NATURE'S GROCERY STORE: HOW TO FORAGE FOR FOOD

URBAN SURVIVAL SITE

Copyright Notice

Contents

Note: Throughout this book, we placed links to helpful resources. Clicking the links is not necessary, but you can if you want to dig deeper on a certain topic.

Introduction

For most of us, our primary source of fruits and vegetables is a grocery store. Some of us wander the farmer's markets in the summer and more than a few of us carefully and patiently plant a vegetable garden. But how many of us take the time to consider the wild fruits and vegetables that are already surrounding us?

It's easy for an urban dweller to dismiss the idea of wild foraging in a city, but even a casual **forage in the city** will reveal half a dozen common plants and **trees that have nutrient** profiles that rival the best of any produce section.

Even suburban locations seem like a poor option for wild foraging, but many of the common plants and **weeds that grow in our own backyards** can supplement if not totally replace some of the **things we're paying more and more** for at the grocery store.

Those of us who live in wilderness environments have even more options, but how often do we limit our foraging to a few wild raspberries or wonder if there's really anything we can do with a bunch of tart and sour wild grapes?

The simple fact is that we often don't take the time to look around and see the forage in the trees, in the bushes, and on the ground.

Why Forage?

An obvious reason to think about foraging for food is to **off-set the increasingly high prices at local grocery stores**. In spite of that, it still seems like an extreme option for some.

But there's another side to foraging. The nutrient density of many wild foods is consistently higher than store-bought produce, even those random dandelions growing in your back yard.

And this isn't about wilderness survival foraging. In that situation, you forage for food because you have no choice and that's one of your only options. This is about choosing to think of foraged foods as a supplement or replacement for many of the everyday foods you buy.

Fruits and vegetables are often served as a side dish at many meals unless you're a vegetarian, and foraged foods can continue to serve that side dish role in a way that's both cheaper and more nutritious.

The purpose of this exploration is to examine the possibilities presented by foraging. We'll cover a range of subjects related to foraging for food, and we'll pay special attention to plants that are toxic in addition to those that are welcome on any plate.

We'll list the wild edibles that grow across most of North America and some interesting examples from Europe, Asia, and Africa, many of which have found their way to North America.

We'll also cover some recipes and preparation steps and, just as important, identify the parts of wild plants that you can eat along with their remarkable nutritional profiles.

Chapter 1

STEM TO ROOT HARVESTING

There's a curious mindset that affects the way we think about foods in North America. It's very different from the perspectives found in other parts of the world, particularly Asia and Africa.

Produce sections in many grocery stores across North America look like art galleries. The fruit is carefully cut, trimmed, arranged, and presented in a perfect showcase of colors and neatly arranged shapes. Long gone are the leaves, stems, and even some roots of many vegetables. Instead, everything looks artificial.

In Asia and Africa, fruits and vegetables are harvested and displayed from stem to root. We'll sometimes see the appearance or parts of a whole vegetable in organic sections of a grocery store, but the rest of the produce section is always neatly trimmed agri-business as usual.

Stem to root harvesting presents all of the nutrition of a plant and both chefs and grandmas in many parts of the world know exactly what to do with all those parts.

In the United States, we grow up eating fruits and especially vegetables that only look pretty on the plate. Wild foraging may be the first experience some people have with stem-to-

root harvesting.

Did you know: *The short leaves surrounding the base of a head of cauliflower have more calcium than a glass of milk?*

Some of us are familiar with the surprising nutritional benefits of **dandelion** leaves, but the flowers and roots also have nutrition and recipe possibilities. Blackberries are another example. The blackberries are an obvious pick for even the most casual forager, but the blackberry leaves make a surprisingly flavorful medicinal tea.

As we continue to explore wild foraging, we'll look beyond the obvious with any plant or tree and think "stem to root."

What Are The Possibilities?

Start by thinking of each part of a plant. Here are some obvious and not so obvious examples:

Roots

When it comes to roots, the usual suspects we find in gardens and grocery stores include carrots, onions, beets, radishes, turnips, and rutabagas. But the roots of dandelion, goldenrod, **cattails**, **burdock**, day lilies, and even **kudzu** have many of the characteristics, taste, and nutrient profiles of popular root vegetables found in grocery stores.

Stems

It seems odd to eat the stem of a vegetable but not so strange if you think about how often we eat the stems of asparagus, rhubarb, and celery. The stems of many wild plants are also edible including bamboo and cattail shoots.

Other young stems or shoots to think about include **woodsorrel**, **chickweeds**, **common purslane**, **Japanese knotweed**, **winter cress** and other wild mustards in addition to bellworts, violets, **amaranth**, and slippery elm.

Leaves

There's a reason they're called green, leafy vegetables. We eat leaves all the time including all types of lettuce, spinach, kale, cabbage, and on and on.

But **the leaves of so many plants** are not only edible but have nutrient profiles on a par or better than the produce that fills our refrigerator crispers.

Some examples include wild grape leaves, baby oak leaves, plantain leaves, dandelion, clover, and many more.

Typically, the younger leaves are more tender and flavorful than their mature counterparts, and some mature leaves can develop bitter flavor notes late in the season.

Flowers

We don't see a lot of flowers sold as food in grocery stores, but flower petals and other parts of flowers are used in cuisines all around the world. The stamens of the crocus plant are called saffron. It's the most expensive spice in the world.

Dandelion and violet petals are a common seasoning and garnish across cultures. Rose petals are not only edible but have nutritional value. Flowers aren't power packed with calories but as a garnish or addition to a recipe help to round out nutrition, flavor, and appearance.

Fruits

We're all too familiar with the benefits of fruits, but once again we have a botanical prejudice. We'll eat a Golden Delicious apple without hesitation but shun wild crabapples. We buy large strawberries by the pound but often miss the smaller and more nutritious wild strawberries under our feet.

The only caution with wild fruits are those berries that are poisonous such as Belladonna. There are even berries that don't present deadly possibilities but can still make you sick. Honeysuckle, yew, and holly berries have a striking appearance but are toxic and can cause cramping, diarrhea, and vomiting.

Seeds and Nuts

Seeds and nuts are nutritional power houses. They not only provide proteins and amino acids but are also high in calories. And before you assume calories are bad, calories are necessary. Most people require at least 2500 calories a day to simply maintain their weight, and the nutrient density of seeds and nuts make them an excellent source of calories.

But beyond the cashews and peanuts are wild nuts like black walnuts, acorns, pine nuts, and chestnuts. Beyond sunflower seeds are wild seeds like amaranth, rye, and other ancient grains that we have long since forgotten.

Bark

That's right. Bark. In Scandinavia, the phloem or inner bark of pine trees is dried and ground into a flour to make breads, biscuits and even pancakes.

Willow bark has always been known for its natural pain relief properties, but any **lichens that grow on the bark** of willows, oaks, maples, and other trees are considered to be a delicacy in Asia and parts of Europe.

If you step back and think about it, we do deserve at least some credit for stem-to-root harvesting, at least in organic produce sections. But in an environment where fruits and

vegetables are plentiful and cheap, we tend to be a bit picky if not arrogant in our plant food choices.

As food shortages emerge, we may want to open our minds to wild foraging. It not only can present us with a cost effective alternative but give us much more nutritional diversity.

Chapter 2

PLANT NUTRITION 101

It's no news that fruits and vegetables are nutritious, but the nutrient density in many wild plants is worth noting. It's a proven fact that wild plants have a higher nutritional density than domesticated crops. Cultivated foods like vegetables have been selected for many generations for their size and hardiness rather than their nutritional value.

All cultivated foods originated as wild plants, and over the long history of agriculture, likely starting around 12,000 years ago, humans have saved seeds and hybridized plants to genetically select larger, easy-to-grow varieties. Such plants make for greater crop yields but tend to contain fewer nutrients than their wild counterparts. And that's the problem.

The emergence of agri-business to replace traditional farms and traditional farming practices has placed an emphasis on crop yields and size. Many fruits and vegetables are sold by weight so the financial incentive for agri-business is to produce plants that yield the heaviest fruits and the most vegetables.

There's also an incentive to pursue mono-cropping which focuses on one variety that produces the best yield and is usually genetically modified either through hybridization or in a

laboratory.

With the advent of agriculture, humans began to focus on select cultivated food staples rather than the wide diversity of foods available in the wild, leading to a significant reduction in overall dietary diversity.

Additionally, cultivated foods grown via mono-cropping in conventional agricultural systems lead to nutrient depletion in the soil, and as a result the food grown in that soil. Chemical fertilizers take the place of natural nutrients, and those fertilizers are only focused on plant growth yielding the biggest yield and the largest crop.

Another obvious fact is that wild edible foods tend to grow within bio-diverse communities, enabling them to garner nutrients from the richer soil conditions supported by this biodiversity.

Just as important, wild foods can be eaten on the day of harvest whereas cultivated foods often lose nutrients during transportation and storage.

The end result is that the combination of modern food choices, conventional agricultural methods, and the transport and storage of food have all contributed to a lack of nutrients in the Western diet.

Even a moderate level of nutrient deficiency is considered a risk factor for a broad range of chronic degenerative diseases.

This nutritional lack in modern foods has led to the enrichment of staples such as cereals and grains with vitamins and minerals, and many individuals seek out supplements to compensate for nutrient deficiencies.

However, these isolated and/or synthesized vitamins and minerals often come in a different form than those found in foods and are not as readily absorbed by the body. They also do not benefit from the combination with other elements naturally found in foods and as a result, they lack the synergistic interactions that are present in whole foods and traditional food combinations.

The overall result is that wild foods have a greater nutrient density than their grocery store counterparts. We'll identify the top wild foraged plants for nutrition but first, here's a reminder of what makes wild plants so good for us.

Vitamins and Minerals

Most of our vitamin intake comes from fruits and vegetables, and wild edibles don't disappoint. In many instances, wild plants have a higher concentration of vitamins than their domestic counterparts.

Did you know: *Dandelions contain more vitamin A than carrots?*

Plants are also one of the best natural sources for minerals

including iron, calcium, magnesium, zinc, and potassium.

Did you know: *Dandelion has more calcium than spinach?*

Fiber

Fiber is a very important addition to any diet for gastro-intestinal and overall gut health. Plants are the ultimate source of fiber and all fruits and vegetables provide fiber to varying degrees.

Wild edibles often provide higher levels of fiber, particularly if you engage in stem-to-root harvesting. The fiber in leaves, stems, and roots, in addition to the skin on fruits and vegetables, are an excellent source of fiber.

It's hard to measure a difference in fiber content in wild plants versus domesticated plants. Both are essentially equal, although eating more stems and leaves from wild plants could increase your fiber intake.

Protein

Many of us derive most of our protein from meat and seafood. However, a vegan diet teaches a lot about finding protein in plant sources. Many of the most popular protein sources from plants are found in seeds and nuts.

Wild counterparts include: black walnuts, acorns, chestnuts,

hazelnuts, pine nuts, amaranth seeds, rye grains, buckwheat seeds, and most other edible wild seeds.

Calories

Refined sugars and vegetable oils are devoid of most nutrients but represent 36% of calories consumed in a typical diet in the United States. The simple fact is that most Americans are overfed and malnourished, and this trend extends well beyond the boundaries of the United States.

What's important to understand about calories is that we simply can't live without them. People have the wrong perception

of calories given the negative connotations that continually surround them in terms of weight gain.

The simple fact is that the average, active adult needs 2,000 to 2,500 calories a day to maintain their current body weight. Go below that threshold and we lose weight. Go over that threshold and we gain weight.

Another point to consider is that we derive calories from two sources: fats and carbohydrates. Both can be detrimental to our health if they're the wrong kind or derived from the wrong sources.

Calories from Fat

There's a lot written about fats, but here's the telegram. There are 4 kinds of fats: monounsaturated fats, polyunsaturated fats, saturated fats, and trans-fats.

Monounsaturated and polyunsaturated fats are derived from plants. Saturated fats are animal fats. Trans fats are polyunsaturated fats that are transformed fats specially processed from oils to create a fat that remains solid at room temperature. Shortening and margarine are the two most common examples.

All fats contain cholesterol but the monounsaturated fats are defined as the best kind of fat. Examples include olive oil, sunflower seed oil, safflower seed oil, and other fats or oils

derived from plants, seeds, and nuts.

What makes a monounsaturated fat better for us is the presence of high-density-lipids or HDL cholesterol. It's also referred to as the "good" cholesterol because it does not build up plaque in our arteries and actually strips bad cholesterol from our blood stream.

The "bad" cholesterol is identified as a low-density-lipids or LDL cholesterol. It's the primary cause of clogged arteries. Trans-fat presents the most LDL cholesterol and is the worst form of fat for overall cardiovascular health. Saturated fats or animal fats like lard, tallow, and butter are close behind.

There's much more to understand about fats and cholesterol but **in terms of wild edibles, nuts and seeds are a primary source of calories from fat for a foraged diet and most of those are monounsaturated or the "good" fats.**

Calories from Carbohydrates

There are also two fundamental kinds of carbohydrates in our diet: carbohydrates from sucrose or processed sugars, and carbohydrates from fructose or natural sugars.

Too much sugar in any form is not good for overall health but between the two sugars, fructose is the healthier choice. Fructose also happens to be the sugar that is derived from wild edible plants.

Wild fruits like berries, crab apples, and other wild fruits are the best source of natural sugars and provide higher calorie counts than flowers, leaves, roots, and stems from plants. And that's an important consideration, especially if you're depending more and more on foraged wild edibles.

Did you know: *One cup of green leafy vegetables, regardless of the source, has only 25 calories?*

25 calories a cup sounds like a good thing if you're trying to lose weight, but if you're depending on any type of vegetable to any degree, you need to think about other wild edibles that can give you the necessary calories to maintain weight.

Eating animal fats is one way to boost calorie count, but it's important to consider both the amount and the type of calories in any plant you forage. As a general rule, fats from plants are healthier fats.

Below is a list of the calorie counts for wild foraged plants. Caloric wild super foods are **highlighted in green**.

Calories from 1 Cup of Wild Foraged Plants

Species	Calories from Fat	Total Calories per Cup
Acorns	**9%**	**130**
Amaranth (pigweed)	**16%**	**700**

Species	Calories from Fat	Total Calories per Cup
Bamboo Shoots	-	41
Black and Red Raspberries	-	65
Blackberries	-	60
Black Walnuts	95%	750
Blueberries	-	80
Burdock	-	30
Cattail Root	-	40
Chestnuts	1%	200
Chicken of the woods (sulfur mushroom)	-	20
Chickweed	-	25
Clover	-	25
Dandelion	-	25
Elderberry	1%	105
Fiddlehead ferms	-	80
Goose Berries	-	65
Hazelnuts	11%	700
Kelp	-	100

Species	Calories from Fat	Total Calories per Cup
Morel Mushroom	-	15
Mulberry	-	60
Nettle	-	25
Pine Nuts	8%	900
Plantain	-	25
Prickly Pear Cactus	-	20
Puffball Mush-room	-	20
Purslane (portulaca)	-	7
Red Clover Blossoms	-	30
Seaweed	-	30
Violet	-	20
Watercress	-	25
Wild Crab Apples	-	85
Wild Grapes	-	80
Wild Leek (ramps)	-	25
Wild Strawberry	-	50

Chapter 3

FOUR SEASON FORAGING

It's easy assume that late summer and fall are best time for foraging, but that would be based on typical farming and gardening practices. We customarily plant in the spring, cultivate in the summer, and harvest later in the year while waiting for winter to pass before replanting in the spring.

Wild plants are different. They emerge and grow with the natural cycles of the seasons, and while more temperate times of years like spring and fall are better suited growing conditions, **even in winter** we can find and forage wild foods.

Spring

Spring is a time of sprouts, and many wild plants emerge that are both edible and tender. The hard part is plant identification, although some like the fiddlehead fern are easy to spot and both nutritious and delicious. We'll include wild forage recipes at the end of this exploration.

You should know that some plants gradually become toxic as they mature. Pokeweed is a prime example. The early growth of the pokeweed plant presents tender leaves and stems that can be used in a salad, soup, or other recipes.

As the flower stalks emerge, flower, and bud into green and then purple berries, the toxicity of the plant increases to the point that the mature berries fall in the category of poisonous.

Many leaves across a range of plants that first emerge in the spring are also viable additions to a diet of wild edibles, including baby oak leaves. And don't forget that both the emerging shoots of cattail and its flower heads are prime targets for any wild forager.

Summer

Summer is primetime for berry picking, and most berry plants produce mature fruit across the month of July. This includes black raspberries, red raspberries, blackberries, blueberries, goose berries, elderberries, and wild strawberries. The time of year can vary depending on the latitude of your location, but generally summer is the prime time of year for berries.

Mulberry trees also produce fruit in summer and will fruit in June and July and even into August. The amount of fruit that a mulberry tree can produce in addition to the long season of fruit maturity makes the mulberry one of the best wild sources for berries. Edible wild flowers begin to emerge as well.

Many other plants hit their prime in summer, but plant maturity has a downside. As many green leafy plants mature, their leaves develop a bitter flavor as the flower stalks emerge and grow. This happens to most leafy plants.

You could almost think of it as another defense mechanism developed by the plants to inhibit insect and animal predators, although the aroma of many flowers are designed to intentionally attract flying insects for pollination.

Diminishing the bitterness in any leafy wild edible can easily be done with any cooking method from broiling to baking or even frying. It all depends on how you're preparing them in a recipe. Soaking in cold water with vinegar can also reduce the bitterness if you're eating them raw in a salad or sandwich.

In actual fact, some people prefer a bitter taste in a leafy vegetable. Radicchio is a popular domesticated type of lettuce that people often add to salads and sandwiches because of its slightly bitter flavor profile. In Vietnamese cuisine, ingredients with bitter flavors are a common addition to many dishes.

Fall

Fall is the traditional harvest season, and many nuts that have started to mature in late summer are reaching their peak including black walnuts, acorns, chestnuts and hazelnuts.

Most edible wild plants continue to grow and mature and are easily harvested, at least until the first frost. Seeds are also coming into full maturity and easily harvested from wild sunflowers to rye grass, buckwheat plants, pine nuts from fallen pine cones, and amaranth.

Winter

It may seem that winter would present few opportunities for wild foraging, but there are still 3 areas with possibility.

One place to look is on the ground beneath nut-bearing trees. Acorns, walnuts, and other nuts often litter the ground beneath a nut-bearing tree, assuming you find them before the squirrels. Even then, some trees produce so many nuts that even a family of squirrels would be overwhelmed.

Another opportunity comes from roots. Cattail roots have had the full season to mature and are both large and at their peak. The same is true of many other roots including dandelion, wild lily, **burdock**, and others.

One area often overlooked is bark. And to be clear, we're

not talking about the outer layers of bark but the inner layers called cambium, phloem, and xylem. The inner phloem layers of pine trees can be dried and crushed into a flour. The thin, translucent xylem layer of willow trees makes a potent pain-relieving tea.

Lichens usually grow on bark and are a cross between algae and a fungus. They are a common addition to soups and stews across Asia, Europe, and Scandinavia. The key is to look for the blue/green lichens. Those are safe to eat, and they have a gelatinous quality similar to kelp or seaweed. Orange/yellow lichens should be avoided. They're toxic.

4 Season Foraging for Edible Plants

Species	Spring	Summer	Fall	Winter
Acorns		X	X	X
Amaranth (pigweed)		X	X	X
Bamboo Shoots	X	X		
Black & Red Raspberries		X		
Blackberries		X		
Black Walnuts		X	X	X
Blueberries		X		
Burdock	X	X	X	X

Species	Spring	Summer	Fall	Winter
Cattails			X	X
Chestnuts		X	X	X
Chicken of the Woods Mushroom	X	X		
Clover	X	X		
Dandelion	X	X	X	
Elderberry		X		
Fiddleheads	X			
Gooseberries		X		
Hazelnuts		X	X	X
Kelp	X	X	X	X
Morel Mushroom	X			
Mulberry		X		
Pine Nuts		X	X	X
Plantain	X	X		
Prickly Pear Cactus	X	X	X	X
Puffball Mushroom			X	
Purslane (portulaca)	X	X	X	
Red Clover Blossoms	X			
Seaweed	X	X	X	X

Species	Spring	Summer	Fall	Winter
Violet	X	X		
Watercress	X	X	X	
Wild Crab Apples		X	X	
Wild Grapes		X		
Wild Leek (ramps)	X	X		
Wild Strawberry		X		

Chapter 4

WHEN PLANTS ARE POISONOUS

If there's one thing to always remember when wild foraging it's that the majority of plants you encounter in the wild are toxic. Some are **downright poisonous.** The reason is simple. It's a defense mechanism that plants have evolved over millions of years. Plants can't run away. They are rooted in the ground and at the mercy of predators, whether insects or animals.

As a result, they've developed ways to defend themselves. Many animals and insects can instinctively sense when a plant is toxic or dangerous. Their instincts are well developed over those same millions of years. Our instincts aren't quite as refined and we usually have to touch, smell, or taste something to assess how much we like it.

Even then, a delicate aroma or pleasing taste doesn't tell the whole story. **Mushrooms** may be the most toxic plants on Earth, and some of the most poisonous mushrooms actually taste pretty good. Making matters worse is that plant poisoning is not immediately apparent. It can take a day or more for the toxins to kick in from some poisonous plants, and by then the poisons have been totally assimilated into our blood streams.

The most common effects of **plant poisoning** include stomach cramps, diarrhea, and vomiting. In a worst case scenario, permanent organ damage is the result, particularly the liver. In some cases, death is the result and liver failure is often the cause. Sadly, a liver transplant is not an option for many given that the toxins remaining in the blood stream from some mushrooms would cause a transplanted liver to fail again.

Defining Toxicity in Plants

The defense mechanisms in plants vary widely. Some, like thorns, are obvious and easy to see. Others, like the chemicals in poison ivy, aren't apparent until a rash or blisters appear. It's the ingested chemicals that pose the greatest hazard as they attack various parts of the body from organs to muscles to the central nervous systems.

Complicating matters is that some parts of a plant can be edible while others are highly toxic. Asparagus spears are a delicacy, but the berries of a mature asparagus plant are poisonous. Rhubarb stalks are juicy and sweet, but the leaves are highly toxic. It's not just about having the ability to identify an edible plant but also knowing which parts of the plants are safe to eat.

Here are some of the common toxic characteristics of plants and some of the varieties that present them:

Thorns and Needles

It's ironic that some of the most edible plants present thorns and needles on their stalks and canes. The reason is that some plants want to attract insects and animals to their flowers and fruits for pollination and to spread their seeds.

That means that the rest of the plant has to put up an alternative defense to preserve the survival of the entire plant. The results are thorns and needles that appear on many edible plants.

This includes black and red raspberries, blackberries, thistle, prickly pear and saguaro cactus, and stinging nettle. However, just because a plant presents thorns and needles doesn't mean it's edible, although in a surprising number of instances, that's true. The key is to be sure of what you're eating and beware of the thorns and needles.

Chemical Irritants

Some well known plants like poison ivy, poison sumac and poison oak have a chemical resin in their stems and leaves. The resin in the plants contains an oily substance called urushiol. Urushiol is easily passed from the plants to other objects. These include tools and animals.

This chemical can remain active for a year or longer. It is im-

portant to know that the oils can be passed through clothing, pets, or smoke from a burning plant.

Toxic Chemicals

The list of toxic chemicals in plants is long and complex. Almost all of them are genetically evolved to either repel or kill insects or animals that prey on them. Unfortunately, that includes humans.

White snakeroot was responsible for the death of Abraham Lincoln's mother. White snakeroot contains a toxic alcohol known as trematol. What's alarming is that you don't have to ingest white snakeroot to suffer the consequences. Nancy Hanks was poisoned by simply drinking the milk of a cow that had grazed on the plant. In fact, both the meat and milk from poisoned livestock can pass the toxin to humans.

Water hemlock also known as poison hemlock is well known as one of the most toxic plants in North America. All four species of water hemlock contain cicutoxin, a highly poisonous, unsaturated alcohol with a strong, carrot-like odor. The highest concentration of toxin is found in the roots but is also present in leaves and stems, especially early in the growing season. It is highly poisonous. Socrates committed suicide by drinking an infusion of water hemlock.

Atropa Belladonna is a highly poisonous plant and is also known as deadly nightshade. Its roots, leaves, and fruits con-

tain alkaloids: atropine, hyocyamine, and scopolamine. The risk of poisoning in children is important because of the possible confusion with other berries. Activated charcoal absorbs the poisons quite well.

The Romans used belladonna as a biological weapon to defeat the Danes by contaminating their liquor supply with belladonna, inducing a deep sleep, and murdering them in their hapless state. The wives of Roman emperors Augustus and Claudius poisoned them with atropine from belladonna (pictured below).

When Toxic Means Deadly

The most toxic wild forage you can encounter is in the family of wild mushrooms. According to the U.S. Forest Service, out of the 10,000 species of wild mushrooms in North America, 96% are toxic and around 3% are deadly.

The most common dangerous mushrooms are those belonging to the Amanita genus, especially Amanita phalloides commonly known as the "death cap" mushroom. They contain toxic compounds called amatoxins that damage liver cells. Symptoms don't appear until 6 to 24 hours after ingestion by which time the toxins have been completely absorbed.

After an initial phase of digestive symptoms, the patient may appear to recover for two to three days, followed by relapse with liver and kidney failure, which could lead to massive bleeding and death. To date there is no known antidote or cure.

The Look Alike Danger

Most of us know that poison ivy has 3 leaves but so do thousands of other plants and many of them are edible. Some of us are **bold enough to pick mushrooms** that we believe are so unique in their appearance, like puffballs and chicken of the woods, that we're confident they're safe. Unfortunately, the unique shape of a morel is similar to the false morel which

is highly toxic.

As far as other mushrooms are concerned, many edible wild mushrooms have numerous toxic and poisonous look alikes. As a general rule, avoid foraging any wild mushrooms unless you are an absolute expert on the subject or are accompanied by someone with expert knowledge on wild foraging for mushrooms. They're simply not worth the risk for an inexperienced forager.

One of the common attributes of a toxic mushroom is a bulbous bottom where the stem meets the ground and a "skirt" around the stem beneath the mushroom cap. If you see these attributes on any mushroom, it's poisonous. Remember as well that many toxic mushrooms don't necessarily have these attributes, but if they do, walk away.

For that matter, make sure you know exactly what you're harvesting during any forager foray, or just stick to the dandelions.

Chapter 5

THE UNIVERSAL EDIBILITY TEST

Note: Originally, this section was going to be at the end of chapter 4, but I decided that it's so important, it deserves its own chapter.

The first thing you need to understand is the the universal edibility test is a ***last resort.*** If you are starving and desperately need something to eat, only then should you use this test. Otherwise, use **a field guide** with lots of full color pictures to identify plants that are safe to eat.

Here's how it works:

1. Make sure you have an empty stomach first in order to accurately gauge the effects of the plant. Try to fast for at least 8 hours before testing a plant. (If you're starving, then you've probably done this already.)

2. Separate the plant between the leaves, roots, stems, buds, and flowers. These are all different elements that can contain various edible or dangerous aspects.

3. During the fasting period, rub the plant against an area of your skin to see if there's a reaction. Some recommend

placing a piece of the plant on your inner elbow or wrist for the entire 8 hours. If your skin ends up burning, itching, starts forming a rash, or starts feeling numb, wash it off and throw away the plant. If the plant is not good for your skin, it won't be good for your digestive tract.

4. If a portion of the plant passes the skin test, try to cook it. You'll want to boil the plant if possible as this can make some typically dangerous plants edible. During the test period, take nothing by mouth except purified water and the plant part you are testing.

5. Before taking a bite, press the plant to your lips for three to five minutes. If you feel any burning or tingling, you will want to discard that aspect of the plant.

6. The next step is to take a small bite. Lightly chew it, and hold it in your mouth for fifteen minutes. This is awkward, but necessary. Make sure there is no burning, tingling, soapy, or bitter tastes. If it does, spit out the plant and wash out your mouth.

7. Once you pass all of these tests, eat a small portion of the plant and wait eight hours. If you do not feel nauseous or sick, you can assume that part of the plant is edible.

This test might seem tedious and time-consuming, especially

if you're starving, but it is necessary if you want to live. Dying from a toxic plant is no better than dying from starvation. Here are some other things to keep in mind.

Avoid any wild or unknown plants that have:

- Milky or discolored sap.
- Beans, bulbs, or seeds inside pods.
- A bitter or soapy taste.
- Spines, fine hairs, or thorns.
- Foliage that resembles dill, carrot, parsnip, or parsley.
- An almond scent in woody parts and leaves.
- Grain heads with pink, purplish, or black spurs.
- A three-leafed growth pattern.

Also, some plants can develop dangerous fungal toxins. Do not eat any fruit that is starting to spoil or showing signs of mildew or fungus.

You will also want to avoid eating plants found near roads or other spaces that have regular exposure to chemicals, exhaust, or herbicides. Instead, look for plants in backyards and large parks.

Always wash off plants before eating them, boiling if possible to remove harmful bacteria.

Make Sure Testing is Worth Your Time

As you can see, edibility testing takes a while. Ensure there

is enough of the plant in question to make it worth your time. Don't waste time testing a plant that is not relatively abundant in the area.

Eat in Moderation

Eating any plants on an empty stomach will often cause diarrhea, nausea, or cramps. Green apples and wild onions have this effect on people commonly. Even after testing a plant, eat in moderation to avoid losing unnecessary fluids and calories.

Do NOT Use Mushrooms for the Universal Edibility Test

There is no room for experimentation with mushrooms. Symptoms caused by the most dangerous mushrooms may not show up until several days after ingestion and can affect the central nervous system. Only eat a mushroom if you are already 100% positive it's a safe vareity.

Chapter 6

GEAR, TOOLS, AND EQUIPMENT

Clothing

Think in terms of long sleeve shirts and full length pants. Denim pants are a good idea, and a denim shirt if you have one. That may be hard to do in the heat of summer, but it's in July when wild berries are ripe, and many wild berry plants have thorns that can penetrate and scratch exposed skin. Blackberries have the sharpest thorns and even a glancing blow can leave a long, bleeding scratch on exposed arms or legs.

Long sleeves and pants also protect the skin from exposure to the urushiol in poison ivy, poison oak, and poison sumac. Cooler times of year are less of an issue, but regardless of the temperatures, long sleeves and pants are the way to go.

Gloves are always a good idea, but you'll be better served by tight, form-fitting gloves that give your fingers some flexibility and the ability to grasp specific parts of plants. Garden gloves are best. They're rubber dipped gloves with fabric on the back of the hand to prevent perspiration.

In winter, any gloves will do because you'll probably be spending most of your time picking up nuts under snow or re-

moving tree bark or lichens. If you're harvesting the roots of **cattails**, long rubber gloves that reach past the elbow and up the arm will allow you to harvest in icy cold water, at least for a while.

Goggles or sunglasses will help protect your eyes from thorns or needles and other brush you'll encounter in some of the thickets you'll travel through while foraging.

Boots are a good idea anywhere in the wild and will also help protect your ankles from thorns and other plant defense mechanisms.

Tools and Equipment

Garden tools are your best bet for wild foraging. Think in terms of what you'll need to snip, trim, cut, saw, and dig. Here's a short list:

- Folding military shovel
- Pruning shears
- Sheath knife or machete with saw back
- Fruit picking basket on a pole if harvesting from high in trees
- Kitchen shears

Collection bags or some other way to collect, hold, and transport your harvest.

- A large, ventilated canvas sack is a good place to start.
- You'll also want a collection of resealable plastic bags of various sizes so you can separate and contain different types of plants from your wild forage.
- If you're going berry picking, a plastic bowl with a tight fitting lid will protect any delicate berries from getting crushed while you travel and continue to forage.

A backpack to carry everything is a good idea. Choose a size that allows you to pack and carry everything comfortably.

A field guide to edible wild plants is indispensible. Make sure it has photos of edible parts of the plants and review it before you head out. You don't want to spend half your time searching for a certain plant in a field guide if you don't understand how the information is organized and presented.

A field guide to toxic and poisonous plants is just as important. If you're not sure about a plant or if you know there are toxic lookalikes for an edible plant, stop and check both field guides.

Sunscreen, insect repellent, anti-itch cream, a canteen filled with water and other things you would bring with you on a long hike are a very good idea. Bring a snack in case you don't find some berries to munch on while your wander. If there's anything else you usually bring along for a day hike – pack it.

As you continue to wild forage, you'll no doubt customize your kit and may choose to leave some things behind if you have a particular kind of forage in mind or if the time of year limits your options.

You may also pack specialized gear like waders if your goal is to forage in water for cattails, seaweed, or kelp. Some people will even bring along an axe or hatchet if their goal is to harvest bark or a full-sized spade if roots are the primary objective.

Chapter 7

WILD EDIBLES

We've provided some photos and descriptions of the appearance of many edible wild plants in this chapter. Also some notes on areas they can be found across locations and ranges.

Because the appearance of many plants can vary depending on time of year and species, you should once again **use a field guide** to familiarize yourself with the appearance of any edible wild plant before collecting.

Acorns

Description: About ½ inch to 1 inch in diameter with a distinctive cap.

Range: Common on all oak trees around the world. Acorns begin to fall to the ground in summer and continue to fall into winter.

Black & Red Raspberries

Description: Show distinctive white dust on their canes and round purple or red berries.

Range: Another common North American plant. They grow everywhere across yards, forests, and fields. Typically grow in patches. Be careful of their thorns and any wild animals that like to forage for raspberries. Typically mature in early July.

Black Walnuts

Description: Walnuts average about 2 inches in diameter with a bright green appearance.

Range: Black walnut trees are common across North America averaging 60 feet in height when mature. Walnuts mature in summer and fall from the trees until late autumn.

Blackberry

Description: Present dark red color on their canes with large, round deep purple berries.

Range: Grow across North America in patches. Prefer open spaces and bright sun. Thorns are extremely sharp. Berries also have larger seeds than most other berries. Mature in late July in most areas. Perennial.

Blueberries

Description: Bush like plants about 3 feet high. The berries are round and bluish with a frosty white coating.

Range: Common in northern parts of North America. Prefer open, sunny spaces. Often grow in groves. No thorns. Typically mature in summer at varying times depending on the latitude.

Burdock

Description: Known mostly for their burrs that get into the hair of pets. Both the early leaves and roots are edible.

Range: Another plant common across North America. Grow in all locations but prefer roadsides and sunny locations. Emerge in late spring and grow through fall and still visible in winter when the roots can still be harvested.

Cattails

Description: Tall grassy plants up to 4 feet in height with distinctive stalks.

Range: Occur across North America in swamps and along shallow waters of ponds, lakes, and slow moving rivers. Apparent year round.

Chicken of the Woods Mushroom

Description: Present a vibrant combination of colors ranging from yellow transitioning to bright orange in large clusters up to a foot in diameter.

Range: Commonly grow on stumps and deadfall trees in any area around the world. Appear in spring and early summer.

Clover

Description: Small, round, individual leaves sometimes in a 3-leaf shape. The leaves and stems.

Range: Prefer open, sunny ground across North America. Grow low to the ground like a ground cover in clumps. Often spread into a bed of clover.

Dandelion

Description: Known for their spiky leaves and grow from a central point.

Range: Found everywhere, although they prefer open ground and sun. They emerge in the spring and mature through the summer. A bit bitter as they mature. You can harvest the leaves, flowers, and roots, but avoid the stems.

Elderberry

Description: Tall bushes up to 10 feet in height. Berries are small and grow in large clusters with a deep, purple color.

Range: Another common plant across North America. Grows in all locations on large, stalky bushes. Berries mature in late summer in most locations.

Fiddlehead Fern

Description: Emergent fern plants with an unfolding and distinctive fiddle head shape.

Range: Appear across North America in forests and fields. Prefer damp and swampy areas, but some varieties will grow in any biome. First appear and only edible in early spring before the fiddleheads unfold to reveal the full fern.

Lichens

Description: Appear as a large blue/green growth on the bark of trees.

Range: Occur around the world on the bark of many trees. The blue/green varieties are edible. The yellow/orange varieties are toxic.

Morel Mushroom

Description: Emerge with a distinctive cone shape and light brown appearance.

Range: Occur across North America in early spring mostly in forested areas. Sometimes confused with the toxic false morel which is usually grey in appearance.

Mulberry

Description: Tall trees growing up to 40 feet with a continuous crop of small, purple, or light yellow berries.

Range: Grow across North America. Easy to locate because of the litter of berries on the ground under foot. Produces berries throughout summer with peak in June in most locations.

Plantain

Description: The oval, pointed leaves are a delicacy but become somewhat bitter when the seed stalks emerge.

Range: As common as dandelions and prefer open, sunny locations. They emerge in early spring when the leaves are the most tender. Their tall, slender seed stalks make them easy to recognize. They have many look-alikes, so refer to a field guide to be sure.

Puffball Mushroom

Description: Appear as large, ball shapes ranging in size for 4 to 12 inches in diameter.

Range: Appear in early fall, usually in October, across North America. Typically sprout from the ground from decomposing wood and compost. Edible after first emerging but gradually becomes toxic as the interior turns green and eventually into dusty spores.

Purslane

Description: A trailing plant with fleshy leaves and small yellow flowers.

Range: Although low in calories, purslane is recognized as the best plant-based source of Omega-3's.

Red Clover Blossoms

Description: Actually a light purple color in a small, round shape.

Range: Common across North America. Known for use in herbal teas for both their flavor and medicinal qualities. Some clover species have a white flower that is also edible.

Thistle

Description: Average 3 to 4 feet in height with long stalks and light purple flower heads.

Range: Occur around the world across fields and prairies. Emerge in spring and grow through summer and fall. Roots are edible.

Violet

Description: The leaves come to a point from a central point with flowers that range from purple to blue to white.

Range: Common across North America growing in open spaces with steady sunlight. The leaves, stems, and flowers are edible. Emerge in late spring and die off towards the end of summer.

Wild Crab Apples

Description: Average height is 25 feet with blossoms in the spring and fruit into fall and winter.

Range: Commonly planted as an ornamental tree across North America and wild variations will occasionally show up. Sometimes require a fruit harvesting basket on a pole or you can shake the branches and catch the fruits on a tarp.

Wild Strawberry

Description: Has small, rounded leaves coming to a point in clusters of 3 leaves and smaller fruits than common strawberries.

Range: Grow across North America. Prefer open spaces and sun. Common on roadsides. A perennial that will spread to make a patch over time.

Chapter 8

WILD FORAGE RECIPES

Some of these recipes are highly generalized and presented as a basic recipe concept. For example, there's a basic way to make jelly from wild fruits, so there's no need to get too specific about how to make strawberry jelly versus blueberry jelly. The same goes for any syrup or juice made from fruits.

On the other hand, some recipes call for specific steps unique to the harvest. **Acorns contain tannins** which are highly toxic, and there are various ways to leach out the tannins. Stinging nettle is actually edible, but harvesting and dealing with the thorny leaves is another matter. The same is true for making a tea from blackberry leaves or flour from pine bark.

We'll cover **as many recipes as possible** but there are excellent cookbooks on wild foraging that can give you more information. There's also common sense which would apply to making any salad or soup from leafy greens like dandelions, plantains, or any other lettuce-like wild harvest.

Wash. Wash. Wash.

Before you start eating anything you've foraged, wash it, wash it, wash it. Grocery store foods are usually washed and

rinsed after harvest and before shipping. Wild foods, even if they're **from your own backyard**, need to be carefully washed in cold running water.

Foods growing outdoors are subject to all manner of contaminants, whether in water or coming out of the ground. Airborne dust, germs, and pollutants travel at will. Bird droppings make every plant fair game and who knows what the family dog has been doing in the yard and around the neighborhood.

If in doubt, soak your wild foraged foods in vinegar in a bowl and rinse with cold water. You're making a lot of efforts to avoid toxic plants, but even edible plants that are safe to eat can pick up a stray germ, virus, or fungus.

This is especially important for any plant you forage from water at any time of year. Wash it, wash it, wash it.

Concept Recipes

Wild Fruit Juice

Wild fruit juices are easy to make and with berries, you don't even need a juicer. Just wash the berries you've foraged today and crush with a potato masher or your very clean hands in a bowl.

Strain through a strainer to remove any seeds and store in a mason jar in the refrigerator. You can easily combine different berries to make a berry juice blend.

Any Fruit Jelly

Fruit Jelly is usually made from a combination of fruit juice, sugar, and pectin. The sugar and pectin help the juice thicken to a gel when brought to a gentle boil.

Here's the basic recipe, and you can use any fruit juice or combine them. It will make about 2 pints.

Ingredients:

- 2 ½ cups of any juice or juice combination
- 3 ½ cups of sugar
- 3 tablespoons of pectin

Directions:

1. Put the juice and sugar into a saucepan and bring to a gentle boil for 2 minutes.
2. Add the pectin, stir, and continue to boil for one minute.
3. When done, pour the jelly into sterilized jars and either process in a hot water bath for 15 minutes or refrigerate.
4. Make sure you wipe off any spilled excess from the top and the sides of the jars before sealing them.
5. Refrigerate them after opening and and your jelly should keep for 1 month.

How to Process Jams and Jellies

If you want to extend the shelf-life of your jam or jelly, you'll need to process it. To do this, you'll need some basic equipment.

Processing Equipment

- 1 large pot with lid capable of holding 3 gallons of water
- 1 ½ gallons of water or enough to cover jars when all jars are immersed in pot
- Canning jars with lids
- Jar tongs for removing jars from boiling water plus regular tongs for lids
- Towel to protect countertop and to dry jars

Directions

1. Bring the water to a boil in the pot.
2. Remove the lids from the jars and drop the jars and lids into the boiling water.
3. After 5 minutes, carefully remove the jars and the lids and allow them to dry on a clean, dry towel.
4. Spoon the jam into the jars, leaving a quarter-inch of headspace at the top and screw on the lids tightly.
5. Immerse the jars in the boiling water and cover the pot and boil for 10 minutes.
6. Shut off the heat and carefully remove the jars using the jar tongs.
7. Set the jars on the towel and carefully dab any water sitting on the jar lid.
8. After 20 minutes, tighten the jar lids. You may need to protect your hands with a couple of dry washcloths to do this.
9. Check the lids. If they are drawn down towards the jar, it means you have a good vacuum seal. If the lid clicks when pressed down, put that jar in the fridge and eat within 4 weeks. Otherwise, any processed jams or jellies will keep for up to 6-months in a pantry, but refrigerate after opening.
10. Label the jars with the type of jam or jelly and record the date it was made.

Salad Possibilities

There's no trick to making a salad. Just coarsely chop some green stuff and other things you've foraged and toss on a plate and top with your favorite dressing.

You can go it alone with what you've foraged or add traditional salad ingredients from your refrigerator. If you've foraged some edible wild flowers, a salad is a good place to show them off.

All-in-One Soup

Soup recipes really don't need a lot of directions. It's basically a bunch of stuff in a broth. You can buy broth in boxes or use bouillon cubes. To make a large pot of soup, put 8 cups of broth in a large pot.

For ingredients, add what you've foraged. Make sure to rinse it and cut it up into spoon-sized portions. Bring the broth to a boil, add the ingredients all at once, and simmer for 20 minutes and you're done.

Nut Butters

Peanut butter is surprisingly easy to make if you have a food processor. All you have to do is dump the peanuts into the processor and pulse to a paste.

But wait a minute. That simple principle works for other nuts including wild nuts like black walnuts, acorns, chestnuts, pine nuts, and hazelnuts. If using acorns, you'll have to soak them to **get rid of the tannins**, and we'll cover that later. If you like a salty flavor, add a little salt as you pulse. Scoop into a mason jar and keep refrigerated.

Wild Flour Power

You can **make flour from a variety of nuts, seeds, and even bark**. What's critical is that the seeds, nuts, or bark are sufficiently dried. If any residual oils remain, you'll get something with the consistency of peanut butter.

Pancakes, biscuits, and muffins are **a good bet for any wild flour**, but if you happen to have **some wild yeast**, you can make a decent loaf of bread. Wild flours are a great way to stretch what you have on hand.

Cooking in Leaves

Our ancient ancestors have been cooking in leaves for thousands of years. Banana leaves are a popular choice in many tropical latitudes but grape leaves, young **burdock** leaves, and even corn husks are a leafy favorite for people in more northern climes.

The fundamental idea is to wrap something in the leaves and either steam it or roast it over open coals. The leaves protect the food inside and hold in the heat.

From Berry Syrup to Maple Syrup

Fruit syrups are easy to make from any fruit juice that you've previously made. Add some sugar to thicken the juice and boil it gently to reduce the liquid and thicken the syrup. How much sugar you add depends on the juice, but start with ¼ cup of sugar per 2 cups of juice.

Use a candy thermometer. When it reads 219º F, the syrup is done. Let cool and pour into Mason jars and keep refrigerated. If you're really ambitious you can tap some maple trees to make maple syrup. **Here's a link to the full recipe**.

Wild Herbal Teas

If the leaves are edible, there's a good chance that the dried leaves can be crushed to flakes and made into a tea. Even edible flowers make an excellent tea from chamomile flowers to goldenrod tops.

The easiest way to dry leaves or flowers is in the sun, but an oven on 100° F will also do the trick. Cut the stems out of the leaves or strip the flowers from their stalks and put them on some foil in the oven for about 20 to 40 minutes.

Grab one from the oven from time to time and crush it to see if it crumbles. When one crumbles, crumble the rest and scoop into a tea ball and steep in hot water. Sweeten it if you like.

Unique Recipes

There are some wild plants that lend themselves to unique recipes. These sometimes require a process step unique to the food type. An example is how to get rid of the tannins in acorns before turning them into flour or any other use.

With that in mind, here are some unique recipes and process steps for a variety of wild foraged foods.

Acorns - From Toxic to Edible

Acorns are an excellent wild food source not only for their proteins but they provide a good amount of calories and actually taste good. But **acorns have a catch**. They are high in tannins and those tannins are toxic.

Acorns need to be soaked in two or three changes of fresh water to leach out the tannins. A couple of hours per soak should do. They can then be dried in the sun or in an oven at 100º F for about 30 minutes (taste as you go).

If you plan to make nut butter from acorns, skip the drying step, but taste them to make sure they're not bitter. If they are, soak them again until the bitterness is gone.

The great thing about acorns is they can be eaten whole, crushed and added to recipes, processed into an acorn nut butter, or even dried some more to be ground into a flour.

Acorn & Barley Flat Bread

Acorn flour can be used on its own or combined with other flours to bake a variety of breads. **Flatbreads are a very easy to make bread** and are very forgiving if the dough doesn't rise like you would want for a regular loaf.

The recipe below will make about 6 flatbreads.

Ingredients

- ¾ cup of water
- 2 tablespoons of plain yogurt
- 1 egg
- 2 teaspoons of salt
- 1 tablespoon of olive oil
- 1 ½ cups of acorn flour
- 1 ½ cups of barley flour (you can substitute all-purpose flour)
- 1 ½ tablespoons of active dry yeast

Directions

1. Put all of the ingredients into a bowl.
2. Mix and knead for 5 minutes on a floured surface or use a dough hook with a countertop Mixmaster and run for 3 minutes.
3. Using your hands and fingers, press the dough into a flat-bread about 6 to 8 inches in diameter.
4. Let the dough pieces rise for about 15 minutes. In the meantime, heat an ungreased cast iron skillet over high heat until it is very hot.
5. Toss the flatbread onto the skillet one at a time for about 2 to 3 minutes a side or until you have some browning.
6. Stack the flatbreads as you go and when done, serve.

Puffball Mushroom Steak

Puffball mushrooms are one of the first mushroom types that foragers feel comfortable harvesting. They appear as large white balls on the ground from the size of a softball up to the size of a basketball.

Because they have no toxic look-alikes, they are relatively safe to harvest as long as you get them when they first emerge. The interior should be pure white with a consistent texture. Once the interior turns green and eventually brown, they are inedible.

They're easy to spot as their bright white appearance stands out against the neutral colors of the forest floor. They can be cooked and used in a variety of ways.

Here's an interesting variation made from a slice of puffball mushroom that looks like a steak when done.

Ingredients

- 1 slice of Puffball Mushroom cut 1" thick and 3x4" wide
- 1 tablespoon of Teriyaki sauce
- 1 tablespoon of Worcestershire sauce
- 1tablespoon of Balsamic vinegar
- 2 Tablespoons of butter

Directions

1. Cut the Puffball into shape as indicated.
2. Mix the sauce and vinegar in a bowl.
3. Place the Puffball steak into the bowl and press down. It's like a sponge and will absorb the marinade.
4. Let it marinade for 5 minutes, turning it once.
5. In a hot pan, melt the butter and sauté the Puffball steak. Brown it gently on all sides.
6. Heat a cast iron grill with grilling ridges, or fire up the kettle grill. Grill the Puffball steak and serve with thin-sliced onions.

Conclusion

Foraging is a habit. Once you go out foraging a few times, you'll discover how easy it is to add significant nutrition to your meals. It's a fun activity for the whole family, even if it's just **rediscovering your backyard.**

Just make sure you **use field guides** to familiarize yourself with the various plants and key an eye out for those toxic possibilities. If food prices continue to increase, it may be an excellent way to save some money, and we'd all benefit from the enhanced nutrition you can only find in foraged foods.