a superior ovary, and fruits that are generally a capsule or silique with 2 valves. Many are cultivated for foods and some for ornamentals. *The Jepson Manual* divides this family into 8 groups. Dr. Leonid Enari stated that he was

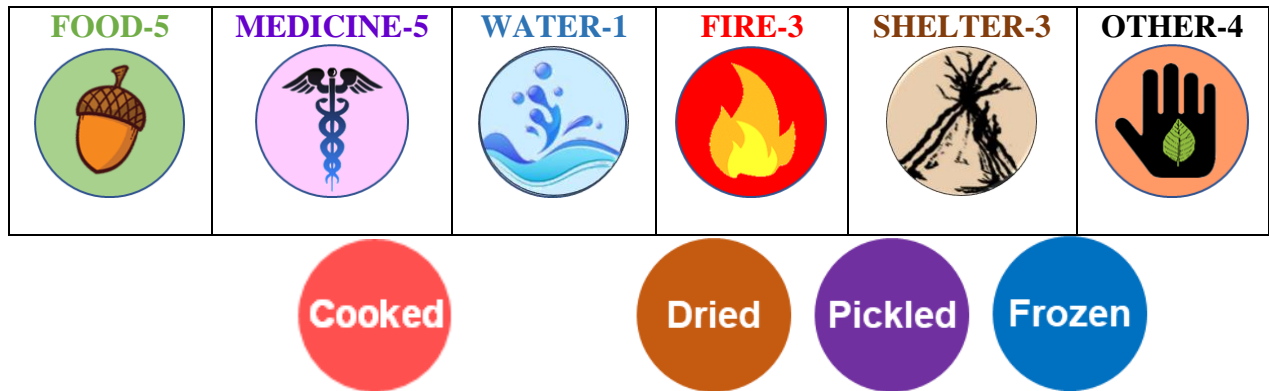


unaware of any toxic member of this group, though some are more palatable than others. As a result, we have experimented with many of the Mustard family species in various parts of North and Central America.

Other well-known edible members in the Mustard Family include watercress, shepherd's purse, wild radish, hedge mustards (*Sisymbrium*), and sea rocket. All these make excellent food.

NETTLE, STINGING NETTLE, CREEK NETTLE (*Urtica dioica*)

Nettle Family (Urticaceae)



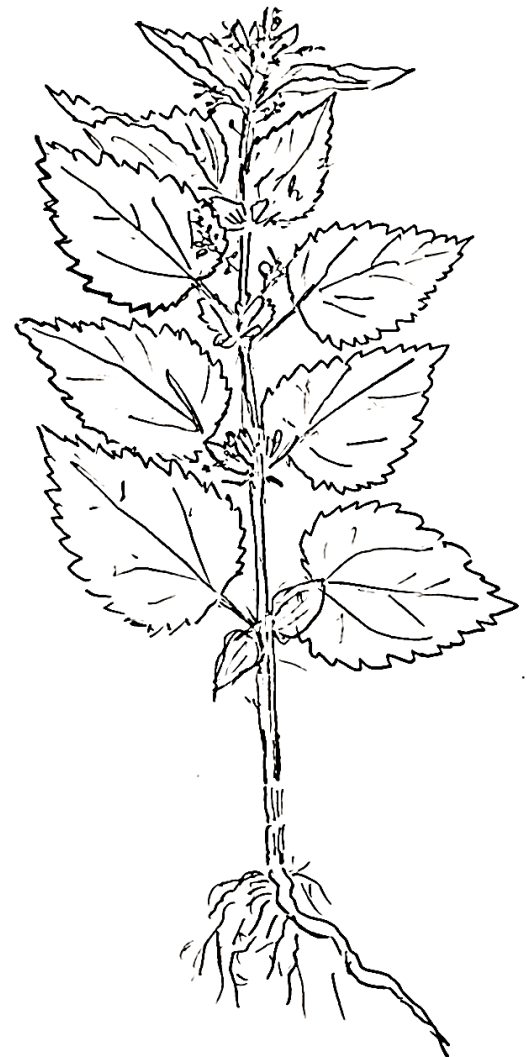
DESCRIPTION

KEY FEATURES

- An erect annual
- Leaves and stems covered with small “stinging” hairs
- Widespread, preferring wet areas

The common stinging nettle is an annual plant that typically arises in the spring after the rains and as the snow thaws. It produces a single stalk; the common and widespread European species can arise about two feet tall, whereas the native creek nettle can arise to six or seven feet tall. The leaves are oblong with toothed margins, and taper to a point. The entire plant – leaves and stalk – are covered with hairs (actually, hollow follicles) which will cause a stinging irritation if you brush up against them.

The genus *Urtica* has at least 45 members, including a native species in the west which is much more robust than the widespread European variety. The western native species can grow to six and seven feet tall, and the effects of the “stinging” formic acid is much more pronounced. When you brush up against the European variety, the stinging will typically go away in a hour or so, whereas the stinging sensation from the western native species can last up to 24 hours!



HABITAT: Nettles are fairly prolific, and in the wild they prefer wet and riparian areas. But they are by no means restricted to the wilderness. They are common in farm lands, backyard gardens, even cracks in the sidewalks.

WHERE FOUND: Though this European native does best around wet and riparian areas, it can be commonly found in wilderness areas, in gardens, in backyards, and in farm lands.

USES

FOOD

Nettle is an excellent food. The leaves can be collected fresh, and boiled as greens, or made into soup. The flavor is excellent! We typically pinch off just the tender tops for our soup. The stems get tough so we generally don't add them to soups or other dishes.

By the way, the plant does cause a "stinging" reaction, which is why we recommend you wear gloves when collecting, such as dishwashing gloves.

Nettle leaves can also be collected in the spring, and dried so you can have it throughout the year. The powdered leaves can then be made into soup, and other foods. For example, you can make nettle pesto (with fresh or dried leaves), nettle noodles (mixed 50/50 with flour, and run through a pasta machine), mixed with salt or seaweed as a seasoning, etc.

MEDICINE

Nettle leaf tea is frequently sold in health food stores. The leaves are brewed and used for colds, pain in the body (like arthritis), and nasal congestion. The regular use of the tea is also said to relieve buildup of plaque within the arteries. Regarded generally as an effective astringent and diuretic.

For more medical details, see Michael Moore's "Medicinal Plants of the Mountain West," and Dr. Adams (et al) "Healing with Medicinal Plants of the West."

REAL LIFE TESTIMONIAL

In 1974, 45-year-old Herb Krueger of Greenbush, Wisconsin, suffered a heart attack. His doctor recommended (and scheduled) a quadruple bypass operation. Krueger had second thoughts and asked the doctor to postpone the surgery for a while. The doctor agreed on the condition that Krueger take some special drugs and avoid working for two years. Krueger agreed, took the drugs, but again had second thoughts. "I knew that the medication was wrong because my body felt it and was rejecting it," stated Krueger.



Farmer Adrian Gaytan sells bundles of "hortiga" (nettles) at farmers markets



Krueger went back to the doctor and demanded some answers. “The doctor admitted that ‘life is an experimentation.’ So I said, then I’m going to experiment too. And in the last 15 years [as of 12/89], I have not spent a dime in the doctor’s office. I cured myself. in the two years that I could not work I studied in earnest. I believe that many of the bypass surgeries that are being performed are unnecessary.” Krueger learned that he had to drastically cut back his intake of cholesterol. He became an earnest herb and vegetable gardener and discovered a novel way to reduce his cholesterol. “I think the main thing that cured my vascular system was stinging nettle. The nettles contain formic acid—a substance that I believe dissolves cholesterol in the vascular system. Nettle is the only plant known to the botanical world that contains formic acid.” Krueger drinks three cups of his homegrown nettle tea every day, and he never had the heart surgery.

“My advice to any person who has any curiosity whatsoever about human existence is to get as close to nature as you possibly can. If you eliminate the so-called processing of foods, you are getting much of the nourishment that our creator has put into them as you can,” states Krueger.

FIBRE

The mature stalks of nettle contain a fibre which can be processed out fairly easily. The mature but still green stalks are gently pounded in water, to wash away all but the fibre. In the past, this extracted fibre has been used in the production of sheets, and fabric. The fibre from the stalks can be used to make twine or braids, which can then be used for countless household and farmstead tasks, such as making fishing lines, trap and triggers, brushes, cordage, nets, sandals, and much more.






Nettle produces a fairly good quality fibre, though we suggest you wear gloves at first until you see how you react to the stinging.



Left, Ryan Swank examines the nettle hairs. Right, Christopher examines the tall creek nettle. Photo by Rick Adams

ONIONS, WILD (*Allium spp.*)

Common Names Wild chives, wild leeks, ramps, wild garlic

FOOD-4 	MEDICINE-4 	WATER-1 	FIRE-0 	SHELTER-0 	OTHER-1 
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DESCRIPTION

KEY FEATURES

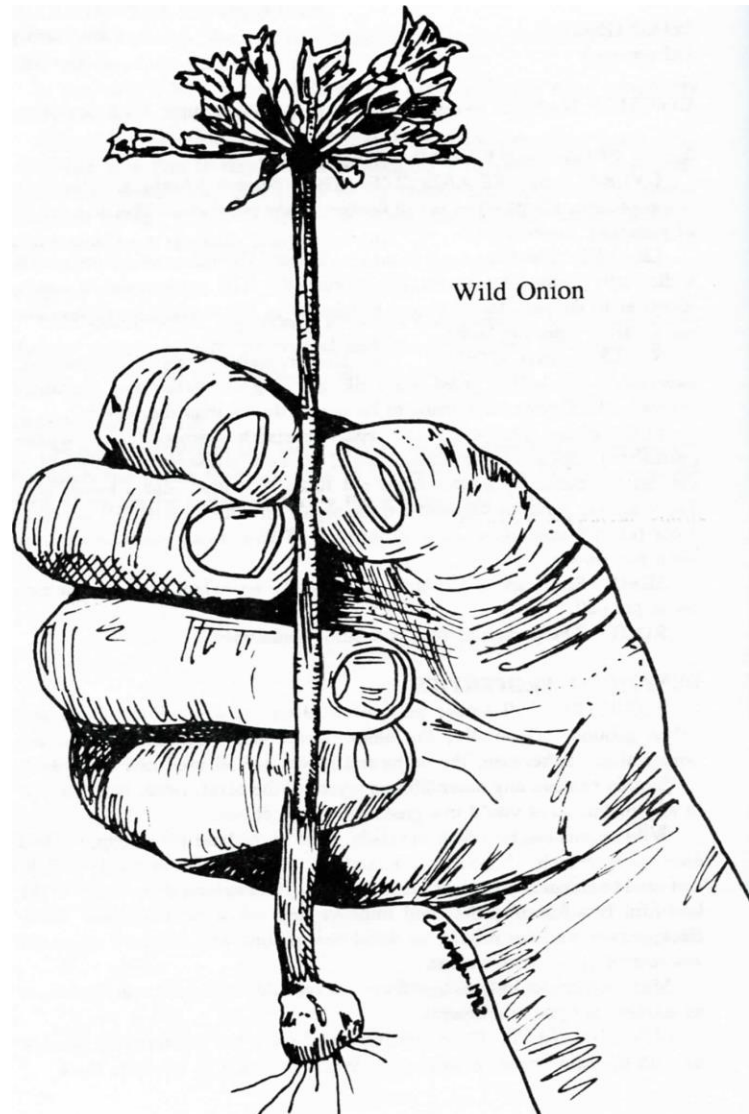
- Grass-like hollow leaves
- Typical onion aroma when leaves are crushed
- Flowers arise on leafless stalks

These perennial herbs are relatively inconspicuous plants when not in flower. They grow grasslike, to a height of generally under a foot.

The flower stalk is generally leafless, thin, hollow, and reed-like, growing a bit taller than the tallest leaves. It tends to be more fibrous than the leaves.

The leaves are hollow and round (in the cross section), with a distinctly oniony aroma when crushed. The leaves arise from the bulbs. Their appearance is nearly identical to that of a bundle of chives purchased in produce markets.

The petals and sepals (perianth segments) are indistinguishable from each other in appearance. Yet each is distinct from the other—the perianth segments are not fused or united into a basal tube. There are six perianth segments: three sepals and three petals, all the same color (most frequently a shade of purple). There are six stamens and one pistil per flower.



Seeds are flat, black, and usually wrinkled, with one or two seeds per cell.
The perennial root is usually a bulb, but sometimes a corm.

HABITAT

Various species of wild onions can be found in every type of environment from coast to coast in the United States. Some are found in high elevations, some in meadows, swamps, ditches, and riversides, others in deserts, chaparral, and coastal areas, and still others in lawns, farmland, and fields. In urban areas, it would not be uncommon to find various *Alliums* going feral in gardens.

WHERE FOUND: Most of the wild onions are native plants, though there are a few that have been introduced.

USES

FOOD

All tender parts of wild onions are edible, above and below ground. Generally, the older flower stalks become fibrous and unpalatable. Otherwise, the bulbs and leaves are eaten raw or cooked.

Simply remove any outer fibrous layers of the plant, rinse, and then prepare as you would green onions or chives.

Wild onions can be added to salads, used as the base for a soup, cooked alone like spinach, chopped and mixed into eggs, cooked as a side to fish, and used to enhance countless other foods. Wild onions share many of the healthful benefits of garlic and improve any urban or wilderness meal. Backpackers who are relying on dried trail rations will certainly enjoy the sustenance of wild onions.

Many Native Americans heavily relied on wild onions and regarded them as staples, not just condiments.

MEDICINE

Generally, when included in the diet, all members of the onion family provide us with the same benefits as garlic: lower cholesterol levels, preventing influenza, and reducing high blood pressure. Used externally, the crushed green leaves can be applied directly to wounds to prevent infection.

OTHER

Some people report that they are less bothered by mosquitoes and other insects after consuming wild onions. In some cases, people have rubbed the fresh leaves on the exposed portions of their body to prevent insect bites. I have had only mediocre results at keeping the bugs away as a result of consuming wild onions (and all their relatives) and rubbing the leaves on my skin. (For the record, the best way we've found to keep the



Northern California onion grown in garden

bugs from biting is to include raw apple cider vinegar in your diet. Add about one tablespoon per cup of drinking water.)

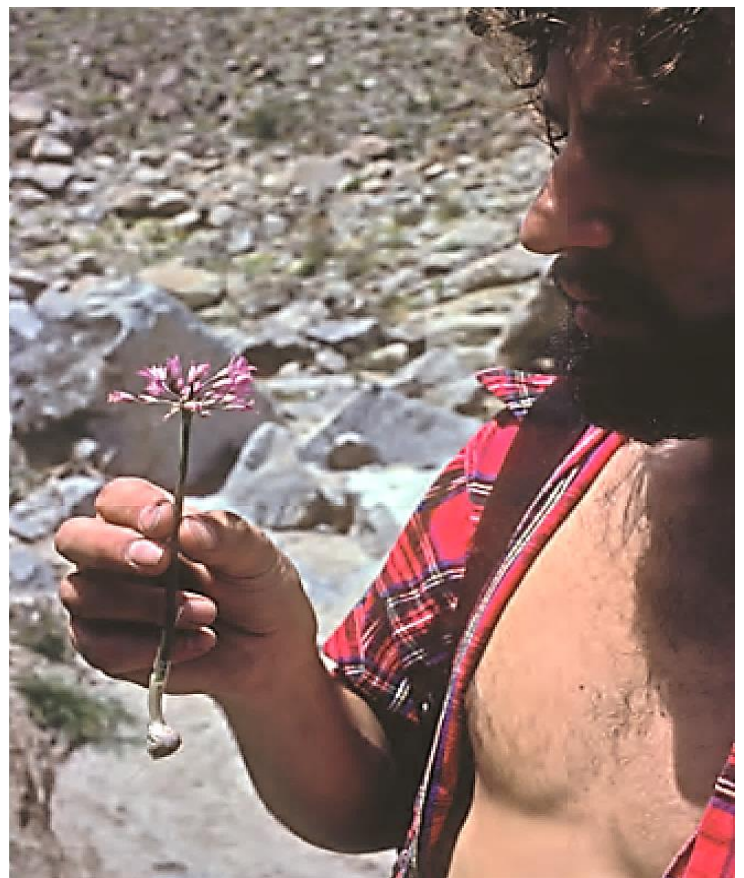
CAUTION

Eating excessive amounts of only wild onions can result in stomach and intestinal pain. In her book *Know Your Poisonous Plants*, Wilma Roberts James states that wild onions are toxic when eaten in great quantities. Nevertheless, this is so rare that it's hardly worthy of comment. Eaten in normal amounts as part of a balanced diet, wild onions are an excellent nourishing food.

Never forget that many members of the lily family with bulbs are deadly poisonous when eaten. Be absolutely certain that you have correctly identified any wild onions that you intend to eat. Check the floral characteristics for the three sepals and three petals. Then, you must detect an obvious onion aroma. If there isn't one, don't eat the plant. (There are a few true onions that lack the onion aroma; it is imperative that you have absolutely identified those nonaromatic species as safe before you prepare them for your lunch.)



Northern California onion grown in garden



Pat Fiedler holds a wild onion

PURSLANE (*Portulaca oleraceae*)

Purslane Family (Portulacaceae)

FOOD-5 	MEDICINE-5 	WATER-2 	FIRE-0 	SHELTER-0 	OTHER-0 
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DESCRIPTION

KEY FEATURES

The plant is weak-stemmed and so it sprawls over on the ground.

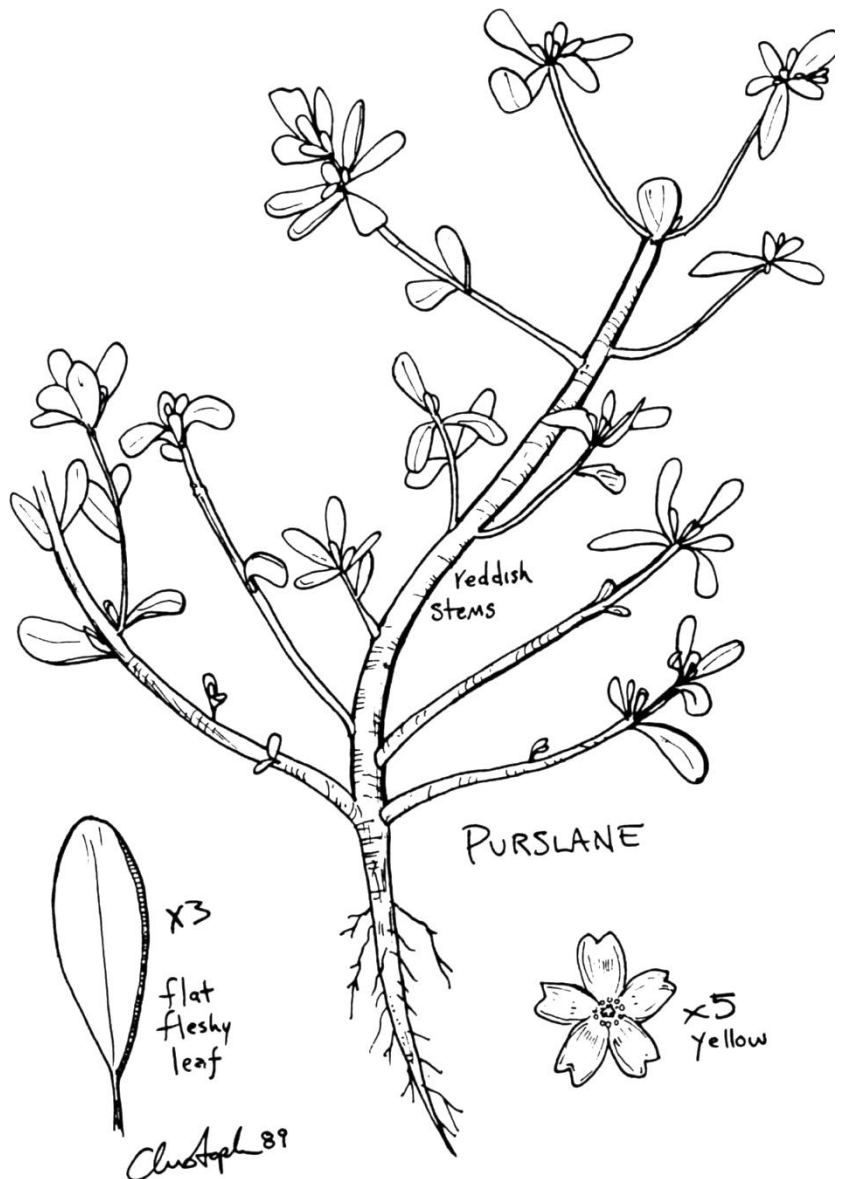
Stalks are round in the cross section, and red-tinted

Leaves are paddle-shaped

Entire plant is very succulent

Purslane is a low-growing fleshy herb, whose outstretched, sprawling, prostrate stems are from 3 to 12 inches long. The growing ends of the stems are sometimes uplifted in the lush plants. The entire plant seldom reaches over six inches tall.

The stems are tinted red, round shaped, and very succulent. The thick main stems of the plant radiate from the center root, and there are many lateral stems growing outward creating a matty appearance.



The succulent, glabrous (hairless and smooth) leaves, ½ to 1 inch long, are obovate (paddle shaped), flat, and alternately arranged.

The sessile, yellow flowers, about 3/16 inch across, open only in the sun. The floral parts include a two-cleft calyx, five (rarely six) two-lobed petals, and 7 to 20 stamens.

The flowers mature into small seed capsules, with the upper top coming off like a hat to release many small black seeds. The seeds have a built-in survival mechanism that fastidious gardeners hate. This mechanism causes only half the seeds to germinate the first year, 40 percent the second year, and the remaining 10 percent the third year.

HABITAT: URBAN and WILDERNESS

It is common in gardens, flower pots, disturbed hillsides, rose gardens, and waste areas. In Iran (ancient Persia) and India, purslane has been eaten for over 2,000 years.

WHERE FOUND: Introduced from India, purslane was in the United States before colonial times. Purslane is believed to have originated from India, from which it gradually spread to southeast Asia, Europe, and throughout North America.

USES

FOOD

Purslane is one of the most versatile and well-liked weeds found widely throughout the world. The plant can be eaten raw, lightly cooked, pickled, or fried; it can be added to soups and stews, and the seeds can be ground into flour.

In salads, use all the plant but the root. Wash it carefully to remove any grit adhering to this low-growing weed. Chop the leaves and stems for the salad. The leaves are mild tasting and slightly slimy. The thick, succulent stems are juicy and crunchy. A salad of purslane with seasoning and chopped onions is very acceptable fare. The stems are great to quench

Like spinach, the plant should be lightly cooked in a small amount of water, seasoned, and eaten. Gently fried, either alone or with onions, eggs, and so forth, it's a delicious entrée.

The chopped stem and leaves also mix well in soup, stews, and omelettes.

Purslane seeds are harvested by gathering the plant stems, placing them on a sheet of newspaper, and waiting a few days. The seed pods will continue to mature even after you've picked the plant. You'll be able to shake all the small black seeds out onto the newspaper. These seeds can be ground and used as you would flour or sprinkled on top of a fresh loaf of bread before cooking.



Dried purslane has been found to be about 30 percent protein and 35 percent carbohydrates. One hundred grams of purslane contains 2,500 international units of vitamin A when cooked; 0.10 milligrams of riboflavin raw and 0.06 cooked; 103 milligrams of calcium raw and 86 cooked; 25 milligrams of vitamin C raw and 12 milligrams cooked; 21 calories; and small amounts of phosphorus, niacin, and thiamine.

MEDICINE

In 1986, purslane was identified as being the richest leafy-plant source of omega-3 fatty acids, a substance that helps reduce the body's cholesterol levels and reduces the risk of heart attack. This discovery was made by Norman Salem Jr., a lipid biochemist with the National Institute on Alcohol Abuse and Alcoholism in Bethesda, Maryland.

Interestingly, rather than suggest that people include purslane in their diets, Salem and his collaborator, Artemis P. Simopoulos (of the American Association for World Health in Washington, D.C.), studied range-fed chickens that fed on wild purslane. The yolk from one large-sized egg from a purslane-fed chicken contained about 300 milligrams of omega-3 fatty acids (17.87 milligrams per gram), the same amount contained in a standard fish oil capsule and 10 times more than what is found in a typical supermarket egg (1.74 milligrams per gram). Salem and Simopoulos's findings about the eggs were published in the November 16, 1989, *New England Journal of Medicine*.

CAUTIONS

The only plant that is sometimes confused with purslane by the beginning naturalist is the mildly toxic prostrate spurge, which has a similar shape and growing pattern. However, prostrate spurge lacks yellow flowers, doesn't have thick red stems, and tends to be much less conspicuous. If in doubt, break a stem. The spurge immediately exudes a thick, white latex substance. Purslane has no such white sap.

HISTORY

Henry David Thoreau was fond of this weed, and he used it frequently during his Walden Pond experiment. He wrote, "I learned that a man may use as simple a diet as the animals, and yet retain health and strength.

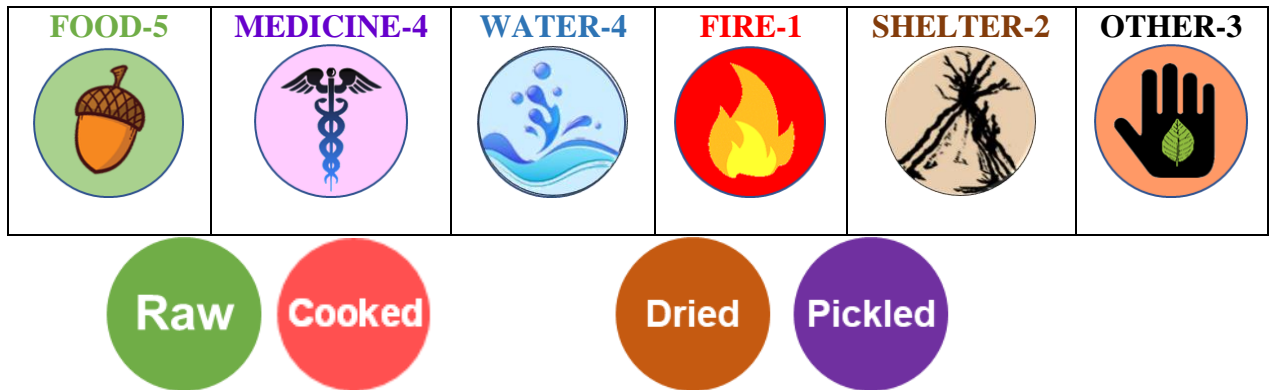
I have made a satisfactory dinner off a dish of purslane which I gathered and boiled. Yet men have come to such a pass that they frequently starve, not from want of necessities, but for want of luxuries to such a pass that they frequently starve, not from want of necessities, but for want of luxuries."



The fat stems of the older purslane make excellent pickles

SEAWEED

Brown, Red, and Green Algae (Phaeo-, Rhodo-, and Chlorophyceae)

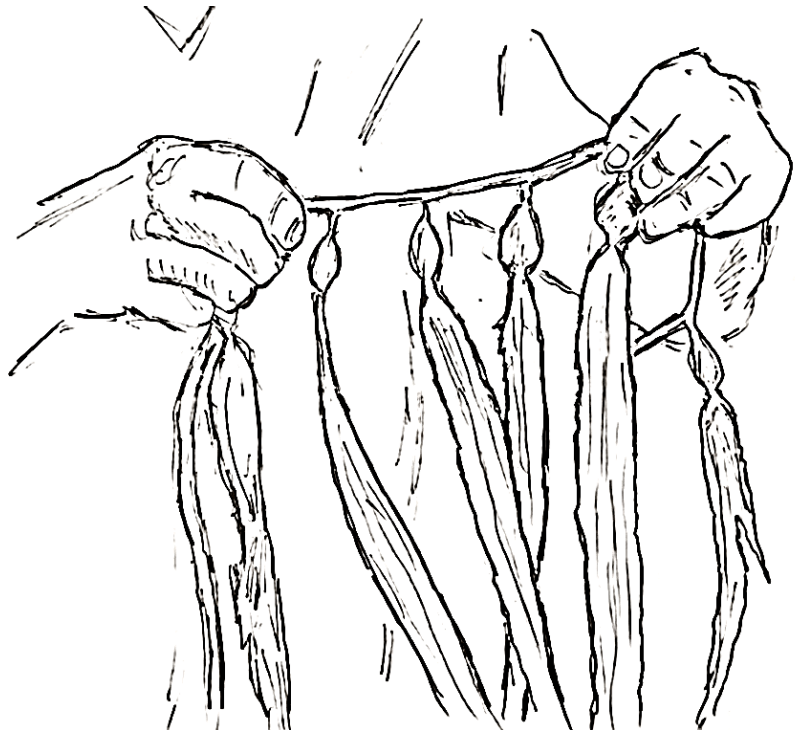


DESCRIPTION

The marine algae, taken as a whole, constitute a vast array of shapes, sizes, and colors.

All algae are nonflowering plants, one of the two categories of thallophytes (the other category is fungi). Thallophytes, growing both in water and on land, are the simplest of all plants, which means that they're not differentiated into roots, stems, and leaves as in the higher (or more complex) plants.

Although all marine algae contain chlorophyll, they are distinctly colored by pigments. The variety of their coloration is so great that pigmentation plays an important role in marine algae classification.



BROWN ALGAE

The color, which ranges from brown to muddy yellow, comes from the pigment fucoxanthin. Although this group includes some small, almost microscopic members, larger seaweeds with leathery textures predominate. The variety of shapes ranges from several-hundred-foot-long kelps, to whiplike fronds, to leaflike structures of one to three feet in diameter. All large brown algae (this includes several genera of kelp, plus rockweed and sargassum) anchor themselves to rocks. This anchoring is accomplished by means of holdfasts, which are structures similar in appearance to roots of land plants. Their tough outer layer renders them relatively immune to being rubbed by fish and to the beating they receive when they're broken off and washed ashore. They're held upright by hundreds of air bladders. There are approximately 1,000 species of brown algae.

RED ALGAE

On the whole, the red algae are smaller than the browns. They're also more delicately shaped, often appearing as graceful, branching ferns in hues ranging from violet, to red, to purple, to pink. Some are lance shaped with wrinkly margins; others have wide elastic fronds and look like sheer sheets of plastic with ruffled margins. Some grow as thin filaments or leaflike structures. The reds include Irish moss (*Chondrus crispus*), laver (*Porphyra* spp.), dulse (*Rhododymenia palmata*), and Grinnellia. There are approximately 2,500 species of red algae.

GREEN ALGAE

These also grow as filaments or branching fronds. The most commonly eaten seaweed in this group is sea lettuce (*Ulva lactuca*). Most green algae are found in freshwater. There are approximately 5,000 species of marine green algae.

STIPES.

Seaweeds contain no stems in the botanical sense of the word. The section in seaweed that resembles land-plant stems is called the stipe.

LAMINA

Technically, seaweeds contain no leaves. However, to the layperson's eye, many seaweeds appear to be one large leaf, or expanded flat leaves or ribbons. Other seaweeds have the appearance of a head of lettuce. In the brown algae group, the part of the seaweed that resembles land-plant leaves is called the lamina. This is where photosynthesis occurs.



Jon Sherman shows some kelp from the Pacific Ocean



The holdfast of this kelp has attached to a rock

HOLDFASTS

Seaweeds contain no roots. However, many seaweeds have a specialized region that enables them to attach to rocks. These are called rhizomes, horizontal-growing stemlike growths, which act much like the rhizomes of land plants. These rhizomes grow rootlike tough fibers called holdfasts, which anchor the seaweed to rocks.

REPRODUCTION

Reproduction of seaweed occurs in one of three ways: 1) by the division of the whole body of the parent plant (vegetative reproduction); 2) sexual reproduction; or 3) asexual reproduction.

HABITAT: By definition, seaweeds are found in the seas, thriving in the marine waters. The various shores where they can be found are often right up to the urban interface.

WHERE FOUND: Seaweeds are found in oceans world-wide. For North America, this means the Pacific and Atlantic Oceans, and the Gulf Coast.

USES

FOOD

Although the conspicuous red, brown, and green marine algae are, for the most part, a safe group to consume, botanists disagree as to exactly how safe. Some believe that seaweeds are completely nontoxic (which doesn't mean they are edible). Others point out that certain known macroscopic species of these three groups of marine algae are toxic to other marine life, and thus humans should exercise caution. Furthermore, the seaweeds have not all been studied adequately to simply recommend eating them unreservedly. Becoming more specifically acquainted with individual seaweeds certainly seems appropriate. Books that are useful in this regard are:

Stalking the Blue Eyed Scallop by Euell Gibbons

Seashores: A Guide to Animals and Plants Along the Beaches (A Golden Nature Guide) by Herbert Spencer Zim and Lester Ingle

Seaweeds and Their Uses by Valentine J. Chapman
The Seavegetable Book by Judith Madlener

Some seaweeds are simply unpalatable due to their rubbery texture and rigid structure, which can be overcome by drying and powdering or by various cooking methods. What works for one seaweed may not work for another. Where possible, talk to the local people who use seaweeds. Only by experience will you be able to learn which seaweeds are more palatable than others. As you experiment, don't rely *only* on your taste buds' first reaction—try ingenious ways of using seaweeds.

Generally, seaweeds are used

1. for food directly (eaten raw, dried, cooked into soup, and so forth);
2. as a seasoning and/or flavoring (due to their salt and minerals); generally dried and powdered first;
3. in any food product requiring thickening, smoothing, or jelling, such as candies, jellies, puddings, ice creams, and gravies; and
4. as a combination steaming/flavoring agent in clambakes.

Some of the tastiest and most popular seaweeds are dulse, laver, sea lettuce, kelp, and Irish moss.

Those seaweeds that can be eaten raw can be either eaten fresh (from sea or beach) or dried first and then chewed like jerky. Boiling is preferred in some cases where the seaweeds are bone-dry. Others become more palatable after cooking (up to 30 minutes) in water; both the resulting broth and the seaweed will usually be very good. When the broth cools, it will normally gel, making it useful in various dessert items.

Dried and powdered/shredded seaweed is an excellent item to carry in your survival pack. Placed in a pot of water with other wild vegetables, seaweed makes the closest thing to instant soup that's available from the wild.

Most of the hollow stalks and air bladders of the brown algae can be eaten raw or pickled. We've tried the following recipe with the air bladders of the Pacific Coast kelp and found it delicious! Pack approximately 100 raw air bladders (alone or with other pickling vegetables, such as cauliflower, onion, and sliced carrot) into clean quart jars. Add apple cider vinegar until the air bladders are nearly covered, and then add one to two tablespoons of cold-pressed olive oil. Sprinkle in your favorite pickling herbs (such as dill seed, tarragon, and celery powder), and add approximately 10 freshly sliced garlic cloves. Cap tightly and shake once or twice a day for a few days. These air bladders can then be eaten as is or as a side to Mexican dishes as a chili pepper substitute.



The hollow air bladder of kelp is shown at bottom. Photo by Rick Adams

Many seaweeds can serve the same thickening function as okra does in soups. Tender seaweeds can be added directly to soups; the less tender seaweeds are better broken into bits, blended in an electric blender to a fine mush, then strained through a fine mesh or muslin cloth to remove the solids. Then bottle, label, and refrigerate. This liquid can then be used as the soup or gravy base, substituting for flour. The strained-out pulp also has many uses—it can be cooked into homemade ice cream as a smoother/stabilizer, can be used for compost, mulch, or earthworm food, or can be added to animal foods.

The algin that is used to smooth commercial ice cream is obtained from brown algae. Algin is also used as a thickener or smoother in many other foods, such as puddings, jellies, and candies. In packaged foods, the ingredients alginate, alginic acid, and carrageenin are all seaweed derivatives.

Seaweeds have long been used in clambakes. When heated, they give off a steam that adds flavor to other food being cooked near them. Thus, seaweed is thrown directly into large fire pits next to meat, seafood, potatoes, corn, and so on. Seaweeds can also flavor and help steam foods at home if you add a layer of them to both the bottom and top of any large pot or roasting pan containing meat or vegetables.

MEDICINE & NUTRITION

Most iodine is obtained from two sources: brown algae and red algae. Iodine, necessary for the proper functioning of the thyroid gland, has been used for the treatment of goiter for over 5,000 years. Goiter is an enlargement of the thyroid gland, visible as a swelling on the front of the neck.

In his book on nutrition, *Are You Confused?*, Paavo Airola lists kelp as 1 of the 10 plants that help the body's glands reach their peak of healthy activity. Many seaweeds—most commonly kelp—when powdered yield potassium chloride, a salt substitute. This is a godsend particularly for those who must restrict the amount of sodium chloride in their diet. By dry weight, kelp is about 30 percent potassium chloride.

Red algae is the source of agar (also called agar-agar), used for the laboratory culture of bacteria. Algin, from brown algae, is used in many medicines such as cough medicines and laxatives. The gelatinous material extracted by boiling seaweeds can also be used as a remedy for burns and bruises or as a hand lotion.

One hundred grams of dulse contain 3.2 grams of fat, 296 milligrams of calcium, 267 milligrams of phosphorus, 2,085 milligrams of sodium, and 8,060 milligrams of potassium. One hundred grams of Irish moss contains 1.8 grams of fat, 2.1 grams of fiber, 17.6 grams of ash, 885 milligrams of calcium, 157 milligrams of phosphorus, 8.9 milligrams of iron, 2,892 milligrams of sodium, and 2,844 milligrams of potassium. One hundred grams of kelp contain 1,093 milligrams of calcium, 240 milligrams of phosphorus, 3,000 milligrams of sodium, and 5,273 milligrams of potassium.

OTHER

Pacific seaweeds, mostly brown algae, have been used as a source of potassium for fertilizer. Ernest Hogeboom, formerly a professional gardener in Pasadena, California, once showed me his "secret" fertilizer. Into a 55-gallon drum he emptied several trash bags full of kelp, then filled the drum with freshwater and put on the lid. As the seaweed began to decompose, it colored the water dark brown. Within about two months, almost all of the seaweed liquified. This liquid was used as a fertilizer concentrate, which Ernest diluted with freshwater before using on customers' plants.

When Dolores Nyerges operated her organic and natural gardening business, she made her own fertilizer, similar to the Hogeboom secret formula. Dolores filled a 55-gallon drum with seaweed and water, and let the seaweed rot. When she removed some of the very smelly liquid, she added about a cup of fish emulsion per five gallons of the liquid. This was then used as a root fertilizer, but more often applied as a spray on the foliage of the trees and shrubs. When sprayed onto the plants, Dolores noted that unwanted bugs and insects were also kept away.

The liquid that is extracted by grinding seaweed in a blender and straining out the pulp can be used for a mineral bath. Diluted until there's no ocean odor left, it can be used as a water softener for doing the laundry, enabling you to cut back on soap about 30 to 40 percent.

The long flat stipes of some seaweeds, if treated with a leather softener such as Stock Slick, can be used as an interim lashing/binding material (preferably in places where they won't get wet). The long hollow stipes of some of the kelps have been used as fishing lines for deep-sea fishing by Native Americans in Alaska, as per Hillary Stewart in her book "Indian Fishing."

These same stipes, along with any of the stringy segments of seaweeds, can, if the need arises, be woven into moccasins, mats, baskets, and pot holders, and even be used for short-term furniture and clothing repair.

Algin from brown algae is used as an additive to hand lotions, inks, and dyes. Thousands of tons of kelps are used annually in the chemical industries.

CAUTIONS

Be certain that the seaweed you gather for food hasn't been sitting on the beach long enough to begin rotting. Seaweed that has already begun to decompose contains bacteria that will cause sickness if eaten.

Any seaweeds growing near a sewage effluent or by mouths of rivers, bays, or inlets where pollution is being dumped readily pick up the toxins in their bodies, and thus become "poisonous." Such seaweeds should not be eaten. Don't collect seaweeds for consumption after an oil spill.



Be sure to *thoroughly wash* your seaweed before consumption. This eliminates adhering sand and potentially harmful substances. A suggested method, especially if the purity of the ocean water is questionable, is to wash the seaweed in your bathtub or sink. First wash in hot water with a small amount of biodegradable soap, then drain. Repeat the wash and drain process three times in the hottest tap water possible. Finally, rinse at least once in fresh water. Then you can dry the seaweed or cook it into a variety of recipes.

VIOLET (*Viola spp.*)

Violet Family (Violaceae)



DESCRIPTION

KEY FEATURES:

Heart-shaped leaf

Flowers with five petals: two upper petals, two lateral petals, one lower petal.

The Violet family contains 23 genera and 830 species. The *Viola* genus contains about 500 species.

Violet leaves are variable in shape, but they are commonly heart-shaped, on short-to-long stems (depending on species). The flowers can be white, yellow, pink, rose, or the most characteristic violet-purple. The flowers appear solitary on stalks that are usually long. Each flower is composed of five petals: two upper petals, two lateral petals, and one lower petal. The lower petal has a backward pointing spur at its base. Each flower contains five stamens



The common English violet, widely planted in gardens, is one of the best violets from the forager's viewpoint

Violets are perennial plants found over the entire United States, with not only violet-colored flowers, but also white and yellow. All the violet leaves can be eaten

HABITAT: These perennials have a wide variety of habitats, but generally prefer shady and moist places.

WHERE FOUND: Various violets are both native and introduced, and species are found world-wide

USES

FOOD

The young leaves can be added to salads, usually mixed with other greens. Older greens develop a mild astringency, and they are best cooked, either alone as steamed greens or mixed with other greens or vegetables.

Violet leaves (and flowers) can be added to soups and egg dishes.

Jam can also be made with the flowers, using a standard jam recipe. The difficult part is collecting enough flowers to make jam.

MEDICINE

One hundred grams of violet leaves contains about 210 mg. of vitamin C, and 8,258 I.U. of vitamin A. Eating the cooked or raw greens can also have a slight laxative effect.

The leaves have long been used as compresses and poultices for wounds, sores, swellings. To use, the warm leaves are loosely bound to the affected area, and then changed every few hours.



These violets grew out of a crack in a blacktop driveway



Flowering violets growing in the forest. Photo by Jean Pawek

WATERCRESS (*Nasturtium officinale*)

MUSTARD FAMILY (Brassicaceae)



DESCRIPTION

KEY FEATURES:

Always grows in water

Pinnately divided fleshy leaves

White four-petaled flowers

Watercress grows in slow-moving waters, and on the edges of streams. The stems float in the water, with its white roots often showing at the nodes of the floating stem.

The individual stalks of watercress are typically 1/8 to 1/4 inch in diameter, growing to a thickness of 1/2 inch in some older plants. The stalks are hollow and are often streaked with reddish pigment.

The hairless leaves are odd-pinnate (the leaflets are arranged opposite each other on a common stalk with a large single leaflet at the end).

The small flowers are white, and four-petaled, following the typical Mustard Family flower formula.

Watercress





White flowers of watercress. Photo by Helen

HABITAT: Wilderness. It is found growing in slow streams, along riverbanks, in roadside ditches, and in swamps over the entire United States and throughout most of the world.

WHERE FOUND: Watercress was once believed to be a native to the Mediterranean region and Europe. Now, the watercress growing in the U.S. is believed to be native to North America.

USES

FOOD

Wild watercress, the same plant that can be found in the more complete produce stores, can be eaten in salads or as lightly cooked or fried greens. An excellent source of vitamins and minerals, it includes a substantial portion of vitamin C and is one of the best sources of vitamin E (which helps the body use oxygen and increases physical endurance). Eaten raw in salads, it has an enjoyable peppery or mustardy flavor.

Watercress, steamed like spinach and seasoned lightly, makes a tasty dish. Sautéing watercress with eggs and/or nopales (see Prickly Pear) and onions will produce an excellent meal. Season with soy sauce before serving. You'll have a healthful dish that'll be hard to refuse.

For extra flavor, you can add edible wild tubers such as wild onions, boiled gobo, or even potatoes.

The watercress leaves can also be dried, powdered, and used as a seasoning to flavor foods.

Watercress soup is incredible. Though you can use watercress in any way you'd use spinach, we've often made a very simple soup with watercress. Add 4 cups of milk to a pot, and add at least one cup of finely diced watercress. Let it simmer and do not boil it. When it appears done, after about 15 minutes, serve immediately with a dash of paprika. There are many variations to this recipe. If you don't drink milk, you can just skip it, or add potato flour to the water.

We have also dried and powdered the entire watercress plant, and added it to other dried herbs for an herbal seasoning, sometimes as a salt substitute.

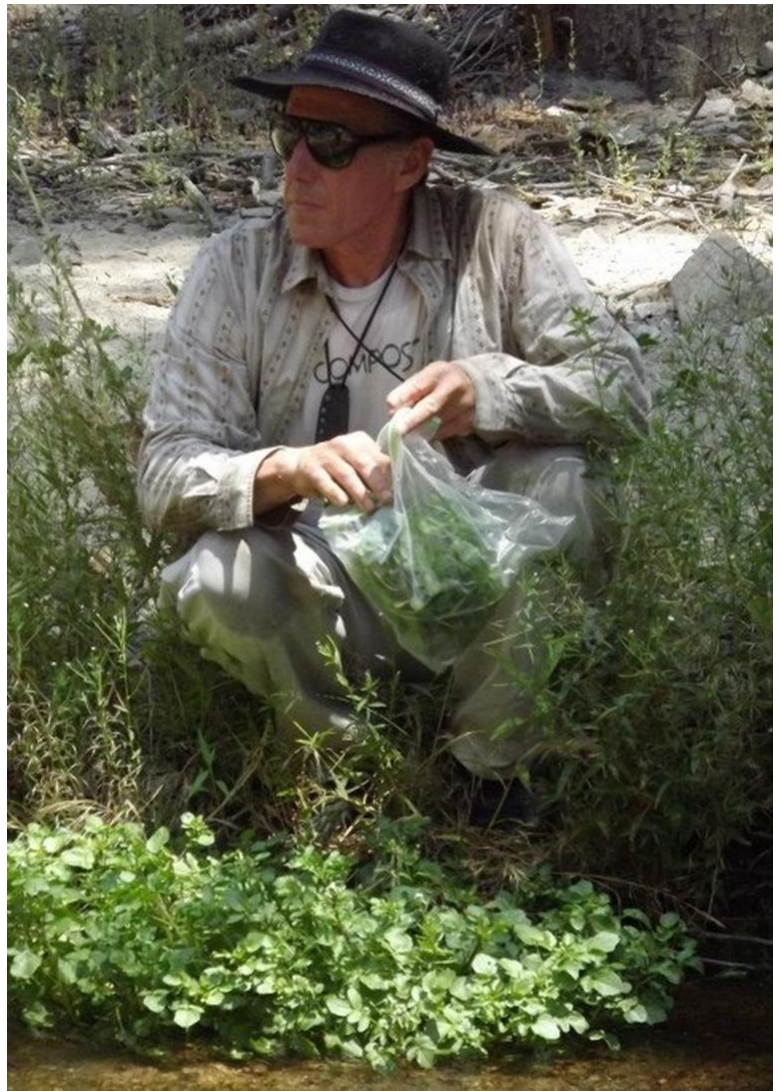
MEDICINE

An analysis of 100 grams (about ½ cup) shows 151 milligrams of calcium, 54 milligrams of Phosphorus, 52 milligrams of sodium, 282 milligrams of potassium, 4,900 international units of vitamin A, and 790 milligrams of vitamin C.

Watercress is used by herbalists as a diuretic, expectorant, for gout, and for stomach aches. Xenophon, an ancient Greek historian and general, and Xerxes, a Persian king, both observed that those who ate watercress invariably maintained better health. They thus recommended that their soldiers include watercress in their diets. The Greeks had a proverb that called watercress a wit-producing food.

CAUTIONS

If you suspect that the water where you gather the greens is polluted, soak the watercress in a solution of water and iodine crystals. On the other hand, cooking the greens makes this procedure unnecessary.



Christopher collecting watercress. Photo by Barbara Kolander



**Christopher and Helen engaged to make a commitment back in 2011
to work together in uplifting self-reliance educational projects**

This book is one of their latest projects done in 2024

