FALCONGUIDES®

MEDICINAL PLANTS of North America

A Field Guide

JIM MEUNINCK

MEDICINAL PLANTS OF NORTH AMERICA

A Field Guide

Third Edition

JIM MEUNINCK

FALCON GUIDES

ESSEX, CONNECTICUT

FALCONGUIDES®

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The identification, selection, and processing of any wild plant for use as food requires reasonable care and attention to details since, as indicated in the text, certain parts are wholly unsuitable for use and, in some instances, are even toxic. Because attempts to use any wild plants for food depend on various factors controllable only by the reader, the author and Globe Pequot assume no liability for personal accident, illness, or death related to these activities.

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The earth is the Mother of all people, and all people should have equal rights upon it.

—CHIEF JOSEPH, NEZ PERCE

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Echinacea pallida, Boot Lake Prairie, Indiana

Preface

> *I salute the light within your eyes where the whole Universe dwells. For when you are at that center within you, and I am [in] that place within me, we shall be one.*
>
> —CRAZY HORSE, OGLALA LAKOTA SIOUX

Here it is, the third edition of *North American Medicinal Plants*. I have enriched this herbal bible with more resources to make your life interesting, long, and useful. With these pages you will walk in the footsteps of your ancestors—those first humans who discovered medicine from their personal experiences of sight, touch, and taste.

The echoes of wisdom from these first plant experts remind me that all medicinal plant compendiums are collaborations with those who went before. So let's thank them all: American Indians; American pioneers; and the thousands of gardeners, foragers, and herbalists prior and the thousands after. Discovering and sharing their knowledge is what this book is about, so I submit their wisdom with a few fresh ideas of my own.

The production of this book was made possible with the help of Dave Legere, who kept the train from derailing; Ellen Urban, who nurtured the engine along with patience and sound advice; and Melissa Evarts, who gave it all a place to go.

Take Charge of Your Health

This book is a field guide, not a prescription for medicinal plants. Medicinal plants should be used only with the guidance and oversight of a professional, holistic health-care practitioner. Pregnant and lactating women should never use wild plants as therapy without professional supervision. Keep in mind that each human being is unique and that each person's reaction to chemicals from wild plants varies: What is my food and medicine may be your poison. Take personal responsibility for your health, get advice from experts, feed your intellect, and step lively and wisely through life.

Columbine, Wind River range

Safety and Efficacy Documents

IMPORTANT: Research is ongoing with medicinal plants. Please, if you see something that interests you, initiate a Web search (I prefer Google). Use the plant's common or scientific name followed by the words *clinical trials*, *NCBI*, *research*, or *science*. For example, Google: Dandelion NCBI. You may be surprised at what you find.

Throughout this field guide, I often document proven efficacy and safety with this reference shorthand: (CE), (CM), (GRIN), and/or (WHO). Copy and paste these Web addresses into your browser.

(CE) refers to Commission E, Germany's official government agency specifically focused on herbs. Available from www.herbalgram.org.

(CM) is research gleaned from Canada Natural Health Product Monographs—https://publications.gc.ca/collections/collection_2012/sc-hc/H164-34-2006-eng.pdf.

(GRIN) refers to the US Agriculture Research Service and Dr. Jim Duke's database (https://phytochem.nal.usda.gov) where medicinal plants are cataloged for chemical constituents.

(WHO) refers to the World Health Organization's collection of scientific and documented medicinal herbs (https://apps.who.int/iris/bitstream/handle/10665/42052/9241545372.pdf). This wealth of information supports the traditional and modern uses of the medicinal plants covered in this field guide.

Beargrass, Beartooth Wilderness, Wyoming

Introduction

When all the trees have been cut down, when all the animals have been hunted, when all the waters are polluted, when all the air is unsafe to breathe, only then will you discover you cannot eat money.

—CREE PROPHECY

What Are Medicinal Plants?

Medicinal plants, both wild and cultivated, provide chemicals your body needs to maintain optimum health. Your organ systems want to be whole and healthy, and medicinal plant chemistry can induce body functions in the direction they need to go. Specific wild plants cleanse, strengthen, and flush body tissues and organ systems. They energize your brain, improve your endurance, rebuild organ systems, strengthen immunity, and provide first-line defense against the degenerative diseases of aging. With the selective use of medicinal plants, you can lower blood cholesterol levels, lower blood pressure, prevent strokes, and help prevent cancer. Please bear in mind that plants are less a cure for disease than a preventive. The body wants to heal, and herbs help.

Before going afield, let's discover how plants have helped the human species endure and proliferate.

You Are Plants with Wheels

You either eat plants or eat animals that eat plants; therefore, your body's chemistry is made from plant chemistry. In effect, you are a plant with wheels. Plants contain all the essential and nonessential nutrients you need. The vegetables, seeds, roots, and fruits you eat and the herbs you sprinkle over food are full of health-protecting chemicals that are antiviral, antibacterial, antiasthmatic, anti-inflammatory, and antifungal.

Where do plants get this power? Consider a typical tomato produces more than 10,000 unique physiologically active compounds. Many of these chemicals are used by the plant to germinate, grow, flower, and propagate. But thousands of others have more mysterious uses. What are they for? Unlike you, a plant doesn't have legs; it cannot run and hide from its enemies. It is firmly rooted in the earth, unable to escape predators that would destroy or devour it. To survive this handicap, plants produce a pharmacopeia of chemicals, called secondary metabolites, that repel or kill viruses, bacteria, nematodes, and myriad other creatures that will do them harm. When you eat plants these potent plant chemicals are taken into your body and utilized. In effect, many ingested plant chemicals protect you by staving off infectious diseases by charging your immune system so your body can protect itself.

That's how medicinal plants work: They induce, expel, stimulate, organize, warm, cool, rebuild, and protect. This is not new information. For thousands of years, plants have been humankind's primary medicine. They have also been used to flavor and preserve food. Before refrigeration was invented, our ancestors sprinkled combinations of salt and herbs over foods as preservatives to slow degradation and provide flavors and aromas that masked the foul taste and funky odor of rancid food. At the same time, the herbal preservatives packed a bonus dose of health-protecting chemistry.

It Is well known that traditional flavor principles, those combinations of indigenous medicinal herbs, provide ethnic food with its characteristic taste and value. Curry, for example, is a traditional example of a cultural flavor principle that both preserves food and provides health benefits. Research suggests plant foods with cultural flavor principles play a key role in protecting health and increasing longevity. Flavor principles help explain why the Japanese, Greeks, and Italians live longer than Americans. So to increase life span, learn to prepare foods with cultural flavor principles that contain medicinal plants. Not only will you live longer, but you will reap the benefits of robust health.

Chemical Families

There are several important families of plant chemicals: polysaccharides, simple sugars, proteins, oils, bioflavonoids, sterols, acids, antioxidants, and alkaloids. These chemical families and their members are composed of thousands of physiologically active compounds.

In these pages you will learn that many plants are used in similar ways—that literally hundreds of plants treat diarrhea; that all plants contain cancer-fighting antioxidants (some more, some less); that all roots store immune-stimulating polysaccharides; that you have a broad choice of anti-inflammatory plant foods; and that gas-relieving digestives come in many shapes, colors, and flavors. Once aware of this overlap, you should discover how to make food your medicine by eating safe edible plants that have these proven medicinal values. Also, you will learn how to play it safe and avoid medicinal plants that are not considered safe food.

Here's how I use medicinal plants as food: To improve digestion and assimilation of meals, I eat safe bitter herbs and mushrooms. I snip dandelion leaves, chop them small, and throw them in a bowl with some mesclun mix (lettuce, arugula, a few chopped chicory leaves, chives, onions) and maybe some fresh basil, oregano, and purslane. Now I have a salad with a slightly bitter taste filled with edible medicinal herbs that streamline digestion and assimilation, providing me with pain-relieving and anti-inflammation chemistry, as well as cancer-fighting antioxidants.

Here's another scenario: Let's say your child comes home from school with a cold—you don't want to catch that. So place a thin slice of raw sweet potato on a piece of bread. Pull a burdock root from your yard and shred that over the sweet potato. Maybe grate just a little raw horseradish root on top. Then, if available, plug in a couple of thin slices of raw Jerusalem artichoke root. Slather a second piece of bread with pesto, flip

on a few dill pickle slices, cover with lettuce, and slip in some ham, beef, or whatever you like. Voilà—you have an infection-fighting sandwich. Finish the meal with a few drops of *Echinacea* and that should hammer the cold before it takes hold. The raw medicinal plant roots provide immune-stimulating polysaccharides, and the *Echinacea* has a sterling history of fighting acute infections, especially when the infection is caught early.

Herbal teas provide another example of herbs as food. Teas are used in traditional medicine to stimulate and cleanse organ systems. Making a tea draws out the water-soluble chemistry from the plant that protects you from infection, opens your sinuses, quells your cough. Antioxidant teas help fight heart disease, prevent cancer, move your bowels, and relax your mind. In rural India and many other places around the world, foul drinking water is boiled and infused with aromatic herbs to mask the taste and disguise the water's odor. These odor-masking herbal teas are life-saving. Other teas, in the hand of a capable physician or holistic herb practitioner, can save your life by making you vomit. They can vacate impacted bowels and give you bowel-cleansing diarrhea. Teas can induce hallucinations, and a few have been used to cause death. This book will explain which herbs are beneficial and which ones are dangerous.

Here are a few ways herbs are used in health-affirming ways:

- **Managing blood pressure and cholesterol absorption:** Eat more raw and cooked plant foods and use less salt to help manage blood pressure and kidney health. Green plant foods and herbs are diuretics. Adding live-food diuretics to meals may help lower blood pressure. For example, research showed that capsicum, derived from cayenne and jalapeño peppers, increases blood flow, lowering both blood pressure and cholesterol. Fiber from plants slows and prevents the absorption of cholesterol.

  Numerous studies have shown the benefits of garlic and other allium species covered here: Alliums balance cholesterol levels in the blood by lowering serum cholesterol and raising HDL cholesterol. Garlic and other alliums are also anticlotting by reducing plaque formation in blood vessels.

  The herbs ginseng, aloe vera, dandelion, black cohosh, yellow dock, burdock, *Echinacea*, and red clover blossom all have blood-pressure-lowering and cholesterol-lowering chemistry.

- **Cancer prevention:** Mayapple (a toxic plant) contains podophyllotoxin, a toxin used to model a synthetic drug that treats small-cell lung cancer and testicular cancer. Ellagic acid from the seeds of blackberries and raspberries has proven useful as adjuvant nutritional therapy for cancer patients. Flaxseed oil is being studied as a cancer therapy and is an essential oil that has antioxidant properties. Traditional treatments that are scientifically unproven, like the Essiac formula, are discussed in the text. Several servings of vegetables, fruits, nuts, and herbs provide substantial amounts of essential nutrition replete with cancer-fighting antioxidants, cholesterol-lowering fiber, and immune-enhancing nutrients.

Herbal Preparations Defined

Modern technology provides superior ways of distilling, extracting, purifying, and standardizing herbal extracts that are beyond the scope of this book (see Appendixes C and D for additional resources). But let us define some terms in this book.

Tea: Prepare tea (also known as an infusion or tisane) by pouring hot water (just off the boil) over fresh or dried herbs. Typically, the soft parts (leaves and flowering parts) of the plant are infused. Examples: green teas, black teas, herbal teas. Amount: 1 teaspoon dried herb to 1 cup water; 4 teaspoons fresh herb to 1 cup water.

Decoction: A liquid made by simmering or boiling herbs in water. Decoctions pull water-soluble chemistry from the hard parts of the plant: the stems, seeds, bark, and roots. Example: Garlic soup. Amount: Simmer 1 teaspoon dried herb to 1 cup water; 4 teaspoons fresh herb to 1 cup water. Simmer for at least 5 minutes, strain and use.

Percolation: Percolation is a process like making coffee: Water or alcohol is dripped through a damp mass of powdered herbs. Example: Dripping hot water or alcohol through cayenne powder. Put a drop to your lips. . . . Zowee! Amount: Drip 100 milliliters liquid through 10 grams dried herb; and then repeat the process to increase concentration.

Tincture: Chopped herbs, blended in alcohol. Other chemicals can be used in place of alcohol, such as apple cider vinegar or glycerin. The *maceration* (blending of alcohol and the chopped herb) can be accomplished in a blender. Example: Dilute a volume of 190-proof alcohol (Everclear 95 percent alcohol) with an equal amount water to get approximately 50 percent alcohol.

Then chop fresh cut *Echinacea* flowers into small pieces, place in a blender, cover with 50 percent alcohol, and macerate.

Let the maceration rest in the refrigerator for 4 hours, then strain and bottle. Amount: When making a tincture with a dry herb, typically a 1:5 ratio is used—that is, 1 ounce dried herb is macerated and blended with 5 ounces 50 percent (100-proof) alcohol. With fresh herbs a 1:2 ratio is often used—1 gram to every cubic centimeter of 50 percent (100-proof) alcohol.

Double Extraction: For a double extraction, first fill a container such as a 1-quart canning jar (or similar container) with a cup of macerated (ground) *Echinacea* leaves and roots (or other plant material to be extracted). Completely cover the maceration with 8 ounces of 50 percent diluted Everclear (add an equal volume of water to an equal

volume of Everclear to get 50 percent alcohol concentration). Cover the container and store for a few days (up to 2 weeks) in a darkened cupboard or refrigerator, shaking twice a day. Strain off the liquid—a pair of pantyhose is an effective strainer—and run it through an unbleached coffee filter. Squeeze out the remains in the filter when it has stopped dripping. You now have a "single extraction." Now take the *Echinacea* mash (marc), cover it with water, and simmer for 30 minutes to make a decoction, adding water as necessary. Strain and then blend the decoction with the tincture, making a stronger "double extraction." To maintain an alcohol concentration of at least 25 percent (50-proof) add no more water to the second extraction than the original amount of the 50 percent alcohol used to make the initial extraction. That is, if you poured 10 ounces of 50 percent alcohol over the herb in the first step, do not add more than 10 ounces of water for the second extraction.

Fomentation: Prepare a decoction or infusion of herbs (see decoction and infusion above), then dip a cotton cloth into the preparation and wrap the warm, wet cloth around an injury. Example: Dip a cloth in a mild cayenne extraction and apply it to an arthritic joint. (**Note:** This application will redden the skin and may irritate it.) Amount: Enough to cover area to be treated.

Poultice: Pound and macerate fresh herbs, and apply the moist herb mass directly over a body part. Example: Put a warm, wet, and pounded mass of plantain over an infected wound. Amount: Large enough amount to cover area to be treated.

Powder: Powders are prepared by drying and finely grinding the herb, then loading the powder into 00 capsules (1-gram capsule, or 1,000 milligrams). Example: Many over-the-counter dried herbs are powders sold in capsules. Amount: A typical dose may be one 500- to 1,000-milligram capsule.

Oils and salves: These can be prepared with dried or fresh herbs. First, the herb is simmered in oil to extract the active principle, then the oil is thickened or hardened with beeswax. Example: The aerial parts (flowers, leaves, and stems) of yarrow are covered with oil and simmered for 10 minutes then blended with warm beeswax. The blend is cooled, and the resulting salve is applied as a wound treatment. Amount: With yarrow, I lightly pack a pan with fresh leaves and flowers and cover with olive oil or lard (studies suggest lard is better absorbed through human skin than plant oils) then simmer, strain, and bottle.

- **Pain management for arthritis:** Compound P from cayenne is used to quell pain and improve circulation to arthritic joints.

  Stinging nettle is often used in Mexico to alleviate severe arthritic pain. The nettle is slapped over the joint as a counterirritant, and the resulting sting and inflammation are said to bring relief.

  Other North American medicinal plants used as adjuvant nutritional therapy for arthritis include lime juice, white willow, wild strawberry, spruce, flaxseed oil, raw green wild plants, almonds, walnuts, and pine nuts.

- **Sexual desire and sexual function:** Chemicals from certain herbs may affect sexual desire and sexual function in humans. Traditionally American ginseng, saw palmetto, marijuana, passion flower, lady's slipper, and California poppy have been used to affect libido.

How to Use This Book

This field guide builds from a solid foundation of basic information and takes the forager as far as they want to go. The goal is to help the reader identify plants that have been used as medicine for thousands of years.

Each entry begins with a description—a summary of the plant's physical characteristics to aid in plant identification, followed by an explanation of the location, the habitat, and the part of the country where the plant grows. Bear in mind most of these plants have wide distribution, with their species and subspecies found nationwide. So make certain you read this book from cover to cover; the biomes described are general categories. What one person finds in the East, you may find in the West or on the Pacific Coast.

After identification and habitat, I discuss the plant's past and present role as food, its traditional medicinal uses, including how it was used by American Indians and pioneers, and its modern medicinal uses. My notes come next as I share experiences, skills, gardening tips, recipes, and bits of insight gleaned from my 40-plus years of using herbs. The veterinarian/wildlife sections follow and present unique observations and useful experiences relevant to animal lovers and naturalists.

Throughout this book, you will learn which herbs are beneficial and which ones are dangerous. The caution sections give details about plants' dangerous characteristics or uses.

The plant entries provide a wealth of supplemental websites, books, and research references. You'll find other useful information and resources in this guide's appendixes.

Five Strategies for Medicinal Plant Identification

1. **Field guides:** Have at least four medicinal plant field guides to cross-reference your find. This helps assure you have discovered the beneficial herb and have not made a mistake.
2. **Identification features:** Every medicinal plant has a set of key identification features. Be circumspect: Make certain the features of the leaves, stems, flowers, and fruit match what is covered in the guides.
3. **Field experience:** There is no substitute for field experience. Get into the bush often and name those plants. Forage with an expert and use online resources and continuing education to fatten your knowledge. Match the habitat with the plant you are looking for. Become familiar with local areas. The plant you seek will be in the same spot year after year.
4. **Relocate:** Live-harvest favorite plants to bring to your yard. This can be done from roadsides with permission from your local road-commission worker who cuts the shoulders along country roads. He is a good friend to know; tell them you are removing endangered plants before they mow (and every plant is endangered before they mow). They will give you a green light to harvest. Make the edges of your backyard and your garden a holistic pharmacopeia.
5. **Secret sanctuaries:** You will discover sanctuaries that provide rare and useful plants. Keep them secret! Old-growth forests are great.National forests and many state hunting preserves allow foraging for personal use. Commercial use requires a license.

CHAPTER 1

Medicinal Plants of Yards and Meadows

When you know who you are; when your mission is clear and you burn with the inner fire of unbreakable will; no cold can touch your heart; no deluge can dampen your purpose. You know that you are alive.

—CHIEF SEATTLE

These common plants are often found growing in yards, along roadsides, and in open areas. They are easily transplanted to your garden.

Alfalfa

Fabaceae (*Medicago sativa* L.)

Identification: Small-flowered perennial, flowers lavender or purple with five petals on a short *raceme* (having short-stalked flowers along the axis of a shoot). Fruit is a spiral pod with two to three twists. Plant 20″ to 4′ tall. Stems erect, smooth, and angular. Leaves are trifoliate, sharp-tipped, and toothed toward front of the leaflet. Leaves are alternate.

Habitat: Widespread, escaped from cultivation, and found in pastures, fields, and lower alpine slopes.

Food: Several health-food preparations contain dried and powdered alfalfa. I like to grow it as sprouts for salads. Sprouts are considered by many the most beneficial part of the plant. Plants can be grown in window boxes (or your garden) also for salads. I snip off leaves as they grow and add them to greens. The flower is edible and can be used in stir-fry and

Alfalfa, Denver, Colorado

salads. Use the whole plant to make tea.

Traditional uses: Native to the Mediterranean and used for centuries. Unproven folk use to treat thyroid complications and gout. Alfalfa sprouts are a good source of live plant food containing phytoestrogens, making it a potential *lactagogue* (promotes milk flow) and an *emmenagogue* (treats menstrual problems).

Modern uses: Leaves, dried or fresh, and sprouts may improve digestion. Alkalizes urine, which is said to detoxify the body. According to James Balch, MD, alfalfa consumption lowers cholesterol, fights inflammation, balances hormones, stimulates the pituitary function, is antifungal, and may improve anemic conditions and bleeding disorders. Naturopathically it is used to strengthen joints and bones, treat ulcers, and treat colon disorders and skin conditions. Alfalfa over-the-counter preparations have high mineral content. Phytoestrogens in alfalfa may be indicated for menopause as a natural hormone-replacement therapy (HRT) (see your holistic health-care practitioner). Diuretic. Decent source of iron. Alfalfa sprouts and leaves may promote lactation (unproven) based on estrogen-like compounds in the plant. Because of the phytoestrogen content of alfalfa, it has been considered in the treatment of endometriosis. In vitro, tests show alfalfa to be antifungal and antimicrobial. Alfalfa may have an anticancer effect. Fruit is used in Latin America to treat cough. Saponins in alfalfa are being studied for their potential to grow new skin and promote hair growth. There is a hair regrowth patent for an alfalfa formula.

CAUTION: No side effects when sprouts are cooked before eaten as food in moderation. In animal studies, ingesting large amounts of leaves or sprouts may induce systemic lupus erythematosus (SLE), an autoimmune inflammatory disease, perhaps induced by the amino acid canavanine contained in the plant. Some people are allergic to alfalfa. Eating fresh alfalfa sprouts is typically safe if careful and clean growing conditions are provided and monitored. Do not eat the unsprouted seeds because over time this could impair immune function and blood clotting (Castleman, 1991, p. 39). Avoid using alfalfa with children because of its potent compounds and hypothetical potential for triggering lupus.

Notes: Live alfalfa sprouts are rich in plant enzymes. Add to sandwiches, salads, stir-fry, and egg dishes (see caution). The high calcium content of alfalfa leaves (1,440 milligrams/100 grams of calcium) combined with estrogen-like compounds may make this herb a useful addition to salads for preventing osteoporosis (unproven). Alfalfa seeds contain 4.4 percent minerals. It is available over the counter as a food supplement in tablet form. Alfalfa sprouts and alfalfa leaves may be dried and made into tea. Two teaspoons of the leaves added to a cup of hot water may have a cholesterol-lowering effect. Alfalfa tea is full of electrolytes and may be indicated after physical activity or during fever. Alfalfa tea may be alkalizing to the digestive system. Add dried nettle leaves, dried dandelion leaves, dried clover leaves and florets to alfalfa tea for a rich mineral-laden drink. Traditionally, alfalfa tea is

used in recuperation from illness. It is reported to be anti-inflammatory.

Veterinarian/Wildlife: Alfalfa may have the highest food value of all common hay crops. Its flower's nectar makes excellent honey. It is a deep-rooted nitrogen-fixing plant that aerates soil and improves nitrogen content and moisture-holding ability. Makes an excellent addition to composting pile. A favorite food of wild ungulates; also used in rabbit and other animal food formulas. A few suggest giving alfalfa tablets to your dog for improved health. Alfalfa is a vital component in Weekly Maintenance tea and Cleansing Nourishing tea for racing pigeons.

Asiatic Dayflower

Commelinaceae (*Commelina communis* L.)

Identification: Common weed in many gardens. Erect stems collapse on themselves as they grow (up to 3′). Deep blue flowers, 0.5″ to 0.75″ wide, two rounded petals (like Mickey Mouse ears) with a small white petal behind the pair. Flower's ovary sheathed in three green sepals; six yellow-tipped stamens. Fleshy, oblong leaves, 3″ to 5″ long, pointed tips. Leaves form a sheath around the stem.

Habitat: Found nationwide in gardens, roadsides. Alien weed: originated in China.

Food: This free food matures in late summer every year. Young leaves and shoots can be added to salads. We get so many of these plants in our garden that I pull whole shoots, wash them, and add them to stir-fries. Entire flower is edible. As fruit matures, the seed capsule (tucked in the sepal sheath) is a crunchy treat and flowers keep coming.

Traditional uses: Brought by Chinese rail workers and families to America for its medicinal benefits. In China, leaf tea is used as a sore-throat gargle, and for urinary infections, acute intestinal enteritis, and dysentery. Tea is also used to reduce

Asiatic dayflower is edible and medicinal.

fevers, as a detoxicant, and as a *diuretic* (to treat edema from joint swelling and pain from arthritis).

Modern uses: Flowers contain isoflavones and phytosterols. Seeds contain fatty acids and essential and nonessential amino acids. You can eat seedpods for a healthful dose of essential oils and phytosterols.

Notes: I encourage the growth of this flower around the edges of the yard and garden as a welcome and healthy addition to salads.

Veterinarian/Wildlife: The plant is avoided by rodents, the result of an unknown chemical.

Asparagus

Asparagaceae (*Asparagus officinalis* L.)

Identification: Asparagus is a perennial plant growing to 30″ to 60″ tall, with stout stems with much-branched feathery foliage when mature. The leaves have needle-like modified stems in the axils of scale leaves. The adventitious root is a tuber. The flowers are bell-shaped, greenish white to yellowish, 0.2″ to 0.25″ long, produced singly or in clusters of two or three in the branchlet junctions. Typically, male and female flowers are on separate plants. The fruit is a small red berry 0.125″ in diameter, which is reported poisonous to humans. Also called wild asparagus.

Habitat: Does well in saline soil, found nationwide along fencerows and roadsides, adjacent to fields that produce or once produced the cultivated variety.

Food: Young shoots (spears) are versatile foodstuff, steamed, sautéed, or roasted. Very good on pizza, in casseroles, and complements beef, fish, omelets, and poultry. White asparagus is particularly popular in Western and Eastern Europe for its lack of bitterness and its tenderness—often canned or preserved in vinegar and water. Pick asparagus in spring before the feathery foliage spreads.

Traditional uses: Western medicine strongly suggests that asparagus may contribute to the symptoms of gout. Hmmm. Ayurvedic and Chinese traditional medicine report that asparagus is a gout treatment. Traditional Spanish medicine uses this food to prevent or bring relief from kidney stones; it is soothing to kidney tubes, urinary tract infections, and bladder stones. However, the saponins in the root may have an irritating effect on those suffering from kidney disease.

Roadside asparagus, Indiana

Modern uses: There is scientific evidence suggesting that asparagine in asparagus may be antileukemic. Medicinally the plant is considered a cleansing food, good for the urinary tract—that is, if the urinary tract is not severely diseased. Asparagus is high in micronutrients, including glutathione. Glutathione may protect the body against certain types of cancer, may boost immunity, and is a potent antioxidant.

Notes: Look for the old dead-growth heads of the prior year when stalking asparagus. Start in late April and it will pay off, at least in Michigan and the northern tier of states; start earlier farther south. Another strategy is to mark the mature asparagus plants in the fall. I tie cloth and old neckties around the base of these plants and then search for the cloth marker in the spring—there's the asparagus. Harvest wild asparagus away from roadsides to avoid auto pollutants. Asparagus will tolerate slightly saline soils and does well in marine environments.

Veterinarian/Wildlife: Asparagus is a companion plant to tomatoes. Asparagus repels root nematodes that prey on tomato plants and tomatoes repel the asparagus beetle.

Daylily

Xanthorrhoeaceae (*Hemerocallis fulva* L.)

Identification: Yellow, tuberous roots; long, narrow, lance-like leaves; orange lily flower and hybrids of numerous colors. Growth to 2′ tall; shoots start in early spring and plant begins flowering in June. Found along roadsides; transplant to clean soil away from auto pollution.

Habitat: Throughout the United States. Moisture, shade, and sun tolerant, excellent garden transplant. Grows in dense colonies.

Food: Onion-tasting flowers are flavonoid rich. Tease apart daylily petals from the whole flower and toss with salad greens. Eat flowers (without pistils and stamens, which are bitter tasting) and unopened buds in stir-fries, or batter-dipped and cooked tempura style. Try the sautéed buds and flowers wrapped in wontons, steamed, and dipped in soy and mustard—delicious. Buds can also be steamed, boiled, or deep-fried, and then served with butter or cheese sauce. Firm root tubers harvested all year. Add raw to salads or cook like a potato.

Traditional uses: Extract of the herb used to treat cancer and as an antidote to arsenic poisoning (unproven).

Modern uses: Daylily buds contain more protein and vitamin C than beans and asparagus. The flowers are antioxidant and are COX inhibitors capable of relieving the symptoms of inflammation and pain.

Daylily: medicinal, edible, lovely

CAUTION: Use plant only when in bloom. Early growth resembles poisonous iris shoots; daylily's yellowish tubers are distinctive.

Notes: I have several colonies of the plant on my property, a continuous flower supply for about six weeks. For more, see *Basic Illustrated Edible Wild Plants and Useful Herbs* (Meuninck 2023).

Veterinarian/Wildlife: Potent chemistry in the roots of daylilies prevents bacterial, viral, and fungal infestations and prevents rodents from eating the roots.

Dandelion

Asteraceae (*Taraxacum officinale* G.H. Weber ex Wiggers)

Identification: Perennial herb with a basal whorl of toothed leaves and yellow composite flower with numerous rays. Taproot is deep and bitter. Torn leaf and/or flower stem will exude white latex.

Habitat: Common yard bounty also found in meadows, along trails, and waste ground in temperate regions worldwide.

Food: A vitamin and mineral-rich salad green. Tear it into small pieces (leave out tough veins) for salad and mix with thyme, fennel, and nasturtiums, along with other salad greens. Thyme and fennel balance the bitterness from dandelions. Make a mineral-rich tea from roots and leaves. Gently simmer chopped fresh roots for a stomach bitters. Cook fresh leaves early in season with olive oil, bacon, and lemon juice. As season progresses bitterness of leaves increases. Pour copious amount of water on the late summer plants; the morning harvest will be sweeter. Even when bitter, leaves are a healthy addition to stir-fry. Try with tofu. Cook in oyster oil, with cayenne, garlic, and beef strips.

Traditional uses: The root decoction is a liver-cleansing *tonic* (purifies the blood) that aids digestion. It is also diuretic and traditionally used to treat premenstrual syndrome (PMS). It has a mild laxative effect and may relieve inflammation and congestion of the gallbladder and liver. American Indians applied steamed leaves (poultice) to stomachaches. Greens considered a tonic blood purifier. Root decoction imbibed to increase lactation.

Dandelion, Rogue River, Idaho

Also root decoction used as mild laxative and for dyspepsia.

Modern uses: Dandelion root extract (DRE) has been shown to induce cell death in aggressive colorectal cancer in mice (see: www.ncbi.nlm.nih.gov/pmc/articles/PMC5341965). Dandelion is Commission E–approved for treating dyspeptic complaints, urinary tract infections, liver and gallbladder complaints, and appetite loss. Root extract may lower cholesterol and blood pressure (hypotensive). Dandelion is one of the most potent diuretics, performance equal to prescription pharmaceutical Furosemide in animal studies. Dandelions are a stimulating tonic and mild laxative with blood-glucose-regulating capacity (according

to WHO). The bitter taste of dandelion is an appetite stimulant and *cholagogue* (stimulates the entire digestive system, improving appetite), and it may be helpful in treating anorexia (according to the National Institutes of Health, NIH). It raises hydrochloric acid, a digestive acid in the stomach, improving calcium breakdown and absorption, and it also spurs bile production (CM).

Cholesterol lowering ability: Dandelion and other bitter high-fiber greens can theoretically lower cholesterol in three ways: 1. Stimulate the secretion of bile into the stomach, requiring more production of bile from cholesterol. 2. Fiber in the plants locks up bile in the digestive tract, preventing cholesterol emulsification, thus less cholesterol is absorbed. 3. Fiber removes bile from the body, requiring the liver to break down more cholesterol to make more bile. These factors may help prevent atherosclerosis, reduce stroke, and lower blood pressure.

Possible cancer fighter: Siyaram Pandey, a biochemist, and his associates at the University of Windsor in Canada are studying the anticancer potential of dandelion root extract. His team finished the first phase of research, showing that dandelion root extract forced a very aggressive and drug-resistant type of blood-cancer cell (chronic monocytic myeloid leukemia) to die. The team discovered that repeated low doses of dandelion root extract were effective in killing most of the cancerous cells (CBC News).

Notes: Eight plants under lights or in a window provide ample edible leaves for two people. We eat dandelion greens and make root tea year-round. Bring plants indoors for the winter. In southern latitudes the plant is available in the yard year-round. Late-season bitter leaves can be chopped and added to salads. Flower petals may be sprinkled over salads as well as over rice and vegetable dishes.

Veterinarian/Wildlife: Goldfinch eat the seeds. Dried dandelion root and dandelion tea are integral constituents of a pigeon racing formula.

Horse Nettle

Solanaceae (*Solanum carolinense* L.)

Identification: Plant to 24″ tall that produces a small yellow fruit. The leaves are rough, cleft, and spined. Typically, as per the Doctrine of Signatures (like treats like) spined leaves mean don't touch, don't eat—probably toxic, and in this case it is.

Habitat: Horse nettle is found in open fields, disturbed ground, and cultivated fields, typically open and dry, well-drained areas.

Horse nettle: a thorny, inedible member of the tomato family

Traditional uses: Cherokee used wilted plant externally on poison ivy. Infusion of leaves was *anthelmintic* (treatment for worms). The leaves were said to be crushed and infused in milk (mixed with honey or sugar) and used to attract and kill flies.

Modern uses: Unproven medicinal and traditional uses, but veterinarian uses still employed.

Notes: Christmas decoration: dried berries incorporated in wreaths, as garlands, or in flower arranging.

Veterinarian/Wildlife: Berries were said to be fried in oil and fed to dogs and cats to treat mange.

Plantain

Plantaginaceae (*Plantago lanceolata* L.; *P. major* L.; *P. maritima L.*)

Identification: Several varieties are found across the United States. The difference is in the leaves: *P. major*'s leaves are broad and ovate, and *P. lanceolata*'s leaves are narrow and lance-shaped. *Plantago maritima* leaves are narrow, almost linear, and they are found along the West Coast, often submerged during high tide. The green flowers of all three species are borne on terminal spikes.

Habitat: These common plants are found on open ground, wasteland, edges of fields along roadsides, and in lawns. *Plantago maritima* is found in the upper tidal zone especially abundant in the Pacific Northwest.

Food: In the spring, I pluck whole leaves from my garden and yard and chop them into salads or sauté them with wild leeks, nettles, dandelions, and watercress. Cut or tear the tough mid-leaf vein (rib) from summer and autumn leaves before adding them to salads.

Traditional uses: The flowering heads can be stripped off between your thumb and forefinger into hot water to form a mucilaginous drink for treating constipation. A few folks believe this plant, when crushed and applied, is a good antidote for or treatment of poison ivy. American Indians chewed the leaves, mixing in saliva and defensin (a chemical in our mouths that is antibiotic and immune stimulating) to provide a poultice to be applied to wounds, scrapes, cuts, or bruises. Digestive enzymes in our mouths are also weakly antimicrobial, while the plantain is styptic, stopping blood flow. Simply chew the plantain leaf and fix it in place over the

Goose tongue plantain along the coast in Washington State

wound. Plantain lotions and ointments are used to treat hemorrhoids, skin fistulae, and ulcers. Tea is diuretic, decongestant, and *expectorant* (helps cough up phlegm). May be helpful in diarrhea, dysentery, irritable bowel syndrome, laryngitis, and urinary tract bleeding. Acubin increases uric acid excretion by kidneys and may be helpful in treating gout.

Modern uses: Commission E reports that *P. lanceolata* extract from the fresh plant may fight colds (4 grams of herb to 1 cup boiling water), may alleviate symptoms of bronchitis and cough, and may reduce fever. The commission also approves the herb for treating inflammation of pharynx and mouth, and for skin inflammations. Also used in respiratory-tract infections and is considered antibacterial. The tea of the fresh leaves is used to treat respiratory tract infections and is considered antibacterial (GRIN). Typical dose is 4 grams of the fresh whole herb (aerial parts when in bloom) added to 1 cup of water just off the boil. Let it cool, strain away plant material, and then drink three or four times a day.

Notes: Humans have chewed the leaves and applied the masticated mass over wounds for thousands of years. Plantago seeds from India and Africa are dried and used as a bulking laxative. *Plantago ovata* is a constituent of brand-name bowel bulking powders.

Veterinarian/Wildlife: *P. major* is a favored food of the eastern box turtle. Tough leaf veins can be stripped and in an emergency used as fishing line, or even used as suture material for saving a hunting dog bitten by a bear, for example. Plantain seed, known as psyllium, is used in training mixes and wound treatment formulas for horses. According to my editor, a horse enthusiast, psyllium is fed to horses to clear sand from the gut to prevent colic.

Wild Carrot

Umbelliferaceae (*Daucus carota* L.)

Identification: Biennial with first-year plant prostrate and spreading; deeply cut, featherlike leaves. Torn leaf and root have odor of carrot. Second-year plant grows to 3′ tall and bears white, carrot-scented florets in round umbels on 3′ to 4′ stems. Also called Queen Anne's lace.

Habitat: Nationwide in meadows, waste ground, roadsides, gardens, vacant lots.

Food: Wild carrot, Queen Anne's lace, is widely available. We use the florets in salads to get a healthy dose of bioflavonoids that may improve distal circulation to brain

Queen Anne's lace, *Daucus carota*

CAUTION: Toxic plants that are *Daucus carota* lookalikes.

Cow parsnip, *Heracleum maximum*

Poison hemlock, *Conium maculatum*

Water hemlock, *Cicuta virosa*

and extremities and improve heart function. Seeds are used for flavoring. First year's raw root is eaten in salads, juiced, or cooked as a vegetable. Second-year root may be eaten but is woody and only flavors the food it is cooked with. Outer root flesh may be nibbled off the woody center after it has been softened by cooking. A good survival food when little else is available.

Traditional uses: Pioneers and modern people use the oil in skin creams as an anti-wrinkle agent. The whole plant was infused and used to wash wounds, sores, and as a hair rinse. Flowers infused into a drink for treating diabetes. Roots decocted to balance blood chemistry, as a tonic. Decoction of roots also used as a wash, consumed for treating acne and as a diuretic to increase urination, and said to be an appetite stimulant. Micmac First People used leaves to purge bowels.

Modern uses: Carrot roots and leaves contain carotenoids, an antioxidant, helpful in preventing cancer and preserving eyesight. Tea of whole plant and seeds used to treat urinary problems, such as cystitis and stones. Seeds are stimulating and antiflatulent. Seed and root used to treat edema. Oil of seed used in many commercial skin products. Whole carrots (unjuiced) may act as an antidiabetic and help treat diabetes by lowering blood sugar. Eating carrots may help reduce symptoms of gout (eliminates uric acid). Dr. Kirsten Brandt of Newcastle University's School of Agriculture researched Falcarinol, an antiviral and anticancer chemical from carrot. She says, "We already know that carrots are good for us and can reduce the risk of cancer but until now we have not known which element of the vegetable has these special properties."

CAUTION: Be certain you know the difference between hemlock, which is poisonous, and carrot.

Notes: Let garden carrots go to seed by not pulling the first year's roots. Collect second-year seeds for seasoning and medicinal uses. Commercial nonorganic carrots may contain undesirable amounts of pesticides and herbicides.

Veterinarian/Wildlife: Carrot roots and leaves are fodder for chickens, pigs, exotic birds, and ungulates. Kitchen waste such as carrot peels is good for mulch or as top-dressing on gardens.

Goldenrod

Asteraceae (*Solidago canadensis* L.; *Solidago* spp.)

Identification: Perennial with numerous species. *S. canadensis* is the most common eastern species and has a smooth stem at the base but hairy just below flower branches. Sharp-toothed leaves are plentiful, lance-shaped with three veins. Golden flowers line up atop stem, in a broad, branched spire or panicle (triangular cluster). Plant found most often in colonies. Flowers July through September.

Habitat: Nationwide in fields, meadows, roadsides, railroad right of ways, vacant lots, edges of fields.

Food: Edible seeds, shoots, and leaves. Flowers made into a mild tea or used as a garnish on salads and other cold or hot dishes.

Goldenrod, Lake Ontario, Ohio

Traditional uses: First, goldenrod is not the weed that causes autumn allergies—that's ragweed—but informants say tea made from goldenrod flowers (fresh or dried) may protect a person from allergens (hypoallergenic). Dried leaves and flowers can be applied as *styptic* to wounds (stops bleeding). Traditional herbalists and pioneers used the tea to ward off acute infections like colds and flu or bronchitis, as it induces the production of mucus. Diuretic whole-plant tea is a kidney tonic. The aerial parts infused were used to treat snakebites.

Modern uses: Commission E–approved for kidney and bladder stones as well as urinary tract infections. Plants gathered when in flower and then dried are used in Europe as a relaxant (spasmolytic) and anti-inflammatory. The drug is prepared with 6 to 12 grams dried aerial parts in infusion. People with kidney and bladder problems should use the herb only under medical supervision. Whole-plant tea is a kidney tonic (diuretic) and may relieve nephritis (NIH) (GRIN). According to the *PDR for Herbal Medicines* (2007), the herb "has a weak potential for sensitization (can cause allergies)." Plant drug rarely causes allergic reaction.

Notes: A colorful garden addition. Also, the whole plant may be infused and used as a yellow dye.

Veterinarian/Wildlife: Goldenrod nectar and pollen attract bees, butterflies, wasps, moths, flies, and others insects. Caterpillars, aphids, and other small insects eat the leaves and stems. Wasps, spiders, praying mantis, lacewings, ambush bugs, assassin bugs, beetles, and birds prey on these feasting insects. There is a goldenrod spider that inhabits the plants. Gall flies lay eggs in the stems and leaves. Insect-devouring praying mantis lay their eggs on goldenrod because of its insect-attracting power.

Stinging Nettle

Urticaceae (*Urtica dioica* L.)

Identification: Perennial plant, erect to 5′ tall with square, grooved stem, studded with stinging hairs. Leaves dark green, rough, hairy, heart- to oval-shaped, toothed; numerous green flowers borne in leaf axils, bearing numerous green seeds. Both sexes may be on one plant, or plants may have separate sexes.

Habitat: Widespread; edges of fields, streams, wetlands, marshy areas, fringe areas, wasteland, roadsides nationwide.

Food: Young shoots in fall (new growth) and shoots in spring are picked and steamed or sautéed. Also, stir-fry. One of my favorite recipes is to cream nettle into soup. Older summer-hardened nettles may be simmered with other herbs—rosemary, celery, thyme, onions, leeks, lovage—to make a vegetable bullion, or soup base. Discard the plant materials after simmering for twenty-five minutes. Use vegetable broth in cooking.

Traditional uses: Nettles, a mineral-rich plant food, have been used for generations to treat allergies. The infusion of the aerial parts has expectorant qualities having been used for asthma and cough. Nettle tincture is used for flu, colds, pneumonia, and bronchitis. Dried plant is styptic when applied to wounds, and naturopaths use the drug to treat internal bleeding. According to Brill and Dean in their book, *Identifying and Harvesting Edible and Medicinal Plants*, drinking nettle tea and eating nettles may make your skin clearer and healthier and may be therapeutic for eczema. Eating nettles may improve color, texture, gloss, and health of hair. Aerial parts may be infused as a tea and used for urinary tract infections, kidney and bladder stones, and/or rheumatism. Root tincture used for irritable bladder and prostate complaints.

Stinging nettle, *Urtica dioica*

In traditional Russian medicine, nettle is used to treat hepatitis. Other North American plants used to treat hepatitis include lobelia, plantain, passion flower, Oregon grape, pennyroyal, dogwood, and mayapple.

In Spanish traditional medicine, nettle leaves are prepared in infusion as a diuretic, mineral replenisher, hemostat, and to purge toxins from the body (purgative). The root is believed to reduce the size of kidney stones. A decoction of the seeds is believed to prevent involuntary urination in children.

Stinging nettle is said to be helpful on arthritic joints as a counterirritant. Mexican truck drivers use the plant to relieve sciatica. They also drink copious amounts of tequila. I recommend if you use the nettle arthritis remedy, have the tequila ready—the one with the worm. Scarification is another way that American Indians treated arthritis. See the DVD *Native American Medicine* (Meuninck et al. 2007) and *Little Medicine* (Meuninck and Barnes 2005).

Nettles have been used to thrash arthritic joints. Whipping the arthritic area causes pain and inflammation and temporary relief. Not recommended. However, when nettles come in contact with a painful area of the body, they actually do decrease the original pain, perhaps by reducing inflammatory chemicals and interfering with neural pain signals.

Modern uses: Commission E–approved for treating benign prostatic hyperplasia (BPH). Nettle root and saw palmetto have been combined successfully to treat prostate enlargement symptoms (Blumenthal et al. 2000, 367–75). Nettle roots in Russia are tinctured for hepatitis and gallbladder inflammation. In Germany, as in the United States, nettle root extract is being researched for the treatment of prostate problems.

A randomized study of arthritis sufferers suggests that stinging nettle extract, when accompanied by a lowered dose of the anti-inflammatory drug diclofenac, improved or enhanced the efficacy of the prescription drug. The test results showed that the reduced prescription drug and nettle combination was just as effective at lowering pain as the full dose of the drug. These results confirmed the 1996 study of Ramm and Hansen, showing a lower amount of prescription anti-inflammatory was effectively enhanced by dried-nettle-leaf capsules.

Notes: If you cannot obtain fresh nettle, then freeze-dried is your next best choice. Nettle grows readily in my garden and provides edible leaves for up to 9 months. Harvest the new-growth leaves at the top of the plant and watch as the picked stem bifurcates and grows two new growth sprouts. In effect, you have doubled your crop. Try rubbing out the sting of nettle with mullein leaves or the juice of spotted touch-me-not (jewelweed, *Impatiens capensis*).

Veterinarian/Wildlife: Nettle is eaten by domestic animals and chamois (a wild animal similar to an antelope) in the Pyrenees. Nettle is a vital ingredient in a cleansing tea made for racing pigeons. Short-haired hunting dogs may have bad encounters with stinging nettle and wood nettle when hunting. Grazing animals will

not eat live nettle but will eat it dried. Sodium formate, an analog of formic acid found in stinging nettle and ants, makes a metal-based cancer treatment called JS07 fifty times more effective than the JS07 alone (University of Warwick).

Strawberry

Rosaceae (*Fragaria virginiana*, F. *vesca*, F. *californica*)

Identification: Small, low-to-the-ground plant with white flowers on bifurcated stems (pedicels) with five sepals and five petals. Sepals are triangular and pointed, hairy. Petals round to ovate, smooth edges and smooth surface; leaves in threes, three hairy, sharply toothed leaflets per leaf, growing in colonies; fruit looks like the store-bought variety but smaller. Fruit is red when ripe.

Habitat: *F. virginiana* found in the eastern United States, roughly to the Mississippi; *F. vesca* found west of the Mississippi River; and *F. californica* found in California and Baja. Look for strawberries in meadows and open woods. Harvest in late May and early June. Varieties found nationwide; many have escaped cultivation.

Food: Strawberries are high in vitamin C and are fiber rich—a good choice for dieters and for controlling blood glucose levels. A wet spring and dry harvest time will bring a robust harvest. Use on cereals, with yogurt, on pancakes and waffles, in summer drinks, or with ice cream.

Traditional uses: American Indians used strawberries to treat gout, *scurvy* (vitamin C deficiency), and kidney infections. Root tannins were used to treat malaria. The fruits contain ellagic acid.

Wild strawberry, Green River Lake, Wyoming

Modern uses: In Europe and elsewhere leaves are collected and dried to make antidiarrheal tea (*PDR for Herbal Medicines* 2000, 822). A study showed strawberries are not only potent antioxidants, but eating them also lowers cholesterol. Study participants ate over a pound of strawberries per day and significantly lowered their serum cholesterol and triglycerides (Alvarez-Suarez et al. 2014).

Notes: A tedious chore, picking a pound of heart-healthy wild strawberries, picking and popping them in your mouth under the late spring sun, most rewarding when done with your significant other.

Veterinarian/Wildlife: Valuable food source for rabbits, rodents, game birds, and other fowl. Nectar and pollen of the flowers attract many species of bees and flies. These insect visitors are beneficial because they cross-pollinate the flowers.

Yarrow

Asteraceae (*Achillea millefolium* L.)

Identification: Spreading perennial with soft feather-like leaves to 3′ to 4′ in height. Fragrant. White flowers in flat clusters, flowers have five petal-like rays.

Habitat: Broadly distributed along roadsides, fields, yards, gardens, mountain slopes, streams, edges of woods; found nationwide—especially prevalent in montane areas.

Food: Not considered a food, but see notes.

Traditional uses: Traditionally the tea made from the aerial parts (leaves and flowers) is said to increase perspiration and reduce inflammation; used both externally and internally. In China, the tea is taken to protect against thrombosis after stroke or heart attack and is used over wounds and for hemorrhoids, inflamed eyes, nosebleeds, and ulcers. Can be combined with elderberry flowers and/or berries. American Indian uses: Yarrow is ranked as one of the most important herbs used by American Indians. Leaves and flowers infused and used to treat acute infections: colds, fever, flu, cough, and as a diuretic. The tea is a wash for bug bites, stings, and snakebites and is said to induce sleep. Leaf infusion or poultice treats poison ivy. The plant is said to be antidiarrheal. Leaf tea is a febrifuge. Leaves are astringent and used to treat internal and external bleeding and conditions that cause bloody urine. A root decoction is a wash for pimples. Leaves dried, crushed, and snorted as snuff for headaches, or placed in nose to stop bleeding. Fresh or dry leaves

Yarrow in the Beartooth Wilderness, Montana

make a poultice over wounds. Leaves crushed and used as a fomentation or poultice over breast (nipple) abscesses. Leaf decoction as a hair rinse. Bella Coola chewed leaves and applied them as a poultice to treat burns and boils. Leaves and flowers in decoction used for headaches or for chest pains. Poultice of flowers (masticated) applied to reduce edema. Leaves mixed with animal grease used as a poultice on chest and back to treat bronchitis. Juice or decoction of aerial parts considered a general tonic.

Modern uses: Commission E–approved to treat loss of appetite, liver and gallbladder complaints, dyspepsia, and also as a hip bath for female functional lower abdominal complaints. In Europe the entire plant is used as an antispasmodic, emmenagogue, tonic, *carminative* (to expel gas), digestive aid, and for wound healing. Infusion of the aerial parts is used as a carminative, digestive aid, tonic, and

emmenagogue. Wound healing is facilitated by an infusion in distilled water and application as a wash to the wound site. It is used to flavor many liqueurs. However, internal use is contraindicated during gestation due to uterine-stimulating propensity; also avoid during lactation. A 70 percent alcohol extract of yarrow lowered blood lipids (*PDR for Herbal Medicines* 2000, 918). Yarrow may lower blood pressure slightly and could strengthen the effects of prescription drugs taken to lower blood pressure (University of Maryland).

CAUTION: Drinking the tea and applying the herb has induced photosensitivity (sensitivity to light). The tea may also contain a small amount of thujone, a carcinogen and liver toxin. As with all plants, allergic reactions are possible.

Notes: Yarrow is used to flavor gin and other liquors. The herb should be in everyone's garden. Yarrow is a "secret" ingredient in fine beers. The bitter tea is a good digestive and anti-inflammatory that may protect you from infection. Use it when you have been exposed to infective organisms or infected individuals. I use lard for oil extractions from this herb, because lard penetrates deeper than olive oil and other plant-based oils.

Veterinarian/Wildlife: Leaves and stems can be smudged as a mosquito repellent. Whole aerial parts used to preserve fish by stuffing them in cleaned body cavity. Used as a herbal formulation that reportedly helps rebuild damaged nerves in horses (not proven). Some training mixes for horses contain the herb.

Marijuana

Cannabaceae (*Cannabis sativa* L.)

Identification: Small to large plant. Potent hybrids are smaller. Leaves are five-bladed, serrated (toothed) leaflets, with more leaflets as they mature. Plant has a tough fibrous stem. Male flowers born on loose panicles and female flowers on racemes. Plants may bear both types of flowers, or one or the other; that is, they may be either monecious or diecious. Female bud has distinctive strong odor. Known colloquially by many names including weed, hemp, ganja, reefer, pot, or Panama red.

Habitat: Sub-tropical and temperate; wild strain is drought tolerant and will grow equally well on drained or marshy, wet soils. In Michigan, prior to

High-THC hybrid marijuana buds

legalization, was often grown in canvas or coarse fiber grain sacks or flour bags stuffed with compost, and then placed atop rich wetland earth (or any other somewhat inaccessible area where plants could be hidden). It grows wild along railroad rights-of-way. I have found it in the

weeds alongside factories where workers smoked the buds and discarded seeds were left to grow.

Food: Oil decoctions can be mixed into various baked dishes, candies, or brownies.

Traditional uses: Cherokee used marijuana as a stimulant, improving mental attitude in sick patients, giving them the will to go on and get well. This mild sedative appeared to help soldiers deal with the horrors of the Vietnam War. Vietnam protesters used the drug for the same reason. While working with the Department of Defense in Asia and Europe, I saw the drug (typically Turkish blond and black hashish) readily available and openly used by many officers and enlisted men.

Modern uses: Herbal and culinary preparations from flower heads have *antiemetic* (prevents nausea) and analgesic effects; can be a bronchial dilator, somewhat antiasthmatic; used traditionally to treat gout, malaria, forgetfulness, beriberi, constipation, and anxiety. In Europe, marijuana is used externally in balms and as a poultice for wounds, pain, soreness, and infections. Also smoked or eaten to treat insomnia, arthritis, epilepsy, asthma bronchitis, whooping cough, and polyneuropathy. Eating the prepared drug circumvents the rasping, irritating effect of inhaling the hot smoke. In medical practice, marijuana is used to treat pain and symptoms of cancer, ulcers, emphysema, bronchitis, anxiety, hysteria, and *neurasthenia* (fatigue). My mother, who suffered from increased inner ocular pressure, might have benefited from cannabis, but its use at the time in Michigan was illegal. Marinol, a commercial cannabis derivative, is available as an appetite stimulant for anorexia, loss of appetite due to cancer, and as an antiemetic for nausea caused by cancer treatments. The drug is also favored by AIDS patients. In 2023, I began using 2.5 grams of THC (¼ of a gummy) to treat my nocturia, and my physician took me off the drug oxybutynin.

CAUTION: Marijuana is an illegal drug in some states. Avoid use while driving or operating machinery. Chronic use may cause symptoms similar to chronic cigarette smoking, such as bronchitis and laryngitis. Like most drugs, pregnant and nursing mothers should avoid it.

Notes: Available over the counter in numerous states, the drug has helped me control blood pressure and symptoms of glaucoma, family-inherited deficiencies.

Veterinarian/Wildlife: A few veterinarians are using cannabis derivatives to treat pain and the adverse symptoms of cancer in pets. THC (delta-9 tetrahydrocannabinol), the alkaloid that gives marijuana its psychedelic effects, is toxic to animals, but by eliminating the THC and administering CBD (cannabidiol), the alkaloid that fosters relaxation, it may be possible to treat many pet conditions safely. Used by veterinarians to treat separation anxiety, appetite loss, and other pet dysfunctions. See https://cvm.msu.edu/vetschool-tails/pets-on-pot-just-high-or-highly-dangerous.

Mullein

Scrophulariaceae (*Verbascum thapsis* L.)

Identification: Plants sprout a stout, tall stem from a basal whorl of large woolly leaves. Smaller leaves continue up the stem. Flowers are yellow, 0.75″ to 1″ long, densely packed on a spike at the apex of the pole. Leaves to 15″ in length, ovate, covered with gray hair; basal leaves larger, clasping upper leaves less dense, smaller.

Habitat: Found on waste ground, dry washes, along roadsides, fields, railroad rights-of-way, and montane areas nationwide.

Food: I have eaten the flowers sparingly in salads.

Traditional uses: Tea for upper respiratory tract conditions, coughs, congestion, and infections. Used for treating bronchitis and tracheitis. Leaf and flower infusion used to reduce and thin mucus formation. Induces coughing up of phlegm (expectorant). Often combined with other expectorants: thyme (*Thymus vulgaris*) and coltsfoot (*Tussilago farfara*), for example. American Indians made a necklace of the roots to be worn by teething babies. Decoction of leaves used for colds, and raw crushed leaf poultice over wounds and painful swellings. Mucilaginous leaves also rubbed over rashes. Said to be helpful reducing pain from stinging nettle. Dried leaves smoked to stop hiccups and to induce coughing (expectorant).

Modern uses: Commission E–approved for bronchitis and coughs. Flowers infused in olive oil are used in Europe for hemorrhoids and ear infections.

Mullein on the East Rosebud River, Alpine, Montana

Therapeutic teas are available over the counter.

Notes: My wife Jill suffers from allergies and asthma. She has used the tea of mullein leaf as an antispasmodic. Pour a cup of boiling water over 1 tablespoon of dried, crushed, or powdered leaf. Drink when cool. Protect any mullein herbal preparation from heat and light. Add one or two of these plants to your yard: simply find a first year's growth (a basal rosette of fuzzy leaves), dig it out, and transplant. The next year the biennial will bloom—striking.

Veterinarian/Wildlife: Appalachian spider bite treatment: For insect and spider bites, infuse whole fresh flowers in olive oil. Pack flowers into a small jar and cover with olive oil. Let infuse in refrigerator for at least 3 days. Apply warm oil over bite or sting every hour for 12 hours. Garlic and mullein are used as an ear oil. See your veterinarian for more detail.

Burdock

Asteraceae (*Arctium lappa* L.)

Identification: Biennial: first year's growth sprouts broad elephant ear–like leaves (heart shaped) that grow directly from a deep taproot. Second year's growth spreads, is large and many-branched, some spreading to 7′ to 8′. Leaves of second year can be smaller. Flowers are crimson with inward-curving bracts that eventually form the mature seed capsule, which is a burr. This is the plant that deposits burrs on your dog and your trousers. Break open the seed capsule and plant the seeds.

Habitat: Found in the northern hemisphere, temperate zone. Found in gardens, along roadsides, edges of forests and wood lots and just about every place you walk your dog.

Food: Harvest roots in autumn or spring of the first year's growth. Root may be 20″ or more. Peel the root, then slice diagonally (julienne) and stir-fry, steam, or sauté. First year's leaves may be peeled, cooked, and eaten. Second-year flower spike is cut and peeled, then sautéed or steamed.

Traditional uses: Historically burdock has been used to treat immune-system deficiency and skin conditions. Leaf infusion used for chronic skin problems. Root oil is used the same way: Soak the chopped root in olive oil in the refrigerator for 1 month. Lightly cooked root helps regulate blood sugar and is considered antidiabetic; also, drinking the root tea and eating the root are said to help treat acne. Root polysaccharides are said to lower blood sugar by slowing the absorption of glucose from the intestines. It is a warming tonic and detoxifier. Said to strengthen the stomach, liver, and lymphatic system.

Burdock's long taproot is edible and medicinal.

Modern uses: According to Japanese studies the root is antimutagenic (anticancer) in animal studies. Chinese use leafy second-year branches in infusion to treat rheumatism, arthritis, and measles. This medicinal tea is often sweetened with raw cane sugar. Much of the hoopla over this herb has not been proven; clinical trials with humans are absent from the literature.

Although the tincture of the seeds has been used for treating psoriasis, personally it did not help me. The essential oil from the seed is reported to encourage hair growth and improve skin condition (not proven).

CAUTION: Avoid if pregnant and/or lactating.

Notes: Washing roots, then macerating them in warm water to release the polysaccharides inulin and mucilage provides a carbohydrate-rich broth. I have eaten copious amounts of the stir-fried root, but raw root polysaccharides are difficult

to digest. The root is called gobo in Asian markets and runs as high as $6 a pound. It's free from your backyard, so put it there. Pull burrs off a dog or your pants, crush them to release seeds, and spread seeds on scuffed soil in November. Plant thickly. Thin and spread seedlings in May.

Veterinarian/Wildlife: Seed attachment and dispersal mechanism prompted the invention of Velcro. A number of horse supplements contain burdock.

Chicory

Asteraceae (*Cichorium intybus* L.)

Identification: Biennial or perennial to 4′ tall; stem is erect, with few branches. Lance-shaped leaves in a basal whorl as well as additional smaller upper leaves. Blue flowers (rarely white or pink) with square-tipped rays, 0.75″ to 1″ wide. Flowers are available as an edible from midsummer through autumn. Plant has a deep dandelion-like taproot.

Habitat: Roadsides, fields, meadow, waste ground nationwide.

Food: The root is dried, roasted, and mixed with coffee beans, then ground to yield Cajun coffee. The flower petals are slightly bitter and add a nice contrast when stirred into cottage cheese (let the blossoms infuse into the cheese overnight in the refrigerator). The slightly bitter flowers are a healthful addition to salads and soups, jump-starting the digestion process. Sprinkle flower petals over meat dishes for eye appeal and enhanced flavor.

Traditional uses: The root dried or fresh is decocted in water as a diuretic, dietetic, and laxative. Root tea stimulates digestion, improving both peristalsis and absorption. Root decoction used externally to treat fever blisters. Cherokee used root infusion as a nervine—a tonic for the nerves. Other

Chicory: roadside food and medicine

American Indian nations used the decoction to treat headaches, diarrhea, and unspecified allergies.

Modern uses: Homeopathic use for gallbladder and liver complaints. Root decoction may reduce blood sugar. Root constituents are antibacterial in vitro. Anti-inflammatory activity is being studied. Root drug may slow heart rate and reduce heart thrust. Animal studies showed a cholesterol-lowering effect. Commission E–approved for stimulating appetite and treating dyspepsia. In India the root decoction is used to treat headaches, vomiting, and diarrhea. Animal studies show chicory extract slows heart rate (Elgharabawy et al. 2021).

Notes: This is a must-have, attractive garden flower, with edible leaves, edible flowers, and a stimulating root. The leaf

extraction is not as bitter and evokes a milder response as compared to the root decoction.

Veterinarian/Wildlife: For prime lamb production, chicory is particularly beneficial in late spring and summer. It is capable of spurring high animal growth rates for finishing lambs to meet prime lamb specifications. Trials have shown that prime lambs consistently have higher live weight gains when grazing on chicory and white clover forage as compared to either perennial ryegrass or tall fescue and clover pastures.

Dock

Polygonaceae (*Rumex crispus* L.)

Identification: Curly or yellow dock has large, long, wavy, broadly (and sometimes narrowly) lance-shaped leaves that have a sour taste. Flowers located on tall seed heads are green, several clusters per bloom stalk. Bloom from May through September. Root is large and deep, yellowish.

Habitat: Nationwide, fringes of yards, streamsides, vacant lots, roadsides, wherever you stumble along.

Food: Young leaves may be steamed, sautéed, or stir-fried. Be judicious, leaves may be bitter. Try steaming the herbs, then frying them in olive oil. Inner pulp of flowering stem is eaten after cooking. Squeeze pulp from skin to reduce bitterness. Seeds may be gathered and eaten. You can make mush from the seeds. They are plentiful.

Traditional uses: American Indians mashed the root and applied it to the skin to treat arthritis. Cherokee used the root juice for treating diarrhea. One unusual use was rubbing the throat with a crushed leaf to treat sore throat. Cooked seeds were eaten to stem diarrhea. Dried and powdered root used to stop bleeding (styptic). Pioneers considered the plant

Numerous species of dock are found in wet and dry environments.

an excellent blood purifier, a spring tonic for whatever ails you.

Modern uses: Naturopaths simmer the sliced root and administer the broth to pregnant women as a source of iron, without the resulting constipation from taking elemental iron supplements. The bitter taste of the herb (root and leaves) stimulates digestion: increases hydrochloric acid secretion, increases peristalsis, and improves secretion of other digestive enzymes. Whole plant in decoction said to cleanse toxins from the body and may have a laxative effect because of inherent tannins and anthraquinones (fights constipation). Considered a tonic and laxative (*PDR for Herbal Medicines* 2000).

Reported to help improve chronic skin problems. Bitter taste stimulates liver activity (blood purifier) and may help cleanse the liver, thereby relieving related skin manifestations. Sometimes combined with dandelion root to treat skin problems.

CAUTION: Restrict the amount of dock leaves you eat because of the high tannin content and oxalic acid content. These chemicals may be harmful to the kidneys and may negatively affect bone density when eaten in excess.

Notes: Yellow dock or curly dock is abundant in my yard and garden. I dig them up and throw them on my mulch pile, where they take hold and grow more profusely. The plant is a great mineral scrubber and therefore a soil-enriching mulch. Simmer the root and steal the minerals for yourself. Spaniards eat the plant for its vitamin C content and use it as a mild laxative and diuretic.

Veterinarian/Wildlife: Yellow dock tea is taken to treat insect bites, stings, and insect-vectored diseases.

Morning Glory

Convolvulaceae (*Ipomoea* spp.)

Identification: More than 500 species in the genus. Vines, shrubs, and trees, most often a spreading vine entwining over plants as it climbs along its merry way. Southwestern species creeps along roadsides and is diminutive and more prostrate. Trumpet-shaped flowers 2″ wide, pink to white, many species with heart-shaped leaves.

Habitat: Found nationwide in gardens and on roadsides, fencerows, and shorelines.

Food: Toxic hallucinatory drug, not edible.

Traditional uses: Various species have purgative activity, used as a laxative to relieve constipation (*Ipomoea purga*, syn. *I. jalapa* root taken with jelly or with sugar as laxative). A few species are hemostatic. Others are claimed as aphrodisiacs and hallucinogens (hulled seeds employed). Numerous members of the morning glory family inhabit the Hawaiian Islands and are used as food and

Morning glory on Jerusalem artichokes

medicine there, including *I. indica, I. caririca* and *I. pescaprae. Ipomoea purpurea* (manto de la virgen) found in the Yucatan has been used for hundreds of years in Mayan medicine. Also used by the Zapotecs, who made the powerful drug *badoh negro* from the black seeds. Morning glories grow profusely on the eastern shore of Cozumel island, throughout the Yucatan, and in and around Oaxaca. Root extract was used as a purgative, strongly cathartic. *Ipomea violacea* L. seed administered in spiritual rituals to induce psychedelic visions and hallucinations by Zapotec.

Modern uses: In Traditional Chinese Medicine, morning glory seeds are administered to relieve constipation and to fight parasite infestations. The laxative effect is accompanied by moderate to severe cramping (*PDR for Herbal Medicines 2000*, 585). Ayurvedic and Traditional Chinese Medicine practitioners use the drug to treat flatulence.

Notes: *Ipomoea* genus also contains the edible tuber sweet potato: *I. batatas* (L.) Lam. To see a morning glory and other plants captured in time-lapse videography go to: plantsinmotion.bio.indiana.edu.

Veterinarian/Wildlife: This noxious weed can lower yields and choke harvesting combines. Research shows that when glyphosate is used to control morning glory, the plants that are tolerant to the herbicide actually produce more seeds than those that are susceptible (makes sense to me—if you're dead, you can't produce). Microscopic fungus mycorrhiza mixed with synthetic fertilizers yielded better morning glory growth and nutrition, which contradicts previous notions that the fungi work better with just organic, slow-release fertilizers (Amaya-Carpio 2009).

Lemon Balm

Lamiaceae (*Melissa officinalis* L.)

Identification: An aromatic many-branched perennial to 3″ tall producing small white two-lipped flowers, on the end of an upcurved tube-like corolla, flowers localized in one-sided false whorls in the upper axils of the lemon-fragrant leaves. Seeds are nut brown. Stems erect, square, hairy to hairless; leaves are 3″ long with short petioles and are oval to rhomboid shaped and plentiful. Lemon-scented to the touch. Blooms in summer. Also called balm Melissa.

Habitat: Garden plant that escapes from garden to garden; ask your herb-growing friend to show you this plant. Feral varieties escaped to roadsides, and waste ground. Widely available at garden stores; worth having.

Food: Flowers and leaf buds in salads, desserts, toppings, or cooked with vegetables. Mature, aromatic balm leaves are used in baths, to make tea, and infused

Lemon balm, the here, there, everywhere medicinal

to flavor ice cream. A cold infusion made with other mints is excellent: Stuff a jar with all kinds of mint leaves and lemon balm leaves. Add thyme leaves and two slices of lemon. Put in refrigerator overnight. Thyme leaves make this a must-have tea for mountaineers, protecting them from mountain sickness.

Traditional uses: Phytochemicals in lemon balm may relax muscles in the autonomic system of the digestive tract

and uterus. More research is needed. In Traditional Chinese Medicine, lemon balm is cooling in the second degree, like chamomile, mint, valerian, and passion flower. It is a relaxing nervine, a central nervous system relaxant and calming agent. The first leaves of spring and flowers of summer may be dried. In China 1 to 4 grams dried aerial parts three times per day are used to treat stress. Indicated for psychological autonomic nervous system problems (stress). This peripheral vasodilator is cooling to fevers and historically used to reduce blood pressure (unproven). Traditionally considered a longevity drug.

Modern uses: Commission E–approved for insomnia and nervous agitation. However, not to be used when pregnant or lactating, as it is considered a uterine stimulant. German studies suggest that citral and citronellal in lemon balm relax the central nervous system. Polyphenolic compounds are antiviral, used specifically on herpes simplex (cold sores).

CAUTION: Lemon balm may inhibit thyroid function. Naturopaths use it to treat overactive thyroid. Avoid if pregnant and/or lactating.

Notes: Aggressive garden herb, at first rewarding then a nuisance. You cannot drink enough tea to keep up with it. But you cannot live without it either. Readily available in my Michigan garden from April until November.

Veterinarian/Wildlife: Eugenol in lemon balm is a chemo-attractant to Japanese beetles. The concentrated oil can be purchased in the first-aid section of some drug stores. Put the eugenol on a piece of absorbent cloth and fashion a trap from a bottle (see Japanese beetle traps at your local garden center for construction ideas). Flowers from this mint family plant are sought by bees, butterflies, and hummingbirds.

Common Milkweed

Asclepiadaceae (*Asclepias syriaca* L.)

Identification: Perennial to 4′ with numerous species raised on a single stem, leaves opposite, large, elliptical to 8″ in length, 3″ wide. Pink flowers in drooping clusters grow from leaf axils. Flowers and seedpods are striking, seedpods Arabian slipper–like.

Habitat: Edges of cornfields, waste ground, roadsides, railroad rights-of-way, meadows, dune lands, desert, and gardens. Various species found nationwide.

Food: American Indians prepared *Asclepias syriaca* shoots like asparagus; pick

Asclepias growing in Warren Woods, Sawyer, Michigan

before milky sap appears, simmer in two changes of water, then sauté in oil. Flower buds are prepared like cooked broccoli when harvested before they open. Opened flower buds and seedpods are prepared as follows: Boil water, pour over buds or pods, let water and pods steep for five minutes, then pour off water. Next, pour a second boil of water over once-steeped pods, pour off water, and then stir-fry in olive oil or butter. Many people use three water baths over pods, and that is recommended for first encounters. Flowers may be dried and stored for winter use in soups and/or stews. Flowers have been diced, sweetened, and made into marmalade. American Indians ground seeds into flour.

CAUTION: Keep in mind I have only eaten *A. syriaca*. Other species may be toxic. Do not experiment unless guided by an expert.

Traditional uses: American Indians pounded or split the roots for drying. Dried roots in decoction have a mild cardiac-stimulating effect, without the toxic effects of digitalis. Be warned this should be practiced with medical supervision because *Asclepias syriaca* L. contains toxic cardiac glycosides and requires careful preparation before use. American Indians believed the plant was a lactagogue (promotes milk flow) because of the milky white sap, as per the Doctrine of Signatures. Latex from the leaves was also rubbed on warts, and, reportedly, on cancerous tumors. American Indian lore suggests that approximately a fistful, a cup and a half, of milkweed was dried and pounded to a pulp, then mixed with three dried *Arisaema* (jack-in-the-pulpit) rhizomes. The plants were then put in a skin or gourd and infused into water for 20 or 30 minutes. The infusion of the two plants was swallowed, 1 cup per hour, to induce sterility. All varieties were used by First People to treat wounds as a poultice. The white gum was applied over insect stings, bites, and spider envenomations. The root infusion was used for kidney ailments and the dried leaves were infused for stomach problems. American Indians also used the white sap of the plant to treat poison ivy, ringworm, and many other skin problems. The boiled root decoction was also used externally for edema and ringworm and internally for congestive heart failure and kidney disorders. The Eclectics used dried and powdered milkweed root in a tea for asthma and as a mild sedative. According to *A Field Guide to Medicinal Plants: Eastern and Central North America*, the plant is considered "dangerous and contraceptive" (Foster and Duke 1990).

Modern uses: Homeopathic preparations are used for treating many ailments, including edema, *dropsy* (congestive heart failure), dysmenorrhea (as an emmenagogue). *Asclepias curassavica* L. from China is used to disperse fever (clears heat), to improve blood circulation, and to control bleeding. The entire plant is dried and decocted as a cardiac tonic. Other Chinese formulations are used for tonsillitis, pneumonia, bronchitis, urethritis, and externally for wounds. Calotropin from Asclepias inhibits human nasopharyngeal tumors (source did not say whether this effect was in vivo, or in vitro, so take that with a grain of salt). According to herbalist Michael Moore, the dried gum may be chewed in small

portions to treat dry cough, as an expectorant; the bitterness stimulates saliva flow, a potential sialogogue (also see sweet flag, *Acorus calamus* root).

CAUTION: Root decoction may be emetic, may stimulate the heart, and a few people may have allergic reactions to the milky sap.

Notes: Topical resin sap (for external treatments) may be collected from leaves and stems. Cut and collect, working your way down from the top of the plant. For example, cut a leaf stem or stem near top of plant, then scrape away the white resin; when this wound dries and skins over, then cut a bit farther down and collect more resin. Collected resin will oxidize and dry in a glass or stainless-steel collecting dish. Stir or turn it occasionally for thorough drying. This process does not kill the plant as long as you leave ample growth for it to survive. Seed fiber and seed hair were used as life-jacket batting. Fragrant flowers are sweet, a potential source of sugar. I transplanted three varieties of milkweed to my garden so I could watch them parade their striking beauty year-round. My daughter uses the milky latex of the leaves and stems to glue paper. The strong, fibrous stems can be made into cordage and the pulp of the plant may be chopped, shredded, boiled, and prepared into paper.

Veterinarian/Wildlife: The plants are exotic-looking garden additions. They attract bees, butterflies (monarchs, fritillary), and hummingbirds. With luck you will soon see monarch caterpillars crawling over the leaves. Look for black and yellow sucking insects called milkweed bugs (*Oncopeltus fasciatus*) on the underneath side of the leaves.

Red Clover

Fabaceae (*Trifolium pratense* L.)

Identification: A perennial, red clover has three leaves with a distinct V marking on each leaflet. Leaflets are fine toothed and ovate. Flowers pink to red, dome shaped or rounded in a dense terminal cluster. Grows to 12″ to 18″.

Habitat: Found in full sun in fields, roadsides, waste ground, along hiking trails, and abandoned railroad beds nationwide.

Food: Relaxing floral tea made with fresh or dried blooms. Florets may be tossed with salad greens.

Traditional uses: Floral tea traditionally used as a panacea, a cure-all. Decoction or tea used as an external wash on burns, wounds, and insect bites. Pioneers claimed drinking the tea purified the blood, an enervating tonic. Tea is

Red clover, Badlands, North Dakota

considered an expectorant as therapy for respiratory problems such as asthma, cough, bronchitis, and whooping cough. Floral tea also used as an antispasmodic and mild sedative. Dried flower heads considered traditionally anticancer and are part of the Hoxsey and Essiac anticancer formula, the ingredients of which are sheep sorrel, burdock root, slippery elm bark, rhubarb root, watercress, blessed thistle, red clover, and kelp. Red clover is also used as a wash for psoriasis and eczema. Isoflavone estrogenlike compounds in clover are used to treat menopausal and postmenopausal problems.

Modern uses: A red clover isoflavone concentrate in tablet form reduced bone loss in a double-blind placebo-controlled trial with 177 women between the ages of 49 and 65 years (Thorup et al. 2015). A smaller trial showed that red clover derivatives reduced hot flashes (Van de Weijer 2002). And a third study showed a 23 percent increase in arterial blood flow to the heart in women (Nestel 1999). Red clover is still used to treat menopausal symptoms and it may improve blood flow in the heart. Standardized extracts are used and should be used only under the supervision of a licensed health-care practitioner.

CAUTION: The drug may increase bleeding and has other side effects.

Notes: Because of potential increased bleeding time from clover chemistry, floral teas should be used sparingly or not at all, unless supervised by a holistic health-care professional.

Veterinarian/Wildlife: Important forage for game and domestic animals, as well as a nitrogen-fixing soil replenisher. A trial with female sheep showed that viscosity of the cervix is affected and this may reduce fertility.

Lamb's-quarters

Amaranthus (*Chenopodium album* L.; *Chenopodium* spp.)

Identification: Grows to 5′ in height, producing light green (grayish green) young leaves with powderlike substance beneath, coarsely toothed, with a goosefoot or diamond shape varying in size to 3″. Small green flowers in clusters growing from top third of plant and many of the branches. Seeds are gray colored. Also known as pigweed or goosefoot, and closely related to the edible and medicinal grains: quinoa, *Chenopodium quinoa*, and epazote, *Dysphania ambrosioides* (formerly known as *Chenopodium ambrosioides*) not covered here.

Spring shoots and leaves of lamb's-quarters

Habitat: Found across the nation in meadows, along roadsides, gardens, waste ground, edges of cultivated fields.

Food: Add the herb to soups and cooked vegetables; leaves to salads, stir-fry, and inside steamed wontons rolled in quinoa seeds. Seeds may be ground and used in baking recipes. The herb flavors corn and fish dishes and other Mexican foods. In addition, like quinoa, a related species, lamb's-quarters may be added to pancakes and waffles, bread, or pizza dough.

Traditional uses: Lamb's-quarters tea was used for stomachache, scurvy, diarrhea, and as a poultice over wounds and bites. In Mexico, the cooked leaves and seedheads are believed to keep the digestive system clean and healthy. Cree used leaves for arthritis and rheumatism—joints and limbs were washed with the decoction. Inuit people believe the leaves, when cooked with beans, dispel gas. Iroquois used a cold infusion of this plant to treat diarrhea. Leaves are high in vitamin C content (used to treat scurvy), and when eaten with seeds the essential amino acid content is complete.

Modern uses: Traditional uses still employed. Epazote, a close relative, is still a favorite aromatic herb added to soups and stews to treat worm infestations (Meuninck 2006).

Notes: I grow lamb's-quarters in my garden. *Chenopodium quinoa*, an edible primal grain, can be purchased in most supermarkets. Eat a few seeds and plant the rest. See my book, *Basic Illustrated Edible Wild Plants and Useful Herbs* for more lamb's-quarters recipes, including *huazontles*.

Veterinarian/Wildlife: Lamb's-quarters, like epazote, is used as a vermifuge (serves to destroy parasitic worms) for animals. Put the whole herb in your pet's doghouse, or in its bedding. Both plants are considered anthelmintic (anti-worms). Also used as a fumigant against mosquitoes and a soil-based larvae inhibitor to be used on lawns.

Catnip

Lamiaceae (*Nepeta cataria* L.)

Identification: A perennial that grows to 3.5′. Erect and many branched stems. Leaves are grayish green, giving the plant a whitish gray appearance. Leaves 1″ to 3″ are ovate and serrated with a gray underside. Leaf petiole to 1.5″ long. Flower spike has a large cluster of individual flowers attached with short pedicles.

Habitat: Across North America, border to border, coast to coast: In gardens, along roadsides, and over waste ground.

Catnip, Yellowstone National Park, Wyoming

Tolerates well-drained, dry areas.

Food: Tea, prepared fresh or dried for following treatments.

Traditional uses: Aerial parts (primarily leaves) of the plant in infusion are a bitter, astringent, and cooling antispasmodic. Catnip leaf and flower teas provide a mild sedative effect. It is antiflatulent and may settle a colicky baby (check with your holistic health-care professional before using it in this manner). Also used to soothe the digestive tract. May provide relief from menstrual cramps by mildly stimulating menstruation. The herbal tea promotes sweating, thereby lowering fever in acute infections, and like many herbal teas it is a mild diuretic.

Modern uses: Naturopaths use it to treat colic and upset stomach in children (Chevallier 1996). Catnip may be tinctured and used as a rub for rheumatic and arthritic joints. The tea is also used to stimulate the gallbladder, and is a cleansing herb for the urinary system. Naturopaths combine catnip leaves with elderflowers for treating acute infections. Another combination as a sleep aid is catnip, valerian root, and hops. This combination is also used to reduce stress and as a relaxant.

CAUTION: Not to be used during pregnancy.

Notes: Start catnip indoors and transplant it when it is at least a foot tall. Maybe then it will survive the onslaught of drug-seeking felines. Actinidine, an iridoid glycoside, is the cat-stimulating chemical of the plant. This is one of my favorite teas and should be prepared from the fresh herb in a cold infusion, as its physiologically active constituents are volatile and reduced by drying. Typical dosage is 3 cups per day.

Veterinarian/Wildlife: Cats' drug of choice: feline stimulant and intoxicant, but a human calming agent. Catnip is formulated into training mixes for horses. A canine catnip stimulant in a pump spray is available by catalog.

Chamomile

Asteraceae (*Matricaria matricarioides*; *Chamomilla recutita* L.; *Chamaemelum nobile* L.)

Identification: Unlike the domestic herb cultivated chamomile, wild chamomile, or pineapple weed, has a small yellow flower, 0.5″ wide without the white rays (petals) of chamomile. It is somewhat prostrate and spreading, many branched with severely cut leaves; rayless flowers are conspicuous and pineapple scented, unmistakable.

Pineapple weed, Pierre, South Dakota

Habitat: Widespread, along roadsides, pathways, waste ground, low and high impacted soils, throughout the country east to west especially along paths and roads in the Northwest and mountainous areas.

Food: Tea, fresh flowers preferred over dried. Fresh pineapple weed is more powerful than cultivated chamomile. Leaves edible but bitter. American Indians pulverized the dried plant and mixed it with meat and berries as a preservative.

Traditional uses: Pineapple weed is used just like cultivated chamomile. Pioneers drank the fresh flower tea as an antispasmodic carminative to aid digestion, prevent ulcers, and relieve arthritis pain. Said to soothe the nerves. Warm tea may relieve toothache pain. American Indians used the herb in the same way, primarily for relieving stomach pain. It is considered a female plant, applied wet to rocks in sweat lodges as a soothing aromatic inviting the good spirits. Infusion of herb used to relieve menstrual cramps and cold symptoms.

Modern uses: The use of chamomile flowers is unproven (*PDR for Herbal Medicines* 2005). That would, of course, make the traditional uses of pineapple weed suspect. Regardless, chamomile is widely used topically to treat abrasions, inflammations, eczema, and acne with varied success. One study suggests azullene in chamomile may stimulate liver regeneration. British scientists purport chamomile stimulates infection-fighting macrophages and B-lymphocytes of the human immune system. Commercial preparations in lotions and ointments used as antiseptic treatment of sore gums, wounds, raw or sore nipples, and other inflammations. Chamomile is applied topically to treat inflammation associated with hemorrhoids (Singh et al. 2011).

CAUTION: Like many herbs, there is a paradox here; although antiallergic for some, chamomile may be allergenic to others, even anaphylactic to a few. If allergic to ragweed, best avoid using this plant externally or internally. Reports say a few people get skin rashes and allergic stomachaches from drinking or applying chamomile-containing products and cosmetics.

If you have a ragweed allergy, you may also get an allergic reaction from chamomile tea. I have asked that question of over a thousand of my students. Perhaps forty reported having ragweed allergic reactions, all of whom had imbibed chamomile without incident. Let us know about your experience. Friend me on Facebook.

Notes: A pineapple weed or chamomile bath (1 cup flowers in a pair of pantyhose) makes an emollient, moisturizing skin wash. Inhaling the steam may relieve upper respiratory infection (sinusitis). In an 8-quart pan mix 0.25 cup fresh flowers in 1 quart of water just off the boil. Drape a towel over your head, lower your head to the water, and inhale for sinus congestion. Washing hair with the tea improves quality and sheen.

Veterinarian/Wildlife: One brand of dog biscuits contains chamomile extract as a calming agent.

Echinacea

Asteraceae (*Echinacea purpurea* L. *Moench*; *E. angustafolia* DC, *Echinacea pallida*, Nutt [Nutt])

Identification: Erect perennial 3′ in height. Purple blossoms are large to 3″ and solitary with rays spreading from um, several species, rella shaped to flat. The bracts are rigid with thorn-like tips. Leaves are large, opposite or alternate, with smooth margins and rough surfaces. Rhizome (root) when sliced shows a yellowish center flecked with black, covered in a thin bark-like skin. Also known as purple coneflower.

Habitat: Found in eastern and central United States, meadows and prairies, fringes of fields and parks. Cultivated in gardens nationwide.

Traditional uses: Root and flowers used as a snakebite treatment. Boiled root water used to treat sore throats. Mashed plant was applied to wounds, and as a therapy for infections. Root infusion once considered a treatment for gonorrhea. Masticated root was held on sore tooth to treat infection.

Modern uses: Commercial preparations of roots, leaves, flowers used to treat colds, flu, coughs, bronchitis, fever, urinary tract infections, inflammations of the mouth and pharynx, weakened immune function, and wounds and burns. Clinical research in 2015 reported that a proprietary combination of a concentrated *Echinacea* herb and root extract was as effective as the conventional antiviral medicine oseltamivir (Tamiflu) when used early in the treatment of influenza (Raus et al. 2015).

Echinacea pallida

Echinacea is considered possibly effective at the onset of upper respiratory infections if started immediately, taken three times a day, and continued until the person is well. *Echinacea* aerial parts and root extractions enhance immunity in several ways. Polysaccharide-initiated response follows a bell curve: steep initial activity, improving immune response up to 32 percent. The response peaks then tapers off after 4 to 6 days. Therefore, it is used for acute instead of chronic conditions.

Also used internally for skin diseases, fungal infections (both candida and listeria), slow-healing wounds, boils, gangrene, upper respiratory tract infections, sinusitis. Used externally for acne and psoriasis (not proven by this psoriasis sufferer).

Root oil has inhibited leukemia cells in vitro and vivo studies.

A recent study challenged *Echinacea*'s immune-modulating effect (Schwartz 2005) but subsequent studies have put *Echinacea* back in the news as an effective immune-modulating therapy.

CAUTION: A study of 412 pregnant Canadian women (206 of whom took

Echinacea during pregnancy) showed malformations of babies to be equivalent between the control group and the test population, but spontaneous abortions were twice as frequent in the *Echinacea* group, including thirteen spontaneous abortions (Chow, Johns, and Mill 2006). As with all self-administered herbal therapies, consult your physician before using *Echinacea* while pregnant. The herb should be avoided by those allergic to the aster/daisy family and those with active autoimmune disease.

Notes: I have prepared and used an alcohol tincture of *E. purpurea* flowers as a gargle for mouth and tongue ulcers. I use it to prevent colds and the flu. Commercial extracts come in solid and liquid standardized form with recommended dosage.

A few years ago, I had a staphylococcus infection (cellulitis), an imbedded cyst in my buttock. My physician suggested I have it cut out before it burst open and infected other parts of my body. I begged to try the *Echinacea* floral extraction, applied topically and administered internally (0.25 teaspoon 3 times per day). The large cyst-like infection disappeared in three days and has not returned. I continued the therapy for a total of six days.

Veterinarian/Wildlife: Used in pigeon racing formulas as health protecting and cleansing agent after races. Bees and butterflies flit and flip over this flower. Used in a natural product to rebuild damaged nerves in horses. Many herbalists use *Echinacea* to treat acute infections in pets (see petsage.com).

Bee Balm

Lamiaceae (*Monarda fistulosa* L.; *Monarda didyma* L.)

Identification: Perennials of the mint family, plant to 30″ tall. Both species have flowers in one to three false whorls; florets are horn shaped; pluck one and notice their resemblance to a stork's head and neck. *Didyma* has red flowers and *fistulosa* has blue flowers. Red *didyma* florets taste pineapplelike, weakly oregano flavored, whereas *fistulosa* has a strong oregano flavor. Stems are erect, grooved, and hard, oval to lance-shaped leaves in pairs, rough on both sides. Also known as wild bergamot.

Habitat: *Didyma* is readily found in wet areas from Georgia through Michigan into Canada. *Fistulosa* is found across the nation, often along trails in the Rockies and Cascades and roadsides in Michigan, Indiana, and throughout the East, usually in well-drained areas but will tolerate wet and dryness.

Bee balm, *Monarda fistulosa*, Alpine, Montana

Food: Eat young leaves raw, cook with other dishes for flavoring, or add flowers to salads or in tea; excellent over sauces, especially Italian. Used to season meats

for drying and/or smoking. Add *fistulosa* flowers to black tea to get Earl Grey–like flavor.

Traditional uses: *Monarda didyma* is steeped in hot water to make Oswego tea. *M. fistulosa* is stronger tasting with a flavor like oregano. Both plants used by American Indians as a carminative, abortifacient, cold remedy, sedative, analgesic, hemostat, emetic; for coughs, *diaphoretic* (to induce sweating) and to treat the flu; as a stimulant and pulmonary aid; to relieve congestion, and as a diaphoretic. Navaho considered *M. fistulosa* lightning medicine and gunshot medicine—powerful warrior plants. Pioneers used it to treat bronchial complaints, sinusitis, digestive problems, flatulence, and as an ancient antirheumatic and expectorant. At one time *didyma* was used as an alternative to quinine for treating symptoms of malaria.

Modern uses: *Monarda didyma* most widely used; chemical constituents may provide protection from diseases of aging. Aerial parts in infusion have chemistry that may prevent acetylcholine (neural transmitter) breakdown. Modern holistic practitioners use the plant to treat menstrual cramps and other symptoms of PMS; also used as a digestive and to relieve flatulence.

CAUTION: Not to be used during pregnancy.

Notes: Always be careful when using the bee balm flowers in salads and teas. Although there are no documented side effects, you may have an allergy to this volatile aromatic plant. Having said that, I eat up to twenty florets per day. Teas contain several score of flowers for full flavor. I prefer *didyma* over *fistulosa* for salads, as a garnish. *Fistulosa* is best in sauces, where oregano flavor is preferred.

Veterinarian/Wildlife: Both of these perennials attract insects and hummingbirds. The red-flowered *didyma* will work hardest attracting hummingbirds. A poultice or infusion of plantain, sage, bee balm, mullein, calendula, or chamomile can be applied to a pet directly at the site of an insect bite or sting. A skin rinse of chamomile, peppermint, catnip, bee balm, or thyme may bring relief from pain in a dog or cat; ask your veterinarian for input.

Evening Primrose

Onagraceae (*Oenothera biennis* L.)

Identification: This biennial grows to 3′ or more with fleshy turniplike root. First-year plant is a non-flowering basal rosette of leaves; second year is an erect, blooming plant, conspicuous in the autumn with its large seed-filled fruit capsules. Oblong lance-shaped leaves, pointed and finely dentate. Fragrant bugle-shaped yellow flowers, 1″ long growing from the

Evening primrose, California

leaf axils. Flowers open in evening. Fruit is linear-oblong, four-sided, downy, about 0.5″ to 1″ in length, containing dark gray to black seeds with sharp edges.

Habitat: Found in gardens, along roadsides, on waste ground, fields, and prairies nationwide.

Food: The root is edible (biennial plant: first-year root best). New leaves of first or second year edible in salads and stir-fry. The leaves are tough and need to be cooked. Seeds can be poured out of seed capsule (seed capsule looks like small dried okra pod). Immature seed capsules may be cooked like okra but do not taste like okra.

Traditional uses: American Indians used warm root poultice to treat piles. Roots were chewed to increase strength and endurance. Whole plant bruised, soaked, and used as a poultice on bruises and sores.

Modern uses: The seed oil is used to treat essential fatty-acid deficiency and to lower cholesterol. Cholesterol-lowering effect was not effective in a 1986 study but did prove successful in a double-blind crossover study conducted in 1994 (Guivernau et al. 1994). Seed extract said to dilate coronary arteries and clear arterial obstruction. Used as a holistic treatment for intermittent claudication. Other uses include treatments of atopic eczema and psoriasis (not effective for this author). Oil may provide relief from PMS symptoms, although one study disputed this claim. Also used as a treatment for recurrent breast cysts and was marginally effective (Mansel et.al. 1990). The essential fatty acids and amino acids in the seeds are reportedly good for treating mild depression. Evening primrose oil has been used successfully with vitamin B6 therapy to treat breast pain (mastalgia). The oil is considered anticoagulant, demulcent, and a precursor of prostaglandin E (anti-inflammatory). The oil has not proven effective against multiple sclerosis (MS). Some practitioners suggest that flaxseed (omega-3 oils) and vitamin D may better serve the MS patient, as alpha-linolenic acid and vitamin D are required for normal myelin composition.

One study showed that with women who had recurrent breast cysts, evening primrose oil treatment resulted in a slightly lower rate of recurrence as compared to placebo.

Another study suggests that evening primrose oil may reverse neurological damage in diabetic patients. It provided significantly increased serum essential fatty acids in insulin-dependent children. Also, decreased PGE2 levels.

Evening primrose oil therapy may improve liver function in alcoholics and is said to decrease the use of nonsteroidal anti-inflammatory drugs in treatment for rheumatoid arthritis. Vaginal suppositories of the oil soften the cervix in preparation for labor and delivery (Shayan et al. 2022).

CAUTION: In large doses may cause headache, diarrhea, indigestion, and nausea. Avoid in cases of schizophrenia and epileptogenic drugs: phenothiazines. No long-term studies have been done on use during pregnancy and lactation.

Notes: Evening primrose oil is high in GLA, a naturally occurring nutrient also found in breast milk. This widely used

nutritional supplement has been marketed for over 40 years. My wife takes evening primrose oil for PMS. She feels it helps; my observation is: It helps minimally. I have psoriasis and have found this oil and borage oil expensive and ineffective treatment. I have more success at less cost using fish oil capsules. Fish oil is not a cure but helps to clear my skin, when coupled with sun therapy, seawater bathing, and the application of aloe gel. Be certain to keep the skin soft and moist with moisturizers.

Veterinarian/Wildlife: Seeds are fine additions to bird feeders; finches, sparrows, and numerous other birds will be attracted to the seed-laden capsules of the plants. Omega 6 essential fatty acids from evening primrose are a constituent in Healthy Skin & Coat tablets from Doctors Foster and Smith.

Butterfly Milkweed

Asclepiadaceae (*Asclepias tuberosa* L.; *Asclepias syriaca* L.)

Identification: A perennial plant of the milkweed family that grows to 30″. Flowers are orange, numerous, on panicles at the top of the flower stem. The tuberous root is grooved along its length and has root hairs. Leaves are alternate, hairless, oblong, and deep green. This milkweed does not have the latex found in other species. Also known as pleurisy root.

Habitat: Much of North America, and in the northeast of Florida, Georgia, Alabama, Louisiana; also found in the Four Corners area of the West and into Canada. Commonly used as a garden ornamental.

Food: I have eaten the flowers of *A. syriaca*, and the firm seedpods after they were twice boiled and then sautéed. Repetitive cooking dilutes the cardiac glycosides. *Asclepias tuberosa*, however, is a different plant, and as with other members of this genus, it may be toxic. Seed pods are said to be edible and young shoots when cooked thoroughly.

Butterfly milkweed, *Asclepias tuberosa*

Traditional uses: This is a premier American Indian expectorant medicine. The root was used in decoction as an antispasmodic for treating pleurisy, bronchitis, gastritis, influenza, pneumonia, colds, and asthma. It was used to reduce fever by causing perspiration. Also used to treat uterine disorders (dysmenorrhea), therefore contraindicated for pregnant women. The external use of the mashed root as a poultice, or the mashed root in infusion, was indicated for treating snakebites, bruises, rheumatism, wounds, and weeping ulcers. Dried leaf poultice was wrapped around snakebites.

Modern uses: The medicinal properties of the plant are untested and unproven. It is still used today by American Indians and herbalists but has not been properly tested in double-blind, placebo controlled, randomized studies. Chemists in the laboratory of Barbara Timmermann, who heads the medicinal chemistry side of the University of Kansas, Native Medicinal Plant Research Program, have discovered that a cardiac glycoside present in *Asclepias* was found to have strong cytotoxicity against breast cancer cell lines. These findings have been published (Araya et al. 2012).

CAUTION: Never to be used during pregnancy. High dose of extraction is emetic.

Notes: Locate this colorful herb up front in your garden or yard where it can show off: along edges and walkways. It is short and gets lost behind larger plants.

Veterinarian/Wildlife: Another attractive and fragrant bee, butterfly, and hummingbird magnet. The monarch butterfly requires milkweed for egg laying and larvae nutrition. Whorled milkweed (severely whorled leaves; *Asclepias subverticillata*) has been indicated to cause sudden death by toxin in cattle.

Motherwort

Lamiaceae (*Leonurus cardiaca* L.)

Identification: Erect perennial of the mint family, grows 3.5′, often shorter. Stem is quadrangular (square), grooved, usually hairy and hollow. Leaves opposite on long petioles, deeply lobed, and coarsely toothed; upper leaves three to five lobes, dark green on top and light green underneath. Small red flowers present in dense false whorls in the upper leaf axils—flowers from April to August depending on latitude and altitude. Plant leaves, when crushed, have unusual odor.

Habitat: Introduced from Europe and has spread across the nation, found on waste ground, roadsides, edges of lawns.

Food: Although not considered a food, a few holistic practitioners will consume the seeds for their beta-carotene and essential fatty acid content. This practice may be uterine stimulating and therefore should be avoided by pregnant and lactating women.

Motherwort close at hand in a vacant lot

Traditional uses: Traditionally used by the Chinese and pioneers to tone heart muscle (*Leonurus cardiaca* means lion's heart). Also indicated as a tonic for treating amenorrhea, dysmenorrhea, urinary cramps, and general weakness. Reported to clear toxins from the body. Ancient Greeks used the herb with pregnant women to treat

stress and anxiety, but modern herbalists warn not to use the herb during pregnancy because of its uterus-stimulating effects. Also used traditionally for stemming bacterial and fungal infections, both internally and externally. Whole aerial parts (leaves, flowers, stems) of plant gathered when in bloom and infusion to treat asthma and heart palpitations.

Modern uses: Commission E–approved for nervous heart complaints (palpitations) and thyroid dysfunction. Plant considered by many herbalists and naturopaths as a superior woman's herb—a uterine and circulatory stimulant that may relieve PMS. It is *hypotensive* (decreases blood pressure), antispasmodic, diuretic, laxative, sedative, and an emmenagogue. Leonurine in the plant tones the uterine membrane (membrane regulation). Homeopathic preparations used in menopause. Chinese use the herb similarly to European traditional uses as a single herb and do not typically compound it with other herbs. *Leonurus japonicus* is widely used in China, where its effectiveness is documented in numerous clinical studies.

A physician friend of mine has used motherwort and passion flower to lower blood pressure in his patients.

A decoction of the dried herb is used in China as a uterine stimulant. The aqueous decoction is reported as antibacterial. Chinese treat nephritis with aqueous extract prepared in a dose from 180 to 240 grams of fresh herb to a liter of water in decoction.

Like many botanical medicines, little or no recent double-blind placebo-controlled evidence is available.

CAUTION: Not to be used during pregnancy due to uterine-stimulating properties.

Notes: The plant grows everywhere along the edges of our yard. Folklore predicts that if you have a woman in the home (a wife, daughter, friend), the plant appears and provides itself as medicine for females. It transplants readily; make certain you get the entire woody root.

Veterinarian/Wildlife: Bumblebees utilize the flowers for pollen and nectar. Provides protection and habitat in prairies for field sparrows. Considered an alien weed, often eradicated—origin Europe, southern Germany, but more indigenous than alien.

Foxglove

Plantaginaceae (*Digitalis purpurea* L.)

CAUTION: Toxic plant.

Identification: Biennial flowering plant 3′ to 5′ tall. In the wild, grows in clusters. Has fuzzy (hairy) lance-shaped leaves, spread in basal rosette. When without flower stalk, the basal rosette of leaves looks somewhat like mullein leaves or comfrey leaves, rarely dock

Foxglove

leaves—beware, the leaves of *digitalis* are toxic. Flowers are thimble shaped, approximately 1″ in length, elegant, white to purple, aggregated on a spike. They look like gloves, hence the name. Flowers bloom in summer of second year. Also called purple foxglove.

Habitat: A common mountain wildflower, found along roadsides in northwest, western, and eastern mountain states. This is a favorite ornamental in gardens from coast to coast.

Food: Not edible, cardio tonic, toxic.

Traditional uses: The powdered leaf contains potent cardiac glycosides perhaps first used by Celtic people in Europe. Overdose causes nausea, vomiting, slowed pulse, fainting, and possibly death. Used externally on wounds and ulcers. Used in the British Isles to treat tumors, ulcers, headaches, and abscesses. The plant's history includes murder by poison.

Modern uses: The plant-derived drug is considered obsolete. Better synthetic, pure substances are available and used. The plant contains cardiac glycosides that increase heart thrust and lower venous pressure. It lowers oxygen requirements of the heart and reduces frequency of heartbeat.

Notes: Transplants to garden; striking plant, tolerates some shade, but prefers sun and well-drained soil. Does not tolerate extreme cold; difficult to keep alive year after year in Michigan.

Veterinarian/Wildlife: Toxic when ingested by wildlife. Foxglove is also potentially fatal if a cat eats the plant. Not only is the entire foxglove plant toxic, so is the water from the vase if the plant is cut and brought indoors.

Pokeweed

Phytolaccaceae (*Phytolacca americana* L.)

Identification: A large perennial with thick, smooth, reddish stems when mature, grows to 10′ tall, but more typically 5′. Stems are hollow and usually marked with grooves. The root is long and thick. Leaves are ovate to lance shaped, alternate, from 5″ to 10″ in length, with entire margins. When rubbed, leaves provide a musty scent. Flowers have five greenish white sepals, on racemes, with a calyx but no corolla. Berries form a drooping cluster and are shiny purplish to black when ripe.

Habitat: From the Missouri River east to the coast and south to the Gulf. Found

Pokeweed: It's for the birds.

on waste ground, fields, roadsides, and gardens.

Food: The young shoots of this plant are edible in the spring. The leaves should be boiled in a change of water. Avoid poke once the stem and leaf petioles have started to turn purple. The lectin content rises as the plant matures. Cooking destroys some of the lectins, and digestive juices get others, but be careful! Your window of opportunity is short. (Lectins bind with sugar moieties and can agglutinate causing cellular damage.) This is an excellent-tasting green. If you are not certain, you can find these greens canned and commercially available. Stems when young and tender may be blanched and pickled. One of my students eats pokeweed rather late into the season and has reported eating them with the flower buds on. She also confessed to their potent cathartic activity. Seeds, berries, and roots are toxic. Cherokee made a drink of crushed ripe berries mixed with sour grapes, sweetened, then strained and blended with powdered cornmeal. The leaves contain three times as much vitamin C as a lemon and are mineral rich.

CAUTION: Berries are toxic and more than ten berries may be harmful to an adult. Lethal dose of fresh poke berries in mice is about 300 grams per kilogram of body weight.

Traditional uses: American Indians traditionally used the root poultice over rheumatoid joints. Berries were made into tea for rheumatic conditions. Berry tea was also used to treat dysentery. Infusion of root used for eczema, ulcerated wounds, and to reduce swelling. Dried and powdered roots spread over cuts and sores. Plant used as a proven laxative and emetic. The decoction mixed with other plants was taken as a blood purifier and stimulant (Moerman 1998). Infusion of root and branches used in sweat lodges to produce steam considered antirheumatic. Root was pounded and mixed with grease and applied to bunions.

Modern uses: The plant parts are reported as purgative and antiarthritic. Antiviral proteins in leaves have been indicated as a possible treatment for cancer and viral infections. Homeopathic doses are available for rheumatism, inflammations of the mammary glands and respiratory tract, infections, and fevers. Root saponins are emetic. The root extract has demonstrated an immune-enhancing effect. Pokeberry purge: One controversial therapy explained to me requires taking one berry to start a cleansing process, then taking one additional berry each day for twenty or twenty-one days (twenty-one berries on the last day). I'm not interested. Too risky! A fruit juice fast is a purgative more to my liking.

CAUTION: Overdose leads to diarrhea, respiratory distress, hypotension, dizziness, thirst, tachycardia, vomiting, and if the dose is high enough, acute spasm and death. Berries are particularly toxic to children and the ingestion of just one berry by a child is cause for concern.

Notes: Despite the risks, berries are used by the food industry as a coloring. Traditional people used the berries as a dye. In Appalachia, the root is brought into root cellars, placed in a trough, covered with dirt, watered to induce growth,

and the new edible shoots are eaten through the winter.

Veterinarian/Wildlife: Berries are eaten by birds with no ill effects.

Amaranth, Red Root

Amaranthaceae (*Amaranthus retroflexus* L.)

Identification: Tall, weedy-looking plant to 4′ with grayish leaves, leaves alternate, flowers borne in bristly, hairy bracts in the axils of the upper leaves. Leaves diminish in size near the top of the stem as hairy flower bracts increase in size and density. Seeds are typically black, small, and numerous. Taproot and lower stem are reddish, thus the name. Leaves are ovate to rhomboid, alternate with rough margins, rough to the touch. Flowers in summer, bears edible seeds in fall.

Habitat: Numerous species growing on waste ground across the nation along the edges of prairies, margins of fields. Widely cultivated in Mexico and South America.

Food: Young shoots and leaves eaten raw, cooked, or dried, then reconstituted in hot water for winter food. Seeds used whole as cereal (cooked) or ground into flour. Seeds used whole in bread, muffins, etc. Small black seeds used to make pinole with cooked cornmeal and water. Leaves and seeds are also mixed with grease, cooked, and eaten.

Traditional uses: American Indians consider this a sacred ritual plant mixed and eaten with green corn in ceremonies. Astringent leaves used to treat profuse menstruation, and the infusion was taken to treat hoarseness (Moerman 1998). Pioneers and herbalists reported the herb as astringent and useful for treating

Wild stand of amaranth, Abilene, Texas

inflammations of the mouth and throat, as well as therapy for diarrhea and ulcers.

Modern uses: No proven therapies. But no health hazards either from eating the seeds and cooking and eating the young shoots. Considered a health food.

Notes: Grown in our garden for its bountiful seeds, which we add to pancakes, multigrain cereal, bread mix, and hot cereal. It is an important addition to salsa verde (green salsa made with onions, lime juice, tomatillos, hot peppers, and amaranth seeds). Seeds may be purchased at Seventh Day Adventist supermarkets and many health-food stores. Amaranth is a nutritious primal grain, just as God and nature designed it.

Veterinarian/Wildlife: An excellent, nutritious seed, easily hand-gathered and added to your bird feeder.

Passion Flower

Passifloraceae (*Passiflora incarnata* L.)

Identification: There are numerous varieties, all somewhat similar. It is a perennial vine on a woody stem climbing to 35′ or more. Bark is longitudinal and striated when mature. Leaves are alternate, with petioles, serrated with fine hair on both the top and bottom, but underside of leaf is hairier. Leaf blades have bumps called floral nectaries. Flowers are single, wheel shaped, petals like spokes, striking, to 5″ in width.

Habitat: Climbing vine of open areas and the forest edge. Most species tropical or subtropical, but will grow in a temperate garden. With a worldwide distribution, numerous species are found across seven climactic zones. Often introduced. Found wild in the southeast United States.

Food: The leaf and flower tea has mild sedative properties. Fresh fruit may be eaten raw or juiced or made into a beverage. Mexicans mix with cornmeal or flour and eat it as a gruel. Leaves eaten by American Indians. Typically, leaves are parboiled and pan-fried in vegetable oil or animal fat.

Traditional uses: Fresh or dried aerial parts or whole dried herb used in infusion as mild sedative. Also used to treat nervousness and insomnia—a sleep aid. Antispasmodic effect of infusion considered a gastrointestinal aid. People used the infusion of crushed root for treating earache. They also pounded root and applied the mass as a poultice on inflamed contusions, boils, and cuts. The root water of the plant was mixed with lye-treated corn and used to wean babies. The tisane was considered a blood purifier for many tribes. Pioneers used the whole plant with Epsom salts as a sedative bath. Root tea and aerial-parts tea used for treating hemorrhoids.

Passion flower in Louisiana

Modern uses: As above. In animal studies, infusion was reported as sedative, antispasmodic, and inhibited motility of organisms (relaxant). Commission E–approved for treating nervousness and insomnia. Use as an antidepressant and for treating somatization disorder (colloquial: hysteria) is unproven.

Notes: The Doctrine of Signatures suggests that this sensual-looking plant is an aphrodisiac. Passiflora contains beta-carboline harmala alkaloids, which are MAOI (monoamine oxidase inhibitors) with antidepressant properties. Typically the flower has only traces of the chemicals, but the leaves and the roots of some species have been used to enhance the effects of mind-altering drugs.

Veterinarian/Wildlife: Fruit and seeds of minor importance to birds. Several species are pollinated by hummingbirds, bumblebees, and wasps, while others

are self-pollinating. *Passiflora* species are used as food plants by the larva of the moth *Cibyra serta* and many Heliconiinae butterflies. The bracts of *Passiflora foetida* are covered with hairs exuding a sticky fluid that traps insects. Studies have suggested that this may be an adaptation similar to that seen in carnivorous plants (Radhamani, Sudarshana, and Krishnan 1995). Extract is used to calm stressed cats and has been used as a mild sedative for horses (veterinary practicenews.com).

Purslane

Portulacaceae (*Portulaca oleracea* L.)

Identification: Spreading, fleshy, succulent annual that sprawls close to the ground. Stems many branched, reddish. Leaves 1″ long and thick, fleshy, smooth and shiny, ovate or teardrop shaped (spatula shaped). Small, inconspicuous, yellowish flower in leaf rosettes. Blooms June through November.

Habitat: Found nationwide, in gardens and waste ground.

Food: Purslane is a common garden plant, a volunteer alien creeper. It may be eaten right off the ground, put in salads, or chopped and added to soup. The payoff is omega-3 essential fatty acids. American Indians ate the leaves as a raw or cooked vegetable. It was also boiled in soups and with meats. Try it chopped in salads, in salad dressing, or even in turkey stuffing. Mexicans eat purslane raw with meat and green chiles or cooked with onions, carrots, beans, and chiles. Purslane can be dried and reconstituted as a winter food.

Traditional uses: Used as a poultice and a skin lotion. The whole plant in decoction was used to treat worms. Juice of the whole plant considered a tonic and was also used to treat earaches. Purslane was an antidote to unspecified herbal toxins. Infusion of leaf stems was used to stem diarrhea. Mashed plant was applied as poultice over burns and bruises. Decoction of the whole plant was considered an antiseptic wash. Purslane was eaten to alleviate stomachache.

Purslane gathered from a crack in a walk, Nebraska

Modern uses: Purslane's essential fatty acids may help prevent inflammatory conditions such as heart disease, diabetes, and arthritis. Preparation of the extract is found in a few commercially available skin lotions. A 2010 clinical study explored the use of purslane extract to treat oral lichen planus (OLP), a chronic inflammatory disease that rarely undergoes spontaneous remission and significantly increases sufferers' risk of oral squamous cell cancer (Agha-Hosseini

et al. 2010). The study produced positive results, with 83 percent of participants showing improvement.

Notes: Purslane is often present in commercial bags of garden manure; spread it on your garden and by midsummer, purslane. I add the succulent leaves to salads and encourage this plant to grow in my garden. It is a natural and tasty way to get omega-3 fatty acids into my diet. If you won't eat it, add it to your mulch pile. The worms will prosper!

Veterinarian/Wildlife: In Mexico this is important fodder for wildlife and domestic animals, especially free-range chickens, providing essential fatty acids.

Saint-John's-Wort

Hyperacaceae (*Hypericum perforatum* L.)

Identification: Stiff, almost woody stem, reddish and erect; may grow to 4′ in height. Leaves ovate, attached at the base, and covered by glands. Hold 1.5″ leaves toward the sun and you will see the glands; they appear as small perforations in the leaf. Stems bear yellow flowers with five sepals in terminal cymes (clusters). Sepals are marked with numerous glands. Blossoms have numerous stamens fused into three bundles. Cylindrical seeds are 1 to 3 mm long, black or brown, covered with small warty markings.

Habitat: Nationwide. Roadsides, waste ground, fields, prairies, stream banks, riverbanks. There are numerous garden varieties.

Traditional uses: The whole-plant decoction was used to induce abortions by promoting menstruation. Parts used included the fresh and dried flowers, buds, and leaves. Topical applications rubbed on sores may have antiviral, antibacterial, and wound-healing activity. It was considered anti-inflammatory, antibacterial, antiviral, antidiarrheal, and astringent. Traditionally used for 2,000 years, initially in Greece to drive out evil spirits. Flower infusion or flower tincture was said to calm nerves, relieve insomnia, and boost mood by dispelling lethargy, like a nervine. Internally, tea was used as a PMS treatment. Tea, standardized capsule, and tincture were used to treat sciatica, anxiety, shingles, and fibrositis. Chewed root was considered a snakebite remedy. Crushed leaves and flowers were stuffed in the nose to stem nosebleed.

Saint-John's-wort, *Hypericum perforatum*

Modern uses: Several studies in Europe show the benefit of this herb to treat mild depression. A standardized extract of 0.3 percent hypericin, 300 milligrams three times a day, was found comparable in antidepressant effect to a drug standard of imipramine. A recent study suggests a 5 percent hyperforin extract of the

plant showed a slight increase in cognitive function. Other trials suggest the drug may combat fatigue, relieve anxiety, improve sleep, help with weight loss, and attenuate menopausal symptoms. One study showed it relieved some forms of atopic dermatitis but was no more effective than placebo for treating major depression. It may work better than fluoxetine in treating depression (Fava et al. 1995). One study showed no difference between placebo and Saint-John's-wort for treating moderate and/or severe depression (NIH/Duke University 2012).

An external Infusion of flowers and leaves is used as a cooling, astringent, wound-healing infection fighter. It is antiviral and anti-inflammatory and is said to promote healing when used externally as a poultice or wash for infections, burns, bruises, sprains, tendonitis, neuralgia, or cramps. In-vitro studies show widespread antimicrobial activity against influenza, herpes simplex I and II, retrovirus, polio virus, sindbis virus, murine cytomegalovirus, hepatitis C, and gram negative and gram positive bacteria. It appears that exposure to ultraviolet light increases its antimicrobial activity.

Saint-John's-wort is available over the counter as a dietary supplement. Check with your health practitioner for appropriate use and dosage.

CAUTION: Not to be used to treat severe depression or bipolar depression. Extracts, when used in German trials, induced side effects in 2.4 percent of the test group. Side effects included gastrointestinal irritation, restlessness, and mild allergic reactions. It appears to be synergistic with serotonin reuptake inhibitors, thereby increasing serotonin levels. Use of the supplement may lower activity of simultaneously administered drugs, including nonsedating antihistamines, oral contraceptives, certain antiretrovirals, antiepileptics, calcium channel blockers, cyclosporine, some chemotherapeutics, antibiotics, and select antifungals. Avoid long-term use.

Notes: I have used both a decoction and tincture of the whole plant to treat psoriasis with no success. I occasionally eat the flower.

Veterinarian/Wildlife: Saint-John's-wort has been indicated in cattle poisoning. When consumed by livestock, the plant may also induce photosensitivity. For more information go to vet.purdue.edu and search "plant toxins."

Heal-all

Lamiaceae (*Prunella vulgaris* L.)

Identification: Perennial typically 6″ to 10″ tall. Square stem erect when young; may fall and creep. Leaves ovate to lance shaped, margins dentate (toothed) to entire, and opposite. Blue to violet bract of flowers clustered in a whorl at end of square stem. Also known as self-heal.

Habitat: Nationwide in waste ground, lawns, edges of fields, margins of woods, and wetlands.

Food: According to Native American Ethnobotany, the Cherokees cooked and ate small leaves (Moerman 1998). The

Heal-all, *Prunella vulgaris*

Thompson First People made a cold infusion of the aerial parts and drank this as a common beverage. Leaves and flowers may be added in judicious amounts to salads.

Traditional uses: Documented as used by the Chinese for more than 2,200 years, heal-all was used for liver complaints and improving the function of the liver. The whole plant was used in infusion to stimulate the liver and gallbladder and to promote healing. It is considered alterative; that is, capable of changing the course of a chronic disease.

Modern uses: Heal-all is still used internally by holistic practitioners to treat excessive menstruation and externally to treat burns, cuts, sores, and sore throats. The whole plant is infused and gargled for ulcers of the mouth and throat. The tea is made with 1 teaspoon of the dried whole aerial parts of the plant to 1 cup of water as a remedy for diarrhea and unspecified gynecological disorders. Consult with a professional holistic health-care professional for specific formulations and applications. Extracts of the herb are used in a dentifrice to treat gingivitis (Adámková 2004).

Notes: Locate this plant to your garden so you have it on-site and handy when you need it.

Veterinarian/Wildlife: Eaten by grazing animals. Frequented by bees when in bloom.

Spiderwort

Commelinaceae (*Tradescantia ohioensis* L.; *T. occidentalis* [Britt.], Smyth; *T. pinetorum* Greene)

Identification: Perennials to 4′ in height. Numerous leaves grow from the base (no stem). Leaves long, tough, swordlike, smooth, with entire margins. Flowers orchidlike, in drooping terminal clusters, deep blue; opening in morning and closing by afternoon. Blooms continuously through summer. Sepals on *T. virginiana* are smooth, hairless, whereas *T. ohioensis* are finely hairy. There are at least four species in North America.

Spiderwort, *Tradescantia* spp.

Tradescantia hirsuticaulis is a hairy-leafed version found in North Carolina south into Florida. Also known as widow's tears or spider plant.

Habitat: Various species found nationwide. *Trandescantia virginiana* found in railroad rights-of-way, roadsides, fields, prairies, and in my garden. *T. occidentalis* found in a center slice of the United States from Texas to Montana.

Food: Tender springtime shoots of *T. ohioensis, T. virginiana,* and *T. occidentalis* are eaten raw or cooked. Flowers are edible throughout the year. Pick them in the morning before they wilt. Try them in salads or stir-fries or right off the plant. Flowers may be dipped in egg white and coated with powdered sugar.

Traditional uses: *T. ohioensis* and *T. virginiana* root tea was used as a laxative, to treat female kidney disorders, and for stomach problems. The aerial infusion was used to treat stomachache. Crushed and smashed aerial parts of the plant were applied as a poultice over insect bites and stings and used to bind wounds. American Indians and pioneers used the crushed plant as a poultice to treat cancer. *T. occidentalis* tea was used as a diuretic. This plant infused is said to be an aphrodisiac.

Modern uses: Flowers have health-protecting flavonoids that may lower blood pressure (hypotensive), are diuretic, and may improve distal circulation. There is little or no modern evidence supporting the use of this medieval drug. The mucilaginous consistency of the young shoots, when eaten, may help alleviate sinus and bronchial spasms as well as soothe a sore throat (all unproven treatments). Used in Traditional Chinese Medicine to induce diuresis and reduce swelling.

Notes: Flowers open in morning, wilt by afternoon, and turn into a jellylike mass by evening. Hairy stamens of the flower have large rows of thin-walled cells in a chainlike pattern. The flowing cytoplasm and nuclei of these cells can be easily seen under a microscope. The tough leaves of this plant can be used for binding wounds and woven into cordage. The Mixteca tribe of Mexico bound Cortez's thigh wound with this plant and are thus credited with saving his life. As a garden perennial this plant gives and gives and gives. A worthy addition to your garden, beautiful, medicinal, and edible.

Veterinarian/Wildlife: *T. occidentalis* and *T. pinetorum* were fed to livestock to induce breeding (aphrodisiac). A cold infusion of the same plants was used to treat "deer infection" contracted from animals. Plant juice and strewn plants are said to be insect repellents.

Jimsonweed

Solanaceae (*Datura stramonium* L.; *D. discolor* Bernh.)

Identification: Annual to 3′. Leaves toothed, coarse textured to 3″. Distinctive trumpetlike flower, color: white to light violet, to 3″. Seed capsule studded with spines about 1.5″ wide. Plant has pungent, musty odor.

Habitat: *D. stramonium* is found along roadsides and in bean and cornfields throughout the United States. *D. discolor*, more common in the Southwest and Four Corners area, has become a popular, showy garden flower throughout the Midwest.

Food: Not used as food; toxic.

Traditional uses: This plant is American Indian Big Medicine. The whole plant, especially the seeds, contain the alkaloids atropine and scopolamine. Atropine was used traditionally to dilate pupils. Leaves were smoked by American Indians to treat asthma and other respiratory conditions. Smoking the leaves may also induce hallucinations. Numerous Indian nations used the plant as a ceremonial medicine. In a ritual that initiated young men into adulthood, *Datura* roots were powdered and taken as a hallucinogen and narcotic purportedly to transform the user into a powerful animal. Powdered leaves were mixed with grease and used as an ointment, analgesic, and disinfectant. The whole plant was used symbolically to divine cures for disease and as a wash for cuts, wounds, and swellings. A paste of the plant was applied to insect bites, snake envenomations, and spider bites. Pioneers and folk practitioners

Jimsonweed, *Datura stramonium*

used preparations of the seeds and leaves as an expectorant and to treat asthma, bronchitis, and flu.

Modern uses: Scopolamine is used in a popular motion-sickness patch to treat dizziness and seasickness. Scopolamine patches are used to treat asthma. Atropine is a sedative to the parasympathetic nerves and has been used in treating Parkinson's disease. Homeopathic practitioners use a preparation to treat cramps, eye inflammations, and infection. In China *Datura* is still smoked to manage pain, treat asthma, and relieve arthritis (*PDR for Herbal Medicines* 2007, 282). In trials, leaf extract of *D. stramonium* showed an antibacterial and antioxidant effect: Such research may lead to synergistic effects with conventional antibiotics against infections and provide a possible new choice for the treatment of antibiotic-resistant disease (Sreenivasa et al. 2012).

CAUTION: Fatalities have been reported from abuse of this plant, typically from eating the seed. It is not to be used unless under the supervision of a professional health-care practitioner. According to *A Field Guide to Medicinal Plants:*

Eastern and Central North America, licorice (*Glycyrrhiza*) may be an antidote to the toxic properties of the alkaloids in this plant (Foster and Duke 1990).

Notes: I presented at a local high school where a few students were abusing the drug. The lethal dose and the dose to get high are alarmingly close. All those spines on the seed capsules scream: "Stay away from me!"

Veterinarian/Wildlife: *Datura* contamination of hay has caused extensive livestock poisoning. Dogs brought into contact with the plant have exhibited anisocoria (inequality in size of the pupils). All aerial parts of *D. stramonium* produced anisocoria following simple contact with the eye.

Comfrey

Boraginaceae (*Symphytum officinale* L.)

Identification: Perennial. Leaves start in spring from basal rosette of leaves from which grows stiff, erect stem to 4′ or more. Leaves wrinkled and rough to the touch; basal leaves more ovate; upper leaves long (8″ to 12″), broadly lance shaped. Pale purple to violet flowers appear atop stem, arranged in crowded hanging cymes. Flowers have fused calyx with five tips and a fused five-tipped corolla with a pentangular tube.

Habitat: Rarely found outside the garden, at least by this author. Said to have escaped to waste ground and roadsides nationwide. Will grow in shade or full sun and is aggressive and spreading. Can be purchased at nurseries and from herb cottages.

Food: Leaves are made into tea and eaten by indigenous people worldwide. Comfrey is widely used in Japan, where it is cultivated and pickled. But it is not recommended as a food because research has shown the presence of liver-toxic pyrrolizidine alkaloids. Levels of pyrrolizidine alkaloids are highest in roots.

Comfrey, *Symphytum officinale*

Traditional uses: External poultices were applied to bruises, swellings, sprains, and burns and to accelerate healing of broken bones. Leaf tea was used to treat ulcers, hemorrhoids, bronchitis, and congestion.

Modern uses: Comfrey extract is Commission E–approved for treating blunt injuries. It has scientifically proven anti-inflammatory action against rheumatism. The extract studied was a pyrrolizidine alkaloid–free product in an ointment (Kucera 2000). Comfrey is a mucilaginous, cooling herb that contains allantoin. It appears to stimulate cell growth and is used in wound-healing skin creams. The leaf tea is still used under medical supervision to treat chronic bronchial

problems, ulcers, colitis, arthritis, and rheumatism. Allantoin extracted from comfrey is available from your pharmacy; use it instead of the whole comfrey plant to avoid potential toxins. Clinically proven salve alleviates pain, swelling of muscles and joints.

CAUTION: Use of comfrey roots and leaves may cause cancer and destruction of the liver. Not for use by lactating or pregnant women. Even external use of comfrey may cause assimilation of the toxic alkaloids.

Notes: An attractive and aggressive perennial garden dweller, this exotic-looking plant does well in temperate regions.

Veterinarian/Wildlife: A recent study showed that bees pollinating comfrey flowers carried toxic pyrrolizidine alkaloids to their hives and the substance was found in trace amounts in honey (Kowalczyk 2018). There are numerous web sites that address traditional and modern uses of comfrey with horses; here is one: www.equineiridology.eu/training.php.

Wild Yam

Dioscoreaceae (*Dioscorea villosa* L.; *D. composita* Hemsl)

Identification: Sprawling, climbing perennial vine. Reddish brown stem may grow to 35′. Leaves typically alternate, broadly ovate to heart shaped; smooth on top, hairy underneath (pubescent). Flowers small, greenish yellow. Male flowers are drooping; female flowers are drooping and racemelike (borne on a single axis on a stalk, like lily of the valley). The root and rhizome are used; rhizome is pale brown, a twisted tuberous cylinder.

Habitat: Canada to the southern United States. Prefers partial shade, sun; moist or dry, sandy or rocky soil; woods, thickets, fencerows, shorelines, bluffs, railroads. Many tropical, subtropical, and temperate species.

Food: Wild yams are used in Chinese medicinal soups and sold in Chinese supermarkets and Chinese drugstores. Add about 20 grams of the sliced, dried root to chicken stock; simmer; add vegetables, meat, and garlic; serve. The tubers are bitter and considered toxic, but Chinese uses challenge that contention. Be careful.

Wild yam, *Dioscorea* root

Traditional uses: Meskwaki Indians used the decoction of the root as an analgesic for birthing and postpartum pain. Dried wild yam root slices are taken with Solomon's seal (*Polygonatum*) root to treat dysmenorrhea in Traditional Chinese Medicine. Indigenous people of South America traditionally used the root to

treat pain of menstruation (ovarian pain) and labor. Also used for arthritis, as a digestive aid, and for muscle cramping. Considered to have anti-inflammatory, antispasmodic, antiarthritic, warming, and diuretic properties.

Modern uses: Diosgenin from the bulb and root was the model material for the birth control pill. DHEA and other hormones and hormone-starter materials are fabricated from the phytosterols in the root of wild yam. Japanese scientists developed corticosteroid compounds from the root-starter material. Tea is occasionally prescribed by naturopaths for irritable bowel syndrome, and a tincture may be prescribed for arthritis. Root decoctions are taken for chronic fatigue, nocturnal emissions, neurasthenia (similar to chronic fatigue), insomnia, neurosis, and feelings of inadequacy. The chopped root can be made into tea or tinctured in 30 to 40 percent alcohol (Chevallier 1996). A commercially prepared drug from wild yam is taken for leukorrhea, a whitish, viscid vaginal discharge. As a poultice the smashed root is applied to abscesses, boils, and skin sores.

CAUTION: Not to be taken internally by people with high blood pressure or constipation. Check with your holistic healthcare practitioner. Do not take wild yam during pregnancy without a physician's guidance.

Notes: Once started in your garden, wild yam is difficult to eradicate—it will raise its pretty head here, there, and everywhere. Grown along a wall or fence, it makes an unusually attractive cover.

Veterinarian/Wildlife: DHEA extracted from wild yam doubled the life of rats.

Baptisia

Fabaceae (*Baptisia australis* L. R. Br. ex Ait. f.; *B. tinctoria* L.)

Identification: Tall, spreading, shrublike perennial 4′ to 5′ in height. Pealike leaves. Striking blue, pealike flowers. Clusters of large indigo seedpods. *B. tinctoria* has cloverlike leaves, yellow blooms. Also known as false indigo.

Habitat: Prairie wildflower both east and west of the Mississippi. Garden ornamental.

Food: Not edible.

Traditional uses: American Indians used a decoction of the roots to treat wounds, bites, and stings. Considered an immune-stimulating herb used in

Baptisia, *Baptisia australus*

decoction as a vaginal douche for vaginitis. A poultice of the root was applied over venereal disease sores. A cold infusion of the smashed root was a purgative and emetic. The root infusion was used to wash wounds.

Modern uses: The root extract is considered a fair infection fighter when used by a skilled medical practitioner. Toxic dose will cause nausea and vomiting. The homeopathic dose is considered safe and is said to improve immune defense mechanisms by raising leukocyte counts (*PDR for Herbal Medicines* 2005). Animal studies showed the polysaccharide fraction stimulates the immune system.

CAUTION: Taken orally, the root decoction is potent and toxic.

Notes: My daughter uses the ripe seedpods and seeds in a sun tea infusion to extract a blue dye. False indigo is a striking, decorative plant in the perennial garden. Flowers and seedpod stalks are attractive additions to flower arrangements. Without endorsing it, I mention Phyto-Biotic, a botanical antimicrobial product containing *B. tinctoria* root bark, *Allium sativum* bulb, *Echinacea* angustifolia root, *Hydrastis canadensis* root, *Berberis vulgaris* root, and *Phytolacca americana* root.

Veterinarian/Wildlife: This shrubby plant provides storm shelter and refuge for small songbirds and is a host plant for insects and butterflies.

California Poppy

Papaveraceae (*Eschscholzia californica* Cham.)

Identification: Annual or perennial, 15″ to 40″ tall. Leaves few, bluish green, tapering to a point, feathery or fernlike. Brilliant yellow-orange solitary flowers to 2″ wide. Cup- or bowl-shaped seed receptacle contains several chambers filled with tiny seeds. Hundreds of species.

Habitat: California to British Columbia. Open areas, roadsides, dry clearings. Also in gardens nationwide.

Food: American Indians of the Luiseno Nation ate young springtime leaves as cooked greens. The leaves were first boiled, then fried or roasted and eaten. Poppy seeds may be purchased over the counter.

California poppy

Traditional uses: Aerial parts are harvested, dried, and infused as a sleep-inducing sedative. It has been used for anxiety, for nervousness, and as an antispasmolytic. It is considered a warming agent and a diuretic and has an analgesic effect. Folk use includes treating nocturnal urinating in children. American Indians used the milky sap of the leaves as an analgesic to relieve toothaches. Leaves were also placed under children at bedtime to induce sleep. The white resin from seedpods was rubbed on a nursing mother's breast to promote lactation. However, several tribes believed the plant to be poisonous and avoided its use.

Modern uses: Californidine, an alkaloid in the plant, is used as a sleep aid and sedative by a few qualified holistic medicine practitioners. These qualities have been proven in animal studies only. Homeopathic preparations are used to treat insomnia and used under professional supervision.

CAUTION: Not to be used during pregnancy or by nursing mothers.

Notes: This attractive, deep-rooted, spreading plant is a colorful addition to your garden and provides edible seeds for baked goods. In California it is illegal to pick this plant, as it is the state flower.

Veterinarian/Wildlife: A food source for small mammals and terrestrial birds.

Flax

Linaceae (*Linum usitatissimum* L.)

Identification: Delicate-looking annual to 3′ in height. Gray-green leaves lance shaped, smooth edged. Sky-blue flowers borne in leaf axils on upper part of slender stem. Flowers have five sepals and five ovate petals with five stamens and one ovary. Seeds are flat, brown, glossy. Also known as linseed.

Habitat: Temperate-zone plant. Roadsides, barns, waste ground near where the plant has escaped cultivation. Buy flaxseeds at a health-food store and spread them in your garden.

Food: Mix flaxseeds in salads, waffles, or pancakes; blend them into juice drinks; or eat them whole out of hand. **Tip:** Grind seeds before adding them to juice, cereal, and other foods to release the oils. They are healthful in bread and corn bread—in all baking, in fact—and are especially beneficial when used uncooked or very lightly cooked. See the video *Diet for Natural Health* (Meuninck et al. 2007) for numerous recipes using flax and other essential dietary fats. Flax flowers are edible.

Flax, *Linum* spp.

Traditional uses: The Greeks and Romans considered flax a panacea.

American Indians used flax as food and medicine to treat inflammatory diseases and infections: colds, coughs, fevers, and painful urination. These early uses suggested the now-known anti-inflammatory effect of flax.

Modern uses: Flaxseed is one of the highest plant sources of omega-3 fatty acids. (Perilla seeds at your Asian grocery contain slightly more omega-3.) This essential fatty acid is a memory and cognitive enhancer. Omega-3s protect us from degenerative diseases. Increasing the ratio of omega-3 to omega-6 in the American diet may prevent more autoimmune and inflammatory diseases. The husk of the seed has lignins, mucilage, and phenolics that provide extra protection from heart disease, cancer, and diabetes.

Flax is Commission E–approved for treating inflammations of the skin and constipation. Clinical trials have shown the efficacy of the supplement (oil) to lower cholesterol and raise plasma levels of insulin. As an anti–platelet aggregating agent, it may decrease the potential for thrombosis.

Notes: I was told by a medical doctor that not all folks convert the omega fats from flaxseeds into omega-3 fatty acids as efficiently as others. He suggested eating cold-water fish—salmon, herring, sardines, and mackerel—or taking fish-oil supplements as the preferred sources of the vital-to-life essential fats. I take the advice with a grain of salt, as the same physician sells a line of fish-oil supplements.

Veterinarian/Wildlife: Flaxseed is a vital component of premium wild and domestic bird feeds and food mixes for racing animals like horses, birds, and dogs. Flaxseed is also used in veterinary medicine in the United States, Europe, and India. It's an integral part of Power Dust wound treatment for horses.

Bouncing Bet, Soapwort

Caryophyllaceae (*Saponaria officinalis*)

Identification: Soapwort is an herbaceous perennial, 2′ to 4′ tall with leafy, branched stems (often tinged with red). The plant grows in colonies. Leaves are broad, lance-shaped, somewhat oval, sessile (directly attached to the stem without a petiole), and opposite. They are between 1.5″ and 4.7″ long. Radially symmetrical flowers are fragrant, pink, or sometimes white. Each of the five flat petals has two small scales in the throat of the corolla. They are about 1″ wide, arranged in dense, terminal clusters on the main stem and its branches. The long tubular calyx has five pointed red teeth. Flowers open in the evening and stay open for about three days. Their scent is stronger at night.

Bouncing bet is wilderness soap—try it with water.

Habitat: Bouncing Bet grows in most states, except desert areas. It prefers moist ditches, roadsides, waste places, old homesites, and meadows. It was widely introduced by European immigrants.

Food uses: None. Bouncing Bet is bitter, inedible, perhaps toxic.

Traditional uses: Saponaria officinalis contains large amounts of soapy saponins, which froth in water extraction. The plant has been used since the time of Dioscorides. It has been used as an antiscrophulatic to counter scurvy, a cholagogue to increase the flow of bile; it was believed to be depurative (blood purifying), diaphoretic (increases perspiration), purgative (cathartic, stimulating), and mildly diuretic. It has also found uses as an expectorant and tonic. A decoction of the herb is applied externally to treat itchy skin (NIH).

Modern uses: Soapwort is high in antioxidants and phenolic compounds, and is anti–micro-bacterial. These unique features make the plant a potential food preservative similar to BHA. These chemical qualities and quantities lend credibility to soapwort's traditional uses.

Notes: Transplants to the garden. Water extraction of aerial parts may be used as a cleansing wash. Originally brought from Turkey to Europe and then North America.

Veterinary/Wildlife: The flowers are visited by insects and moths: Noctuidae, Sphingidae, bumblebees, and hoverflies to name a few. A convenient wash for a pet when out of soap.

CHAPTER 2

Medicinal Herbs of Eastern Forested Areas

The strength of the fire, the taste of salmon, the trail of the sun, and the life that never goes away, they speak to me . . . And my heart soars.

—CHIEF DAN GEORGE

The following medicinal plants are found in forested areas of the United States. Bear in mind that biomes often overlap, and you may discover these plants in areas of transition—from field to forest, for example, or the transition zone from forest to marsh or along wood-lined roadsides.

Skunk Cabbage

Araceae (*Symplocarpus foetidus* L. Nutt.)

Identification: Plant leafy; leaves very large (to 2.5′), green, elephant ear–like, lustrous and waxy in appearance, with skunky odor when torn. Flower is archaic, showy, spathelike sheathing surrounding a clublike spadix.

Habitat: Eastern United States. Wet woods, swamps, lowlands, wet coastal areas. (The western skunk cabbage, *Lysichiton americanus*, is found west of the Rockies.)

Food: The eastern species is little used as food, although a few sources express the roots were dried thoroughly and then boiled. My experience doing this was not good, and the fresh roots burn the mouth and digestive tract.

Skunk cabbage, *Symplocarpus foetidus*

Traditional uses: The liquid extract was used to treat bronchitis and asthma. American Indians dried the root of the eastern species and used it as antispasmodic tea to stop seizures (epilepsy), coughs, asthma, or toothache. A paste of dried root was used externally for skin irritations to quell itching. A crushed-leaf poultice was used externally on swellings and as an analgesic and was considered antirheumatic. The dried-root infusion was used to treat coughs and the root also was applied as a poultice over wounds. A decoction of crushed stalks served as a douche to improve displacement of the womb. Leaves were chewed to treat epilepsy. The dried, powdered root was given as an infusion to treat convulsions.

Modern uses: A liquid extract of skunk cabbage is still used to treat bronchitis and asthma. The plant is considered antispasmodic, expectorant, sedative, and diaphoretic. Its use is reserved for skilled practitioners only.

CAUTION: Skunk cabbage contains poisonous oxalate crystals. Juice from the fresh plant may cause skin blistering and will severely burn the digestive tract if eaten. Only experts should handle this plant. Although its name suggests it is edible, it requires exhaustive preparation in several changes of water to yield mediocre results.

Notes: I have eaten the raw leaf of the eastern species and regretted it. It tasted as if a gnome had pounded a thousand needles in my tongue. Avoid using the fresh parts of this plant as food or medicine.

Veterinarian/Wildlife: Botanically, skunk cabbage is endothermic: It actually produces heat that often melts snow and ice around its base. Thus it is one of the earliest flowering plants of spring. Oxalates in the plant fend off parasites.

Hepatica

Ranunculaceae (*Hepatica nobilis* var. *obtusa* [Pursh] Steyermark, also known as *H. triloba* and *H. americana*; *H. nobilis* var. *acuta* [Pursh] Steyermark, also known as *H. acutiloba*)

Identification: Small perennial to 5″ in height. Leaves basal, evergreen, with the difference between the two species determined by the end shape of their leaves: rounded vs. pointed. *H. nobilis* var. *acuta* is sharp lobed; *H. nobilis* var. *obtusa* is round lobed. Stems and leaves are hairy when they emerge. Flowers of *H.* var. *acuta* are violet to blue, and *H.* var. *obtusa* has whitish blossoms all with six to ten sepals. Also known as American liverwort, this is one of the first spring flowers, blooming in March or April.

Hepatica, *Hepatica nobilis* var. *obtusa*

Habitat: Eastern forests west to Nebraska and north into Canada.

Traditional uses: American Indians infused *H. nobilis* var. *obtusa* and used it as an emetic, laxative, and abortifacient. As an infusion *H.* var. *obtusa* was considered contraceptive. The Menominees used leaf infusions and root decoctions to treat diarrhea and vertigo. The leaf tea was used to treat liver problems because the leaves look like lobes of the liver (in accordance with the Doctrine of Signatures). Folk practitioners used small amounts of the roots and leaves of hepatica to treat indigestion and disorders of the kidney, gallbladder, and liver. Sharp-lobed hepatica (*H. nobilis* var. *acuta*) was used in decoction to aid digestion and with pregnant women to ease labor pain. It was considered a tonic (a blood purifier). The decoction was used as a uterine stimulant to induce childbirth. The infusion was used to treat pain in the abdomen and as an emetic and laxative. In 1884 it was one of the most widely used "medicinal" herbs.

Modern uses: European practitioners still use the plant chemistry internally for liver disorders, including gallstones.

CAUTION: Large amounts of hepatica are poisonous.

Notes: Look, enjoy, but don't eat or touch hepatica: External contact with the plant can cause dermatitis, and internally it is caustic to the intestinal tract and the urinary plumbing.

Veterinarian/Wildlife: American Indians and pioneers spread a decoction of hepatica on snares, traps, or guns to lure fur-bearing animals.

Bloodroot

Papavaraceae (*Sanguinaria canadensis* L.)

Identification: Perennial to 7″ in height. Rhizome thick and slightly curved; exudes red liquid when cut; rootlets are reddish. Leaves down covered, grayish green, and clasping; growing in a basal rosette, with five to nine lobes, accented underneath with protruding ribs. Flower is solitary with eight to twelve white petals. This is a short-lived, early spring bloomer. Also known as red puccoon or red Indian paint.

Habitat: Eastern forests south to Florida, west to Minnesota, and north to Manitoba. Damp, rich forests, along forest trails, hillsides.

Bloodroot, *Sanguinaria canadensis*

Food: Not edible.

Traditional uses: The extract from this toxic plant is antispasmodic and warming. American Indians discovered that the herb induced vomiting. Pioneers and

First People used the root extraction in cough medicines and to treat rheumatism, fevers, and laryngitis. Some folk practitioners suggest that a very small dose works as an appetite stimulant. This may be attributed to the bitter alkaloids that stimulate the digestive system reflexively. The root juice was reportedly used to treat warts. It is anesthetic. Other reported uses were for treating bronchitis, throat infections, asthma, and other lung ailments.

Modern uses: Research shows that sanguinarine and chelerythrine found in bloodroot have anticancer properties. Cancer of nose and ear has responded to topical applications of bloodroot extract in research trials. It is still used topically as an anti-inflammatory. Sanguinarine, although toxic, has low oral toxicity and is antiseptic. Small amounts of it are used in a name-brand mouthwash and toothpaste.

CAUTION: Mildly toxic. Because of the plant's potential toxicity, it is currently seldom used as an expectorant.

Notes: There are reports that the red bloodroot exudate, when thinned with water and applied to the skin, is an effective mosquito repellent. In tests on human beings, I have found this to be true. Perhaps the red skin of American Indians observed by the invading Europeans was actually bloodroot applied as a mosquito repellent. The effect of long-term exposure of sanguinarine to the skin is unknown. To learn how I use the root juice to ward off mosquitoes, see *Native American Medicine* (Meuninck et al. 2007) and *Little Medicine* (Meuninck and Barnes 2005).

Veterinarian/Wildlife: Visit dogcancer.com to read a discussion of bloodroot and cancer in dogs. In veterinary medicine the leaf of bloodroot is used to destroy bot-fly larvae on horses.

Mayapple

Berberidaceae (*Podophyllum peltatum* L.)

Identification: Perennial. Umbrella-like plant with cleft leaves. Leaves to 10″ in diameter. Two leaves on single, stout stalk, each leaf with five to seven lobes. Single white flower tucked under leaf. Fruit ripens from mid- to late summer; edible only when ripe. Plant colonies spread over the forest floor. Also known as American mandrake.

Habitat: Extensive ground cover in eastern forests, rich woods.

Food: The fruit may be eaten in summer when it is soft and ripe. The fruit is difficult to find: Many plants die off in summer, the plants do not always provide abundant fruit (one per plant), and you are competing with forest creatures for the "apple." Cook the fruit or, if it is

Mayapple, *Podophyllum peltatum*

completely ripe, eat it out of hand. Use ripe fruit in pies, muffins, waffles, and pancakes or make it into jam or jelly. American Indians smashed and dried the fruit as fruit cakes that were later reconstituted in water and used as a sauce.

Traditional uses: Minute doses of mayapple were used by American Indians to treat a variety of illnesses. It treated verrucae (warts produced by papillomavirus). It is an emetic and purgative—a powerful laxative. The root is toxic and was used to kill worm infestations. Root powder was applied externally on difficult-to-heal sores. Fresh juice from the root (approximately 1 drop) was put in the ear to improve hearing. It is said that a potent extract from mayapple was used by American Indians to commit suicide. In the mid-twentieth century, mayapple resin was injected into venereal warts as a treatment.

Modern uses: *P. peltatum* is Commission E–approved for treating warts, specifically genital warts. The root extract contains an antimitotic agent that led to the formulation of synthetic etoposide, a treatment for small-cell lung cancer and testicular cancer. The roots and leaves are poisonous, and handling the roots may cause allergic dermatitis. Himalayan mayapple (*P. emodi*) is most rich in the toxic drug podophyllotoxin.

CAUTION: Avoid using this plant as a drug without medical supervision. The drug may be absorbed through the skin. It is an allergen, toxic, and antimitotic.

Notes: Mayapple is a showy ground cover most evident in spring, appearing about the same time I'm plucking morels. I prepare mayapple root water as an insecticide for my garden. Blend about 8 ounces of fresh root in 2 quarts of water, then strain the mixture through cheesecloth or pantyhose into a garden sprayer. For details about this procedure and many others, see *Native American Medicine* (Meuninck et al. 2007) and *Little Medicine* (Meuninck and Barnes 2005).

Veterinarian/Wildlife: The Menominees used an infusion of the crushed plant to kill potato bugs. Corn seeds and corn roots were soaked in a mayapple decoction to discourage fungus and other pests (see notes above). Numerous forest creatures will beat you to the fruit.

Wild Leeks

Liliaceae (*Allium tricoccum* Ait.)

Identification: Widespread on the ground in rich and moist forests. Plant has a strong onion odor that may lead you to the harvest. Leaves are in pairs, long, blade shaped, growing directly from the 1.5″ bulb on a short stem. Leaves are transient and are gone in four weeks, making way for the flowering stem with its cluster of white flowers. By September all that

Wild leeks, old growth forest, Michigan

remains is a cluster of black seeds atop the flowering stem. Edible/medicinal bulb remains, however, at the soil/air interface. Also known as ramps.

Habitat: Eastern United States, roughly to the Mississippi River north to Canada and south to Arkansas in moist deciduous forests. Found on banks in wet woods, above seeps, on rich and moist hillsides, especially abundant in beech-maple climax woods.

Food: Leaves, stems, and bulbs are edible—marvelous in stews and soup, or sautéed with soy sauce, extra-virgin olive oil, and a little water to keep plants from sticking to pan. For a martini treat, stuff fresh bulbs in large olives, drop olives in martini. Did I mention pizza? Delicious—an absolute must in tomato sauce.

Traditional uses: American Indians ate the plants as a spring tonic to cleanse organ systems after a long, stagnant winter. Warm leek juice was placed in the ear to quell earaches. Whole plant used internally in decoction to treat worms.

Modern uses: Used by folk practitioners and holistic health practitioners as a tonic to combat colds. Disputed evidence suggests eating raw bulbs may reduce risk of heart disease. Chop leaves into chicken soup to potentiate this cold and flu fighter.

Notes: One of my favorite edible/medicinal plants, and one of nature's best offerings after a long hard winter. Gather, eat, and stay healthy. Seeds available in the fall; plant them in a shady part of your garden. Dried seeds placed in a pepper mill provide a unique and mild garlic flavor to dishes.

Veterinarian/Wildlife: Forest creatures leave this plant be. Leek chemistry protects it from bacteria, fungi, and viruses—eat the plant and own that protection. Like onions, this is not a plant you should feed your dog or cat. Chemistry in alliums oxidizes hemoglobin; the hemoglobin then clumps, with dire consequences for the pet.

Jack-in-the-Pulpit

Araceae (*Arisaema triphyllum* L. Schott)

Identification: Up to 2′ perennial with typically two leaves on two long stalks (petioles). Leaflets resemble poison ivy leaves, with each leaf composed of three leaflets. Spathe cuplike, with covering flap, green to purplish brown, striped, with scarlet berries in a cluster.

Habitat: Eastern United States. Scattered randomly in moist forests, rich soils.

Food: The fruit of jack-in-the-pulpit is not edible. American Indians sliced

Jack-in-the-pulpit, *Arisaema triphyllum*

jack-in-the-pulpit roots and dried them, a process that is said to deactivate the caustic calcium oxalate. The dried root slices were then cooked and eaten like potato chips.

Traditional uses: The dried root was used to treat respiratory problems: asthma, bronchitis, colds, cough, and laryngitis. The externally poulticed root was used as wash for ringworm, sores, boils, and abscesses. Iroquois women reportedly used the root of *A. triphyllum* ssp. *Triphyllum* in infusion as a contraceptive for temporary sterility.

Modern uses: Members of the genus are still used to treat snakebite in western China.

CAUTION: Do not eat the fresh plant. It contains caustic oxalates when fresh and must be thoroughly dried before use. Handle with care: Calcium oxalate will cause painful burns in cracked skin or open sores (Meuninck 2014). A variety of *Arisaema*, *Arisaema rhizomatum*, showed anti–rheumatoid arthritis effect in laboratory animals (Chunxia et al. 2011).

Notes: Jack-in-the-pulpit transplants to a shaded, rich-soiled garden.

Veterinarian/Wildlife: If your pets ingest this plant, they may experience severe gastric distress. Iroquois Nation used the plant as a veterinary aid. They ground the plant and then added it to mare's feed to induce pregnancy and reduce listlessness.

Uva-Ursi

Ericaceae (*Arctostaphylos uva-ursi* L. Spreng)

Identification: Trailing shrub, low lying, prostrate and mat forming. Leaves dark, evergreen, leathery, smooth edged, obovate or spatula shaped, less than 0.75″ wide. Alpine variety has larger leaves. Fruit is a dry red berry. Also known as kinnikinnick or bearberry.

Habitat: Northern United States from east to west, and Canada in boggy and relatively dry areas, at the base of pines, tamarack, and juniper.

Food: The berries are dry and mealy and lack flavor, so they were traditionally cooked with animal fat or mixed with fish eggs (such as salmon eggs) and stronger-tasting foods. Berries may be dried and then smashed into a flourlike meal. First People of the Northwest used this flour like a spice with meat and organ meats. People of the Bella Coola Nation mixed berries in fat and ate them; Lower Chinook peoples dried the berries and then mixed them with fat for food. Many American Indians boiled the berries with roots and vegetables to make a soup. You can sauté the berries in grease until crisp,

Uva-ursi, *Arctostaphylos uva-ursi*

then place them in cheesecloth or pantyhose and pound them to a mash. Add the mash to cooked fish eggs and stir, pound in some more mash and eggs, mix, then sweeten to taste. Berries are an aromatic and flavor-enhancing addition to wild fowl and game.

Traditional uses: The whole plant was infused in water and mixed with grease from a goose, duck, bear, or mountain goat. Then glue cooked from an animal's hoof, either horse or deer, was mixed into the grease. The resulting salve was used on sores, babies' scalps, and rashes. An infusion of aerial parts was gargled as a mouthwash to treat canker sores and sore gums. Dried leaves and stems were ground and used as a poultice over wounds. An infusion of leaves, berries, and stems was taken orally as a diuretic for kidney and bladder complaints. The same beverage had an analgesic effect on back pain and sprains. Berries were eaten or infused with whole plant for colds. Kwakiutl peoples smoked the leaves for the reported narcotic effect. Dried leaves were crushed to a powder and sprinkled on sores. Leaves and tobacco were mixed and placed in religious bundles for spiritual healing. Pioneers used the leaf infusion as a diuretic, astringent, and tonic (Moerman 1998, 87).

Modern uses: Commission E–approved to treat infections of the urinary tract. It is commercially available dried, powdered in capsules, and as whole leaves for tea. There are numerous homeopathic preparations. The hot tea is considered styptic, astringent, and antibacterial. The tea increases urine flow. Also the tea internally and externally is considered antimicrobial and anti-inflammatory, and has prevented kidney stone formation in lab animals.

CAUTION: Do not use during pregnancy or while nursing. Avoid eating acidic foods when using the tea to treat urogenital and biliary tract diseases. Prolonged use of uva-ursi may damage the liver and inflame and irritate the bladder and kidneys. Its use is not recommended for children, and it should not be used if you have high blood pressure.

Notes: I've boiled the berries to make a grayish-brown dye. American Indians used an application of crushed berries to waterproof baskets.

Veterinarian/Wildlife: Several herbal formulas for horses incorporate uva-ursi, including formulas for joint-rebuilding/protecting supplements, training mixes, and fertility boosters.

Wintergreen

Ericaceae (*Gaultheria procumbens* L.)

Identification: Small evergreen to 5″ or 6″ in height, often shorter in dry woods. Spreads by adventitious roots. Leaves evergreen, oval, growing on the tips of the branches; glossy above, paler underneath. Flowers white, waxy, drooping bells. Fruit is pale white berry, red when ripe. Also known as teaberry, checkerberry, or Canada tea.

Habitat: Northern United States and Canada. Forest dweller, typically subarboreal (under and around the base of

trees) but found spreading in open areas of woods.

Food: This plant makes a pleasant wintergreen tea. I prefer to chew on the fresh leaf while walking in woods. My two favorite chew sticks are wintergreen and sassafras. The berries are scarce and bland but fun to look for. The leaf tea, leaf chew, and berries are the safest way to experience the unusual flavor of this plant. The dried-leaf tea has a different taste than fresh-leaf tea—try it both ways. Wintergreen is a flavoring for gum and an aromatic in candle making. The oils of clove, sassafras, and wintergreen have been made into beverages. The tea is used as a gargle for sore-throat relief.

Traditional uses: The plant was considered anodyne, astringent, a diuretic, a stimulant, an emmenagogue, and a lactagogue. Leaf tea was used to treat stomachaches, fevers, colds, headaches, kidney ailments, and dysmenorrhea (avoid drinking wintergreen tea during pregnancy). The tea was used externally as a wash reportedly to ease rheumatism and muscle aches. American Indians roasted (dried) the leaves and smoked them with tobacco.

Modern uses: Wintergreen oil is little used today, occasionally in ointments and liniments to treat neuralgia or sciatica. Wintergreen oil is antiseptic and astringent.

CAUTION: Overuse of the herb must be avoided. Fatalities have occurred taking oral and subcutaneous doses of the essential oil. Amounts of 4 grams have been toxic and fatal. The oil has caused allergic reactions. Do not use wintergreen oil or tea during pregnancy, as it is a potential uterine stimulant.

Wintergreen, *Gaultheria procumbens*

Notes: Wintergreen leaves are a pleasant chew on long hikes. It's a sialagogue—a substance that increases the production of saliva and thus brings moisture to the mouth.

Veterinarian/Wildlife: Berries are eaten by chipmunk, deer, grouse, and partridge; leaves are browse for deer and moose. Wintergreen oil is one of several essential oils in a patent described as a method for increasing bioavailability of an orally administered hydrophobic pharmaceutical compound that is to be absorbed in the gut to treat animals. A Tigerbalm-like oil that contains wintergreen, camphor, eucalyptus, lavender, peppermint, and almond oil is available for use with your pets. For the recipe visit the Veterinary Botanical Medicine Association website, vbma.org ($80 membership) then search "peppermint."

Celandine

Papaveraceae (*Chelidonium majus* L.)

Identification: Poppylike leaves, deeply cleft, hairy, about 1.5″ long with hairy petioles. Flowers yellow, four petals, about 1.5″ wide, poppylike. Also known as greater celandine, celandine poppy, or wood poppy.

Habitat: Prefers old growth, shade, and rich, moist, and well-drained soil. Easily found in May in Michigan, Ohio, Illinois, Minnesota. Blooming later as you move north. Located east of the Mississippi north to Canada, south to Tennessee, east to the coast.

Food: Not edible.

Traditional uses: Traditionally orange sap used externally for scabies, warts, edema; root chewed to treat toothache. Used internally for liver complaints, jaundice, hepatitis, gallbladder problems, and bile ducts. Internal use considered anti-inflammatory, uterine stimulant, circulatory stimulant, and antispasmodic. Also a laxative and diuretic. Used to treat menstrual irregularities in Chinese medicine.

Modern uses: Commission E–approved for liver and gallbladder problems. Whole plant used in infusion to treat constipation, inflammation, improve bile flow. Also may stimulate circulatory system and reproductive organs (uterine stimulant). A liver stimulant targeted at jaundice, hepatitis, gout, and inflammation of bile ducts. The bitter infusion (tea) of the plant is an appetite stimulant. Sources cite its use treating arthritis, rheumatism, fever; respiratory aid to treat bronchitis, coughs. Internally for ulcers. Externally used as a dermatological aid for psoriasis, warts, ringworm, sores, eye inflammations. These claims are not supported by double-blind, placebo-controlled human clinical trials. Data from randomized clinical trials suggest extract from *C. majus* has potential as an anticancer drug. However independent and rigorous trials are needed (Ernst et al. 2005).

Celandine, Love Creek, Michigan

CAUTION: Do not use if you are pregnant or lactating. May cause restlessness, sleeplessness, impaired breathing, skin irritation. Use only under consultation with a licensed holistic health-care practitioner. There are no placebo-controlled double-blind studies to prove efficacy of drug. All evidence is anecdotal.

Notes: This plant blankets Love Creek Nature Center in Berrien Springs, Michigan. It prefers mature woods and shade. I have never used the plant, but it is an attractive and colorful addition to the forest and shady parts of your yard.

Veterinarian/Wildlife: Iroquois used this whole plant drug in combination with milk to sedate pigs. Aggressive ground cover where needed; prefers alkaline, wet soil, streambanks; prevents erosion and preserves forest integrity. Of little value

to wildlife. During drought conditions horses have eaten this toxic herb. Roots can be fatal to horses. Symptoms may include bloody diarrhea, unstable gait, and stupor.

Club Moss

Lycopodiaceae (*Huperzia lucidula* [Michx] Trevisan; *H. selago* L.)

Identification: Low-lying, miniature-pine-like undergrowth, to 10″ tall. Found in colonies under hardwoods and conifers. Evergreen leaves are linear to lance shaped, evergreen. Stems are forking and vegetative (producing embryonic shoots), with spores borne in a kidney-shaped sporangia on the stems at the bases of unmodified leaves.

Habitat: Found worldwide, in moist forest areas under trees; probably originated in Eastern Europe and China.

Food: Not edible.

Traditional uses: Used by American Indians as blood purifier, cold remedy, and dermatological aid. Traditional uses by Iroquois suggest immune-stimulating therapy against acute infections. *H. selago* is cathartic, purgative, emetic, and believed to strengthen immune function during woman's menses or as a cold remedy. Traditional use for headache, applied over eyes as a poultice.

Modern uses: Possible immune-stimulating herb. Of interest today for reported antiviral chemistry. Speculation suggests that it may be helpful against HIV infections. Has a diuretic effect when taken as an infusion. Homeopathic uses include treating liver and gallbladder problems, blood poisoning, respiratory inflammations, and inflammation of the female genitals (*PDR for Herbal Medicines* 2007, 206). Scientists have isolated a fungus from *H. serrata*, a Chinese species of *Huperzia* that produces huperzine A (HupA), a potentially better, less toxic therapy for Alzheimer's and other neurologically degenerative diseases. HupA may also be effective against cardiovascular disease and cancer (Ma et al. 2007). The Mayo Clinic says that huperzine A (an over-the-counter supplement) is not yet proven and does not support its use against Alzheimer's disease (Bauer 2014).

Club moss, *Huperzia*, Kentucky

Notes: *Huperzia* is frequently found in forests in southwestern Michigan, typically when bushwhacking—a stunning find.

Veterinarian/Wildlife: Huperzine is currently being tested as a treatment for convulsion in dogs (*Veterinary* 2013). Check with your holistic veterinarian for more information.

Lady's Slipper Orchid

Cypripedioideae (*Cypripedium acaule* Aiton)

Identification: Perennial. Leaves lilylike, basal, stalkless, broadly lance shaped, to 10″ in length, bright green above and pale underneath. Horizontal rhizome gives rise to orchidlike, slipper-shaped flower, typically pink, rarely white. Fruit capsule brown.

Habitat: Northern United States and Canada. Upland pine forests, wet black-spruce sites. Occasionally open wetlands. More prolific in the northeastern states and southern Ontario. Grows in profusion along the north shore of Lake Superior.

Food: Not eaten.

Traditional uses: The horizontal rhizome (root) contains the active principle. It is styptic and astringent, considered a superior nervine (tranquilizer) and therefore overharvested in the wild. The rhizome was used in decoction or tincture and considered by American Indians as a panacea for nervousness, colds, cramps, diabetes, flu, hysteria, menstrual problems, spasms, and inflammations (applied as a poultice). The rhizome is harvested in autumn and used fresh or dried for later use. Following the Doctrine of Signatures, this plant was once considered one of nature's finest aphrodisiacs because of the flower's shape.

Lady's slipper orchid, *Cypripedium acaule*

Modern uses: This plant has been overharvested and is now protected, so its legal use has been discontinued. Its chemical constituents have not been tested but are still used to treat anxiety and insomnia.

CAUTION: Contact with pink lady's slipper may cause contact dermatitis.

Notes: During Memorial Day weekend, Lake Superior Provincial Park in Ontario is ablaze with pink lady's slippers. Bring your kayak. There are lady's slipper–studded islands just a stone's throw offshore. The species is widely protected from illegal harvesting.

Veterinarian/Wildlife: Lady's slippers are difficult to relocate because of a complex symbiosis with soil fungi. Bees, moths, butterflies, gnats, and mosquitoes pollinate the orchids.

Black Cohosh

Ranuculaceae (*Actaea racemosa* L. Nutt.)

Identification: Perennial to 5.5′ in height. Rhizome blackish, knotty, tough. Leaves double pinnate, smooth, serrated. Flower raceme drooping, with three to eight petals. Sepals enclose flower bud.

Habitat: Northeastern United States and southern Canada. Primarily east of the plains in forests in rich, shaded soil.

Food: Not a food.

Traditional uses: The root (rhizome) is the medicinal part. Root infusions were used to induce abortions, stimulate menstruation, and promote lactation. An alcohol infusion of the root was used to treat rheumatism. The infused root was taken to treat coughs and was said to be cathartic and stimulating, a tonic and blood purifier. Pulverized roots in hot bathwater were used as a soak to alleviate arthritis pain.

Modern uses: The plant extract is Commission E–approved for PMS and menopausal complaints. Commercial preparations are used to treat female conditions including uterine spasms (cramps), menstrual pain, hot flashes, mild depression, vaginal atrophy, and menopause. The estrogenic effect reduces luteinizing hormone levels. A study of the use of Remifemin, a proprietary black cohosh extraction, showed the extract significantly reduced hot flashes and psyche disturbances in a trial group of 304 postmenopausal women (Osmers et al. 2005). The study results confirmed the efficacy and tolerability of an isopropanolic extract of black cohosh. Forty-six percent of breast cancer survivors who received a black cohosh preparation were free of hot flashes, sweating, and other symptoms of anxiety and sleep disturbances related to premenopausal breast-cancer treatment (Jacobson et al. 2001). And a 2003 study showed an increase of bone formation in postmenopausal women (Wuttke et al. 2003). Holistic health practitioners still use the plant for treating fever, arthritis, and insomnia.

Black cohosh, *Actaea racemosa*

CAUTION: Consult a health-care professional before using this herb for dysmenorrhea, hormone replacement therapy, or menopausal symptoms. Avoid completely if you are lactating or pregnant.

Notes: The UK Medicines and Healthcare products Regulatory Agency (MHRA) and the European Medicines Agency (EMA) have warned patients to stop using black cohosh if they develop signs suggestive of liver toxicity (blood in urine, tiredness, loss of appetite, yellowing of skin or eyes, stomach pain, nausea, vomiting, or dark urine). In the United Kingdom a warning must appear on the label of black cohosh products. For details visit herbalgram.org and search “black cohosh regulations.”

Veterinarian/Wildlife: Black cohosh is used in a proprietary horse product called Fertility Boost.

Blue Cohosh

Berberidaceae (*Caulophyllum thalictroides* L. Michx.)

Identification: Leafy perennial to 30″ in height. Grows erect from a brown-gray, branched rhizome. Leaves tri-pinnate; leaflets stemmed, ovate, finely divided, with three lobes, wedge shaped at the base. Flowers arise from terminal leaf; yellowish green to purple flowers, about 0.5″ wide, with six sepals arranged in two rows and six inconspicuous petals per flower. The ovary contains two dark-blue roundish seeds about 0.125″ in diameter. Also known as squaw root or papoose root.

Habitat: East from the Atlantic coast south to South Carolina and Arkansas, west including Minnesota and Iowa, and north to Canada. Wet woods.

Food: Not edible.

Traditional uses: Used by American Indians and in ethnic Black medicine to ease and facilitate childbirth. It is claimed to have an analgesic and diuretic effect. Cherokees took the extract internally, believing it to be anticonvulsive and antirheumatic, and crushed and rubbed leaves on rashes from poison oak and poison ivy. Chippewa scraped and decocted the root "skin" and used it as an emetic. The analgesic effect of the root decoction was said to take the edge off uterine cramps and nonspecific stomach cramps. Several tribes used the plant extract to stem profuse menstruation. It was also used as a sedative to settle "fits and hysterics." The Meskwakis and Mohegan used the herb to treat kidney and urinary problems.

Blue cohosh, *Caulophyllum thalictroides*

Modern uses: Roots (rhizome) are prepared as a liquid extract to treat gynecological disorders. The extract appears to have an estrogenic effect and is used internally to treat dysmenorrhea, potential miscarriage, and uterine spasms. Homeopathic preparations are prescribed by health-care professionals. The Chinese use the drug for treating external injuries and internally to treat bronchitis and acute hepatitis.

CAUTION: Because of the drug's heart and uterine-stimulating effects, use of this plant is not recommended.

Notes: Like all unproven (and proven) remedies, use blue cohosh only under the skilled hands of a holistic health-care professional. Never take this uterine stimulant during pregnancy or if you have hypertension or heart disease.

Veterinarian/Wildlife: The drug has a folk history as an animal abortifacient, but there is scant evidence it has induced abortions in animals.

Black Nightshade

Solanaceae (*Solanum nigrum* L.)

Identification: Perennial to 30″ in height. Erect stem with many branches with many leaves. Leaves fleshy, round to ovate, smooth to slightly hairy. White flowers bloom in the fall from umbel-like nodding group, six to ten blossoms. Each flower has five stamens. Fruit is pea-sized black (occasionally green to yellow) berry.

Habitat: Worldwide, temperate climate: roadsides, fields, forest edges, waste ground.

Food: Cherokees ate the young plant cooked as a potherb. Fruit and berries were eaten and made into preserves and pies. Numerous plants of the nightshade family (Solanacea) are considered toxic; others are quite edible, such as potatoes, tomatoes, tomatillos, and peppers. Seek professional guidance before eating unknown species.

Traditional uses: The berry juice was used to treat tumors. The berries are diuretic. The plant juice was a laxative and an emollient. This solanaceous plant was used by American Indians as an emetic. They applied it externally in decoction as a wash or poultice for skin ailments such as psoriasis, hemorrhoids, and eczema. Smoke of the dried plant was inhaled to treat toothache.

Modern uses: Pharmaceutical preparations of *S. nigrum* have a protective effect as a diuretic, anti-inflammatory, antitumor, liver protectant, antioxidant, and immune modulator, and for fever reduction (Jain et al. 2011). Ayurvedic practitioners consider the berries an aphrodisiac and tonic. Black nightshade is available dried and cut, powdered, and in liquid extracts. The moistened plant is used externally as a compress or rinse. Internal use should be carefully monitored by a holistic health-care professional. Plant extracts are used in Chinese and Ayurvedic medicine both internally and externally. In India the plant is considered a panacea and used as a laxative and a tonic and to treat asthma, bronchitis, dysentery, fever, heart disease, congestive heart failure, hiccups, and inflammation. The dried fruit powder is used as alterative, tonic, and diuretic.

Black nightshade, *Solanum nigrum*

CAUTION: Use only under the prescription and oversight of a competent holistic health practitioner.

Notes: There are several hybridized garden varieties of this herb. Hybridization

not only changes the physical appearances of a plant, but it also affects its chemistry. A wild strain or hybrid of this plant should only be used under the supervision of a licensed holistic healthcare provider.

Veterinarian/Wildlife: Cattle, chickens, ducks, horses, sheep, and swine have been poisoned eating the plant (Duke 2001).

Ginseng

Araliaceae (*Panax ginseng* C.A. Meyer; *P. quinquefolius* L.; *Panax trifolius* L.)

Identification: Perennial to 3′ in height. Stem smooth, round. Three to five leaves in terminal whorls with three to five palmate leaflets; leaflets, finely serrated, 3″ to 8″ long, 1″ to 2″ wide. Greenish-yellow flowers give rise to a pea-sized, rounded, glossy seed. Seeds in a cluster on a central stalk separate from leaves. Dwarf variety (dwarf ginseng, *Panax trifolius*) similar but smaller, grow to 8″ to 9″ tall.

Ginseng, *Panax quinquefolius*

Habitat: Cultivated from coast to coast, found wild in Oregon and Washington forests as well as in many eastern forests. Rare in most of its former range. Needs shading forest with mature canopy and well-drained soil.

Traditional uses: American Indians used the root as a ceremonial fetish to keep ghosts away. The decoction made from fresh or dried roots reduced fever and induced sweating. The root is considered a panacea in China and Korea as a tonic and an adaptogen—that is, it helps the user adapt to stressful conditions. It is said to potentiate normal function of the adrenal gland. Ginseng root is considered a stimulant and an aphrodisiac that enhances the immune response and may improve cerebral circulation and function as well as regulating blood pressure and blood sugar. In Traditional Chinese Medicine terms, it tonifies primordial energy (increases libido). It is a tonic for the spleen and lungs.

Modern uses: Chinese, Russian, Korean, and European studies suggest that ginseng enhances production of interferon. It is considered an ergogenic aid and may improve endurance. It is reported to regulate plasma glucose. Other research focuses on its anticancer, antiproliferative, and antitumor activity against leukemia and lymphoma. Ginseng's antimicrobial and antifungal activity has been demonstrated. (Cold FX is an over-the-counter treatment for colds that contains ginseng. It has proven effective in clinical trials.) Root preparations lower or raise blood pressure. Ginseng is also used as an immune-system stimulant to help

resist infection. Preliminary studies suggest it may increase mental acuity, and it has an estrogen-like effect on women. Studies suggest it may protect against radiation sickness and other physical, chemical, and biological stresses, thereby supporting its antistress applications. Considered by many the closest thing to a cure-all in nature.

Asian ginseng (*P. ginseng*) is considered warming and stimulating. Korean red ginseng (different preparation of *P. ginseng*) warms more than Asian white. American ginseng (*P. quinquefolius*) cools, moistens, and soothes. American ginseng is considered a better tonic than Asian ginseng, at least in the eyes of Asian practitioners.

As for the performance-enhancing effects of ginseng supplements, the jury awaits more clinical trials—double-blind, placebo-controlled. So hold onto your money and follow the literature.

CAUTION: Always use this herb under the supervision of a professional healthcare practitioner. Taking more than 3 grams of ginseng per day may cause diarrhea, anxiety, dermatitis, and insomnia. Mild reported side effects include headache and skin rash. Ginseng may strengthen the effects of caffeine. Large doses may cause hypertension, asthma-like symptoms, heart palpitations, and, rarely, dysmenorrhea and other menstrual problems. There have been two reports of interactions with phenelzine, a monoamine oxidase inhibitor. Avoid ginseng if you have diabetes, fever, emphysema, hypertension, arrhythmia, upper respiratory infections, asthma, and bronchitis. Chinese practitioners caution

Dwarf ginseng, *Panax trifolius*

against using ginseng with colds (this is in contrast to its proven benefits fighting reinfection with a cold), pneumonia, and other lung infections. Do not use while on internal steroid therapy. Avoid during pregnancy and while nursing until further studies are available.

Notes: Ginseng is becoming rare in the wild. Roots may be ordered at herbs.com and from numerous other plant and seed resources. I have found many of my Chinese herbs harbor eggs and larvae that later emerged as some exotic and startling variety of flying insects and fast-moving beetles. Ginseng roots imported from China are now sprayed with fungicide. Scrub these roots thoroughly before grinding them for use. Dwarf ginseng, pictured above, is very common in Midwestern old-growth beech/maple climax forests. It is believed the root chemistry of the diminutive plant is as effective as its bigger relative.

Use an old sausage grinder to grind hard, dried roots into powder (the dried

root is tough enough to break blades of an electric pepper mill!). My typical dose is 3 grams in decoction. Simmer for 30 minutes. Or put a 60- to 100-gram root (cut to fit) in 1 liter of spirits (vodka or rum) for two weeks. Drink judiciously for its physiological effects. The powdered herb may be purchased; I use 1 teaspoon powder to 1 cup hot water twice a day. I drink this for two weeks, then take two weeks off, then two more weeks on.

Because I am a hot, type A person, I choose American ginseng (*P. quinquefolius*) for its cooling, calming effect.

Veterinarian/Wildlife: Ginseng is compounded into three formulas for racing pigeons: pigeon-performance capsules, a nourishing prerace tea, and a cleansing, strengthening postrace tea. The powdered root and root extract is widely used in animal performance formulas.

Goldenseal

Ranunculaceae (*Hydrastis canadensis* L.)

Identification: Perennial to 11″ in height. Bright yellow (golden) rhizome. Two ribbed leaves up to 7″ wide; lower is typically smaller, sessile; upper leaf on a long petiole, with seven lobes, finely serrated. Solitary flower, found on an erect stem, with three small greenish white petals that disappear quickly. Fruit scarlet, with one or two black glossy seeds. Grows in dense colonies.

Habitat: Eastern United States. Forest dweller; wet, well-drained soil; in spreading colonies on banks in woods. Often found growing near ginseng. Cultivated nationwide.

Goldenseal, *Hydrastis canadensis*

Traditional uses: Air-dried rhizomes and root fibers were used to treat diarrhea. Cherokees used root decoction as a cancer treatment and as a tonic and wash for inflammations, infections, and wounds. Goldenseal was also used as an appetite stimulant and to treat dyspepsia. The dried root was chewed to treat whooping cough. A decoction was used for earaches. An aqueous decoction of the root was filtered through animal skin or cloth and applied as eyewash. The root steeped in whiskey was taken as heart tonic. Tuberculosis, scrofula, liver problems, and gall problems were all traditionally treated with the root extraction. According to botanist and author Stephen Foster, “The dried powdered rhizome is a good hemostat and antimicrobial that quickly forms a scab over a

wound. I have used the powder this way many times with good effect" (Foster 1990).

Modern uses: Standardized extracts from air-dried rhizomes and root hairs are taken with water or in capsules to stimulate bile secretion or hydrochloric acid secretion and to hasten and improve peristalsis. The drug has a weak antibiotic and weak antineoplastic (anticancer) activity. It may constrict peripheral blood vessels and is said to stimulate and cleanse the liver. It is used as a therapy for upper respiratory infections. A few holistic practitioners still recommend it as a topical eyewash. Taken internally goldenseal may increase depressed white blood cell counts, as reported in research on Traditional Chinese Medicine. Clinical trials have suggested its effectiveness against traveler's diarrhea. The root paste is applied externally to treat wounds and fungal infections. Goldenseal's bitter taste may stimulate hunger and be useful in treating anorexia. When using over-the-counter products, seek professional advice and follow directions on the package.

CAUTION: Do not take goldenseal if you are pregnant or lactating due to the uterine-stimulating activity of plant alkaloids and insufficient data on breast milk and alkaloid secretions. Goldenseal is extremely bitter and may be rejected for that reason by some. It is nontoxic at recommended dosages; however, large doses of the physiologically active chemicals in goldenseal—berberine and hydrastine—may be fatal. Amounts in excess of the therapeutic dosages may cause stomach upset, nervousness, and/or depression. Large doses may cause hypertension, involuntary reflex action, respiratory failure, convulsions, paralysis, and death. The herb may negate the activity of heparin, as reported for the isolated alkaloid berberine.

Notes: Goldenseal is scarce in the wild due to overharvesting. Many botanical gardens exhibit goldenseal, and the plant is widely cultivated in the United States and Canada. Personally, I don't see goldenseal as a particularly useful herb. There are safer, more efficacious, and easier to find herbs for the same ailments. I rely more on *Echinacea*, Siberian ginseng, and *Astragalus*. I have used goldenseal for treating athlete's foot by mixing equal amounts of cinnamon, oregano, and goldenseal powder; moistening the mixture with alcohol; and then applying it with a Q-tip to areas of the foot and between the toes. My dentist's dissertation measured the antimicrobial activity of goldenseal root powder in vitro and found the alkaloids weakly antimicrobial.

Veterinarian/Wildlife: Goldenseal is one of several natural products in Brain Cool, an herbal supplement the manufacturer claims helps rebuild nerves in horses. It is also used in training mixes, wound treatment, and fertility-enhancing formulas for horses. Goldenseal is a vital component in a post-race cleansing formula for racing birds.

Skullcap

Lamiaceae (*Scutellaria baicalensis*; *S. lateriflora* L.)

Identification: Perennials, eight species. *S. lateriflora* grows to 3′ in height, other species slightly taller. Leaves opposite, oval to lance shaped, toothed. Flowers blue violet, lipped and hooded; grow from leaf axil on racemes.

Habitat: East of the Mississippi; various species across the West. Wet mature woods, thickets. *S. baicalensis*, cultivated as a drug in Oregon and elsewhere, has escaped to the wild.

Food: Not edible; toxic.

Traditional uses: *S. lateriflora* was used by the Cherokees for dysmenorrhea and to promote menstruation. A decoction of plant was taken to dispel afterbirth. A powdered root infusion was used to clean the throat. Historically *S. lateriflora*'s antimicrobial tea was used to treat rabies successfully, and the tea is considered antispasmodic and sedative.

Modern uses: *S. baicalensis* is primarily used for diarrhea and dysentery. It may affect liver function in a positive way due to anti-inflammatory bioflavonoids. *S. barbata* is used as a detoxicant of the liver for various poisonings. *Baicalensis* is used as a febrifuge; it is considered hypotensive and may lower cholesterol levels. It is antispasmodic, a cholagogue, stems bleeding, and has a mild diuretic effect.

Skullcap, *S. lateriflora*

CAUTION: Unspecified doses may be toxic. Use skullcap only under the supervision of a professional holistic health-care provider.

Notes: This is a favorite sedative in the hands of Northwest School of Naturopathic Physicians.

Veterinarian/Wildlife: A Polish study demonstrated that the addition of the ground root of *S. baicalensis* fed to chicken broilers essentially changed the level of calcium and iron in relation to the control group in the blood serum in the sixth week of the birds' life (Króliczewska and Zawadzki 2005).

Mistletoe

Santalaceae (*Phoradendron tomentosum*; also called *P. macrophyllum* [Engelm.] Cockerel)

Identification: Parasitic epiphyte. Thick branched, semi-evergreen, growing parasitically on the branches of blue oak, valley oak, and other oak trees. Leaves oblong to ovate to 3″. Berry whitish to translucent. Also known as injerto.

Habitat: Texas to California. Wooded roadsides, plantation gardens, yards.

Parasitic on mesquite, hackberry, ash, oak, willow, sycamore, and cottonwood trees.

Food: Not edible; may cause dermatitis.

Traditional uses: Mistletoe is a dangerous abortion-inducing agent (abortifacient) that has killed women. American Indians considered all parts of the plant toxic, and they are. European pagans used *V. album* (not shown) as a physical aphrodisiac to induce passion.

Modern uses: Most research has been performed on European mistletoe, *V. album*, which shows promise as a potential antidiabetic. The extract is used to treat rheumatism and as adjuvant therapy for cancerous tumor treatment. One person with small-cell lung cancer responded to mistletoe therapy and lived for more than 5 years (Bradley and Clover 1989). The tea from *V. album* is considered hypotensive and may be effective against asthma, diarrhea, tachycardia, nervousness (as a nervine), amenorrhea, whooping cough, and epilepsy. The whole, cut, and powdered herb is used, but because of its toxic nature, seek consultation with your holistic health-care physician. *P. tomentosum* raises blood pressure and increases uterine and intestinal motility, whereas *V. album* reduces blood pressure and is calming and antispasmodic. But the chemistry of the two species is virtually identical, which suggests that the activity in vivo may be dose dependent.

Mistletoe, *Phoradendron* spp.

CAUTION: All parts are considered toxic. People have died from drinking the berry tea.

Play it safe—hang it in the doorway and get a kiss for your effort.

Notes: These parasitic epiphytes are easily found on live oaks along two-lane roads heading into and out of Abilene, Texas.

Veterinarian/Wildlife: West Texas ranchers have used mistletoe growing on mesquite as a survival food for foraging cattle. Bluebirds, robins, cedar waxwings, and other birds eat the fruit. Deer and elk will eat the plant as emergency forage.

Ground Nut

Fabaceae (*Apios Americana medicus* L.)

Identification: Climbing, twining perennial, to 20′ in length, pea-like vine; numerous tubers along length of root; leaves alternate, compound; numerous leaflets, six to eight feather-shaped leaves; multi-flower cluster with pink to

purple or red-brown flowers, seeds in long pods, pea-like.

Habitat: Ground nut grows on wet ground, under shade, along the fringes of streams, bogs, and thickets; a climbing vine, twining its way toward the sun. Most prominent in shoe-wetting and deeply shaded marshes. Easily transferred to your garden, where the root and pods can be harvested in the autumn or spring. Found across the entire United States, except extreme desert, southern California, and lower Florida.

Food: Seeds are edible. Cook them like lentils. Tubers of *Apios* are 15 percent protein—a great potato substitute. American Indians established settlements near this staple—a high-protein foraging food.

Traditional uses: This is a case of "your food is your medicine": American Indians used the pea-like, lentil-like seeds as survival food. Most eastern tribes ate the seeds and roots, without which in the winter they may have starved.

Modern uses: Rare wild legume easily identified, cholesterol lowering, providing steady blood sugar levels. A useful bean to bring into your garden—a hardy

Ground nut leaves and vine

perennial that gives and gives and gives.

Notes: A year-after-year bounty I added to the garden in 1987. It has spread and multiplied, loving my place and I love it. It climbs my pear and apple trees like hops, and like wild hops it is welcome.

Veterinarian/Wildlife: Provides secure claw- and hand-holds for minute creatures to crawl above periodic floods in lowland areas. Twining vines provide snug nesting sites for small birds and sturdy guide wires for spiderwebs. Deer appear to walk through and eat these peas and their roots. The dense coverage provides secure breeding ground for birds and ungulates.

Indian Cucumber

Liliaceae (*Medeola virginiana* L.)

Identification: Ovate to lancelet pointed leaves, typically five to seven in a whorl around stem. Plant grows from 5″ to 7″ tall, typically around the bases of hardwoods. Dig out root to reveal the delicate and tasty "cucumber."

Habitat: Moist deciduous forests, preferably old growth, sub-arboreal (found

Indian cucumber root

around the bases of oaks and other hardwoods). My favorite place is the back entrance to Grand Mere State Park, Stevensville, Michigan.

Food: Indian cucumber has an edible root tuber, which tastes cucumber-like. Wash and eat raw.

Traditional uses: Whole plant infused and used externally on many skin ailments—considered a panacea by American Indians. Berries used as an anticonvulsive. Dried leaves and berries given to youngsters and babies in infusion. Root tea also used as a diuretic to treat congestive heart failure. Iroquois used crushed dried berries to treat infants with convulsions (Herrick 1977).

Modern uses: Traditional uses still employed, yet unproven. It is a difficult-to-find and exciting addition to your personal pharmacopeia.

Notes: There are two plants that send me rushing back to my animal roots: Indian cucumber and spring beauties. The subterranean root stocks of these plants eaten while sitting on a fallen log in an old-growth forest make you want to howl with pleasure.

Veterinarian/Wildlife: No known veterinarian uses. Plant leaves often fall prey to nematodes and voracious larval insects; root chemistry appears to protect that part of the plant from infestation.

Wild Ginger

Aristolochiaceae (*Asarum canadense* L.)

Identification: Low-lying colonial perennial herb with an aromatic root, smells like ginger; two dark-green, heart-shaped leaves. Note the hairy stem and leaves. A primitive red flower emerges under the leaves in May in Michigan. The plant grows from an adventitious rhizome and is spreading.

Habitat: Various species grow across the entire United States, except extreme desert, southern California, and lower Florida. Found on rich soil in moist woods as a ground cover in shady areas.

Food: For the daring gourmet, try boiling the root until tender and then simmer in maple syrup. The result is an unusual candy treat. Taste the leaves. Crushed root added to salad dressings. When dried and grated it is an adequate substitute for Asian ginger.

Wild ginger in my garden

Traditional uses: Root traditionally used to treat colds and cough; antiseptic and tonic. Also used in compounding traditional medicine to treat scarlet fever, nervousness, sore throat, vomiting, headaches, and earaches as well as asthma and convulsions—considered a heal-all.

Modern uses: The stimulating root considered an appetite enhancer. Herbalists use the root in tincture to dilate peripheral blood vessels, but this is unproven without double-blind, placebo-controlled studies.

Notes: Transplants to shady part of garden. It is hardy, providing a continuous supply of roots for cooking. I inadvertently covered my ginger with mushroom logs for 3 months without harm.

Veterinarian/Wildlife: Hardy shade plant that resists insects and other pests that might compromise it. Slugs and a few snails will take a bite.

CHAPTER 3

Woody Plants of Eastern States

Our cultural perspectives on Nature and our treatment of the non-human are not merely "wrong" in some contrived moral philosophic sense, but monstrous and unnatural.

—JOHN LIVINGSTON, *ROGUE PRIMATE*

The following medicinal plants are found in forested areas of the United States. Bear in mind that biomes often overlap, and you may discover these plants in areas of transition—from field to forest, for example, or the transition zone from forest to marsh or along wood-lined roadsides. A few species of these plants can be found in similar environments from coast to coast, so be thorough in your search.

Apple

Rosaceae (*Malus domestica* L.)

Identification: Small to medium tree 20′ to 40′ tall. Young trees with hairy boughs that with maturity become smooth. Finely toothed leaves are alternate and ovate in shape, to 3.5″ long. Flowers in umbels with a few blossoms. White to pink on outside and white inside. Fruit to 4″ in diameter.

Habitat: Found wild along roadsides, edges of woods and fields, or abandoned to old orchards, nationwide.

Road apples, the kind you eat

Food: Edible fruit. Raw or cooked, used in pies, baked goods, sweet and savory dishes. Versatile! Apple cider vinegar may be used in salad dressings.

Traditional uses: To treat dyspepsia and other digestive complaints, including diarrhea. In folk medicine, apple cider vinegar is used to splash on burns for a cooling, soothing effect and may be antiseptic.

Modern uses: Liquid and dried pectin preparations of apple used for their mild binding effect. Dried peel can also be used as a tea for its binding effect. The polyphenolic component in apples (flavonoids) has more free radical–scavenging activity than the vitamin C found in an apple. Apple consumption is inversely correlated to the prevalence of a variety of chronic diseases in humans. This includes lung dysfunction, cardiovascular problems, and various cancers. Procyanidins, quercitin glycosides in the peel, and hydroxycinnamic acid esters in the flesh. Research culminated in 2000 strongly suggests apple flavonoids may be protective against colon and liver cancer. Boron in apples may kick up brain activity. Boron is necessary for building bones and it also increases estrogen in the blood. This makes apples a necessary part of the postmenopausal woman's diet to prevent osteoporosis. Soluble fiber in apples may prevent constipation (they also produce gas in many people). Soluble fiber prevents chaotic swings in blood sugar, regulating the assimilation of glucose. Consider this an important fruit to prevent diabetes. Soluble fiber in apples lowers blood cholesterol levels (atherosclerosis, heart disease, stoke protection). Research suggests that blood cholesterol levels can drop by as much as 30 percent on a high-fiber diet (Anderson 1994). Soluble fiber from apple lowers blood cholesterol three ways: 1. Binds bile, preventing breakdown and absorption. 2. Reflexively, liver uses endogenous cholesterol to make more bile. 3. Short-chain fatty acid made from fiber digestion in bowel inhibits cholesterol synthesis. Soluble fiber in apples is also used in Russia for chelation therapy, removing lead and other heavy metals from the body (Duke and Meuninck 2007). Apples may help prevent dental caries (cavities) by their cleansing effect between teeth and around the gums when they are eaten (Birkeland and Jorkjend 1974). Bioflavonoids in apples are indicated in lowering the risk of lung cancer. The flavonoids—apigenin, kaempferol, myricetin, quercitin, and luteolin—may have helped lower lung cancer by 50 percent in one Finnish study (Boyer and Liu 2004).

CAUTION: Avoid feeding apple juice to youngsters (babies and toddlers) because of its chelating effect on vitamins and minerals, which may stunt a child's growth.

Notes: Most antiallergenic components are in the peel rather than in the pulp; thus, eat the whole apple to maximize its protection. But avoid sprayed apples—eat organic and eat local.

Veterinarian/Wildlife: Food source for wild ungulates. Old orchards are ideal stomping grounds for finding morels. Blossoms provide valuable nectar for wild bees and insects, and therefore a food source for insect-feeding birds. Nesting site for songbirds.

Coconut Palm

Arecaceae (*Cocos nucifera* L.)

Identification: The coconut palm is a long-lived plant (100 years). It has a single trunk, 70′ to 90′ tall. Bark is smooth and gray, marked by ringed scars left by fallen palm leaf. Leaves, from 12′ to 20′ long, pinnate; consisting of linear lanceolate, more or less recurved, rigid, bright-green leaflets. Flower arising at leaf axils and enveloped by a spathe. Flowers bear lance-shaped petals, six stamens, and an ovary consisting of three connate (fused) carpels. Fruit, 2.5 to 5 pounds in weight and as big as a human head.

Habitat: The coconut palm thrives on sandy, saline soils, typically along coastal areas, often located just above the tidal zone. It requires abundant sunlight and regular rainfalls. It is found on tropical and subtropical beaches—transplant to yards and gardens in same climate.

Food: Soft fresh endosperm (milk and soft meat) used to feed infants when mother's milk not available—often mixed with bananas. Hispanics mix corn water and soymilk with the coconut milk as a nutritious food for infants and children. Coconut milk said to prevent curdling of milk in infants. Coconut meat is nutritious and eaten raw, cooked, shredded, and/or sweetened.

Traditional uses: Coconut oil used cosmetically on the skin. Hawaiian people use this as a complete body lotion, excellent for massage. Inhaling smoke from burning the fruit shells said to induce abortion. Meat rubbed on the head as a brain tonic and dried ash of meat eaten as a tonic. Soft flesh rubbed on acne,

A seaman's medicine chest

wrinkles; oil is a good moisturizing cosmetic lotion.

Modern uses: Endosperm considered a good food for diabetics if unsweetened. In Mexican medicine, coco meat and milk thought useful for treating diarrhea, dysentery, colitis, gastritis, indigestion, ulcers, and hepatitis. Meat and endosperm milk considered a tonic, used to rehabilitate the physically weak. Coconut milk (coconut water) taken with lime juice is a refrigerant (cooling), rehydrates children and adults, and lowers acidity of urine. Coconut oil is made up primarily of medium-chain fatty acids (MCFA), which are immediately broken down and used, instead of stored, unlike long-chain fatty acids (LCFA), which are stored as body fat. The smaller size of MCFA (compared to LCFA) allows them to be digested more easily, making them ideal for those suffering from digestive diseases. Both research and clinical studies have shown that MCFA may be useful in treating and preventing mononucleosis, hepatitis, diabetes, osteoporosis, herpes, gallbladder

disease, Crohn's disease, and cancer. In addition, coconut oil may assist in the absorption and retaining of calcium, thereby benefiting bones (Papamandjaris et al. 1998). Coconut oil also has antimicrobial, antiviral, and antifungal properties (Fife 2004).

Notes: *Aqua de pipa*, coconut milk or more accurately coconut water, is the liquid part of the endosperm of a coconut. It is available on the street from sidewalk vendors throughout Mexico and Central America.

Veterinarian/Wildlife: Coconut oil is used by holistic veterinarians and their clients to treat pet skin conditions such as thin coats, dry noses, skin allergies, cuts, and sores.

Grapes

Vitaceae (*Vitis vinifera* L.; *V. labrusca* L.)

Identification: Hairless, free-hanging scaly vine that climbs to 160′. Flowers in tight panicle, yellowish green. Fruit characteristic of grapes bought in a market, but smaller, seedy.

Habitat: Nationwide in America and often abundant; also indigenous to Europe and Asia. American wild varieties are found in forests, along forest edges, and marshy areas.

Food: Fruit is healthful off the vine, dried as raisins, and prepared as juice or red wine. Add this fruit to your daily diet. Eat organic cultivars when possible.

Traditional uses: Fox-grape fruit was used to treat diarrhea. The leaf infusion was used as blood-cleansing tonic. Wilted leaves were applied as a poultice over sore breasts. The root decoction was taken to treat rheumatism. An infusion of the shaggy bark was used for urinary problems. A wet poultice treated headaches. Fruit was consumed to reduce nausea and prevent vomiting. Wine of *V. vinifera* may protect the heart.

Modern uses: Grapeseed extract is used as an antioxidant to treat pancreatitis and

Wild fox grapes, Ohio

edema. The extract appears to improve blood flow (venous efficiency) and symptoms related to retinal pathology, including resistance to glare and poor vision in low light (this effect is challenged by recent research). The seed extract may improve microcirculatory function. It is considered a capillary protectant, an anti-inflammatory, and an antioxidant. Grapeseed extract is also used with heart patients to prevent artery damage. This feature is due to the protective activity of bioflavonoids. It is used in Europe to treat varicose veins and other compromised capillary blood flow problems due to platelet aggregation, diabetes, and altered blood rheology (blood flow problems). Studies suggest grapeseed extract may

induce hair growth. Follow recommended dosages on the package.

The phenolic compounds found in grapes—especially dark-skinned grapes—may improve heart and mental function and protect against heart disease and Alzheimer's. Resveratrol found in grape skins (also in blueberry, raspberry, and mulberry skins) has shown to be effective in animal studies to alleviate arthritis when used in conjunction with curcumin from turmeric (Manna et al. 2023). Ayurvedic medicine advocates eating raisins (dried grapes) for chronic bronchitis, heart disease, gout, fevers, and enlarged spleen or liver. Unsweetened grape juice treats constipation, especially with children. And studies show red wine raises HDL (the so-called "good" cholesterol) and provides a protective effect, reducing the risk of developing coronary heart disease.

CAUTION: Do not take wine and other alcoholic beverages during pregnancy or while nursing. There are no known contraindications for grapes, grapeseed, or grape juice.

Notes: We grow three varieties of grapes in our garden. To make a tart marmalade, we pick and blend the grapes and then simmer to thicken. Do not add sugar and do not remove the skins. This produces a freezer jam that is rich in bioflavonoids. Grape leaves are edible and may be steamed and wrapped around rice dishes, Greek style. Grapes should be eaten raw (grow your own) or lightly cooked or fermented. The unfermented juice may not be as effective as wine for getting the benefits of the fruits' antioxidant, capillary protectant, and anti-inflammatory actions. Tannins and other phenolic compounds released from skins provide a more potent mix of protection when formed and released during the fermentation process.

Veterinarian/Wildlife: Grapes and raisins can be toxic to pets when eaten in large amounts. Two pounds of grapes caused renal failure in a dog (Yuill and Lee 2011); grapes are eaten regularly by birds and mammals, such as the scrub jay and eastern fox squirrel.

Oaks

Fagaceae (*Quercus* spp.)

Identification: The best way to learn to identify oaks is to visit an arboretum. There the oaks will be labeled for identification. Armed with this visual proof, you will be more successful in the bush gathering nuts for the winter. Acorns vary in size and taste. Leaves are lobed, cut, pointed, or rounded, varying by species.

Habitat: Many species nationwide. Yards or wood lots, forested areas, roadsides.

White oak leaf (left); bur oak (right)

Chinquapin oak

Red oak family

Food: Generally speaking, acorns from oaks that have rounded leaf lobes are less bitter than acorns from species of oaks with pointed leaf lobes. White oak (*Q. alba*), bur oak (*Q. macrocarpa*), swamp chestnut oak (*Q. michauxii*), and chestnut oak (*Q. prinus*) are good examples of sweet acorns from the eastern United States. The chinkapin oak or yellow chestnut oak (*Q. muehlenbergii*) also has bittersweet acorns. Out west look for Gambel's oak (*Q. gambelii*), blue oak (*Q. douglasii*), and Oregon white oak (*Q. garryana*). Black oak (*Q. velutina*) and red oak (*Q. rubra*) are extremely bitter and considered not edible by this author. Tannins in acorn meat embitter the taste, but tannins are water-soluble phenolic compounds that leach away in water. A quick fix in the kitchen is to puree acorn meat in a blender, using 2 cups water for every cup of nut meat. Blend thoroughly. Then strain and press the water out of the nut meat through cheesecloth, a clean pair of pantyhose, or a clean white sock. I like acorn mash on baked potatoes, mixed into tomato sauces, and in all baking recipes. Also eat out of hand as a snack.

Traditional uses: American Indians mashed and sun-dried the acorn meat before using it for food, as drying the meats makes them more palatable. White oak (*Q. alba*) has tannin-rich bark. Tannins are antiseptic and astringent. American Indians and pioneers made a tea from the bark for mouth sores, burns, cuts, and scrapes. The bark extraction, considered a panacea, was believed to provide protection against cancer. Dried and powdered bark was sprinkled over the navel of an infant to heal the wound caused by removing the umbilical cord. Red oak (*Q. rubra*) bark in decoction was used to treat diarrhea; the tannins once again account for the reported effectiveness of this remedy. The bark of pin oak (*Q. palustrus*) was prepared in decoction for dysentery and for edema of joints. The inner bark was heated and infused with water by dropping a hot stone into a gourd or skin bag, and the resulting tea was taken for intestinal pain (analgesic). Chinquapin oak (*Q. muehlenbergii*) bark was decocted by people of the Delaware and Ontario Nations to stop nausea and vomiting (antiemetic). Most species of

oak bark were boiled and the decoction taken internally for dysentery and diarrhea. And the bark and wood decoction of tannin-rich oaks was used externally to treat inflammations, sores, hemorrhoids, sore muscles, and tender joints.

Modern uses: Oak bark extract, typically from *Q. robur* or *Q. petraea*, is Commission E–approved for treating bronchitis, cough, diarrhea, mouth and throat sores, and inflammations of the skin. Chemicals from oak bark are being tested as a cancer therapy.

Notes: All oak nut meats can be improved by an overnight soaking in fresh water. American Indians would shell the acorns, then place them in a skin bag and soak them in a stream for a day or two to remove the bitter tannins. Chopping the acorn meats thinly, then drying them, reportedly attenuates the bitter taste.

Veterinarian/Wildlife: Squirrels prefer white oak, chinkapin, and bur oak acorns, but will eat all species. If you want some acorns, better gather them in a hurry. In a "mast" year when oaks produce two to three times their normal acorn crop, we all benefit—especially deer, bear, squirrels, woodpeckers, wild turkeys, and partridges.

Maples

Aceraceae (*Acer* spp.; *A. saccharum*; *A. rubrum*; *A. macrophyllum*; *A. nigrum*)

Identification: Crowns of trees broad and rounded in the open. Species vary in height from 30′ to 150′. Bark smooth when young, furrows with age. Leaves typically three lobed. Red maple leaves have distinctive red petioles. Seeds have the characteristic helicopter-blade appearance and fly accordingly. Sugar maple leaf has the shape of the leaf on the Canadian flag. Common species include sugar maple (*A. saccharum*); red maple (*A. rubrum*); bigleaf or Oregon maple (*A. macrophyllum*); and black maple (*A. nigrum*).

Habitat: Various species broadly diversified throughout the United States and southern Canada. Wet woods, dry woods. Sugar and red maples are generally found east of the Mississippi River; bigleaf maple is a Northwest native.

Black maple, *Acer nigrum*

Black maple overlaps the range of the sugar maple in the eastern United States but is somewhat restricted to the upper Midwest.

Food: The winglike seeds may be eaten but are poor tasting. Pluck the seeds from the helicopter-blade husks and cook or stir-fry like peas. You will soon have your fill of them! Maple sugar and maple syrup from the winter and spring

sap are what these trees are all about. For taps or information on where to purchase them, contact a maple sugar mill near you (they'll probably sell or give you a few). Using a brace and 0.75-inch diameter, 3-inch-long bit, drill through the bark until you hit hardwood. Clean the hole thoroughly, then drive the tap in with a hammer. Sap flows best on warm sunny days after a freezing night. In southern Michigan, tapping begins in late January and continues until early April, when the sap runs dark, thick, and stingy. Trees under 10″ wide require only one tap. For larger maples you may insert two or three taps in a circle around the tree. Use a covered pail to collect the sap. If you're going to boil the sap down on an open fire, make certain your wood is dry, as smoke will give the syrup an undesirable flavor. I use three pans over a long, narrow fire pit, pouring the sugar water from pan to pan as it cooks. Pan number one receives the fresh water from the trees, pan two receives the reduced water from pan one, and pan three receives the further reduced water from pan two. Pan three, of course, will have the thickest, richest water. Boil the syrup in pan three until it is thick enough to coat a spoon.

Traditional uses: Maple syrup is a glucose-rich sugar substitute with the added benefit of numerous minerals, a more nutritious sweetener when compared to refined white sugar. The unfinished fresh sap is considered a mineral-rich tonic. Iroquois compounded the leaves in water and drank the drug as a blood purifier. Bark infusion was used as an antiseptic eyewash. And the inner bark was decocted as a cough remedy and expectorant.

Modern uses: Maple syrup is touted as a good source of minerals, but there are no proven pharmaceutical uses. Maple syrup has been used to flavor and sweeten cough syrups and has less sugar content than honey. I prefer this sweetener over others for its rich mineral content and flavor. Maple sap also contains polyphenols as well as a phytohormone known as abscisic acid, useful in helping the pancreas in its insulin production. More research is needed to prove this a viable antidiabetic chemistry (Weiler et al. 2021).

Notes: Other trees that may be tapped include black walnut and white, black, and yellow birch. Grapevines climbing high into the forest canopy can also be cut to save the tree and in the spring to provide copious amounts of mineral-laden water from the wounds. I store a couple gallons of maple water in the freezer and keep one in the refrigerator as a water source that, for flavor and nutrition, beats all those fancy spring, geyser, artesian, mineral, and stuffed-shirt water sources.

Veterinarian/Wildlife: Maple seeds are a favorite spring food for squirrels, mice, and other rodents. Maple water (sap) is a nutrient- and mineral-rich water for domestic and wild animals.

Black Walnut

Juglandaceae (*Juglans nigra* L.)

Identification: Large hardwood tree, to over 100′. Bark ridged, deeply grooved, dark. Large leaves with seven to seventeen leaflets; leaflets toothed, narrow, rough, slightly hairy underneath. Break a hairless twig and note the pith is light brown and chambered. Flower is catkin forming in April or May. Fruit is 1″ to 2″ in diameter, with a round husk over a nut. Nut contains meat core.

Habitat: Eastern United States. In fertile soil, often lining roadsides where the ample nut crop can be easily harvested.

Food: Nuts are used in baked goods, cereals, waffles, pancakes, and salads. Or eat them on the hoof out of hand.

Traditional uses: American Indians used the bark, inner bark, leaves, and nut meats. The bark was chewed to treat mouth sores and toothache. Husks of nuts and the crushed leaves were used to treat ringworm. The decoction of bark is emetic. An infusion of nutshells was used as a wash over itchy inflammations. Oil from the nut was used as lotion and hair oil. Charred twigs, sticks, and bark were applied to wounds, burns, bites, and the sap was applied to bites and inflammations (Moerman 1998).

Modern uses: Black walnut husk extract is antifungal. An antifungal compound can be made by combining equal parts tincture of goldenseal, cinnamon, tea tree oil, and black walnut husk tincture. Black walnuts as health food are little studied, but research from Loma Linda University on English walnuts (California walnuts) demonstrated a positive

Black walnut, *Juglans nigra*

cholesterol-reducing ability. Participants ate 20 percent of calories from walnuts, and their ratio of LDL to HDL was lowered by 12 percent (Banel and Hu 2009). Walnuts may help prevent hyperthyroidism and scabies and may lessen the inflammation of psoriasis and arthritis. Walnuts are rich in mood-enhancing serotonin, and they may improve satiety by reducing cravings, thereby treating obesity. A study in *The Journal of Medicinal Food* compared the cardiovascular effects of black walnuts to those of English walnuts. Study results showed that participants who added English walnuts to their diets experienced greater improvements in several measures of cardiovascular health compared to participants who added black walnuts to their diets (Fitschen et al. 2011).

Notes: To remove the husk—the stain-producing covering of the walnut—put the walnuts on a paved driveway and roll them under your shoe. Or jack up a car about 1 inch off the ground, engage the transmission, and shoot the walnuts under the tire. Some people wear gloves and use a hammer to pound and tug the

husk away. In my video *Trees, Shrubs, Nuts, and Berries* (Meuninck and Duke 2007), you can see a simple electric walnut huller In action. A few front-porch, rocking-chair yarn spinners say that walnut husk oil will dye your hair and may even produce new growth. Plants struggle to grow in the toxic soil beneath a walnut tree.

Veterinarian/Wildlife: Nuts are relished by squirrels and field mice. The husks are crushed and put in ponds to stun fish. Black walnut extract is used in several natural product wormers for horses. Black walnut wood shavings used as bedding are toxic to horses.

Cherries

Rosaceae (*Prunus* spp.: *P. serotina* Ehrh.; *P. virginiana* L.)

Identification: Black cherry trees (*Prunus serotina*) may exceed 80′ in height. Bark is rough, scaling: Peel the bark and the wood looks reddish underneath. Black cherry leaves are ovate to lance shaped, toothed, smooth on top, paler underneath; midrib vein underneath has hairs. Berries are black. Chokecherry (*Prunus virginiana*) is a smaller tree or shrub. Leaves are more oval, sharper toothed than black cherry; no hairs on midrib. Chokecherry flowers are white with a thicker raceme. Berries are reddish. Bark of wild cherry when freshly torn is aromatic, whereas chokecherry is not. Berries of both species hang from long, drooping racemes.

Habitat: Black cherry: eastern forests from Georgia and Texas north to Canada. Chokecherry: nationwide; often along roadsides.

Food: Black cherry and chokecherry have edible fruit. But the bark, root, and leaves contain toxic glycoside prunasin (hydrocyanic acid) and are inedible. Fruit from both plants makes excellent jams and preserves. Put the whole fruit on cereal, but do not eat the seeds. Fruit may be dried and frozen for later use as a trail food. Preserves are good for flavoring unsweetened, raw yogurt.

Wild cherry

Traditional uses: The inner tree bark and fruit of black cherry were collected in the autumn and used as medicine. First People used a decoction of the black cherry as a sedative and to treat colds, fevers, worms, burns, measles, and thrush. Pioneers took the bark infusion in decoction to treat diarrhea, bronchitis, coughs, and indigestion.

Modern uses: The inner bark of black cherry is used as a flavoring agent and

is considered therapeutic for colds, sore throats, diarrhea, respiratory infections, and congestion as well as for external and internal inflammations. These uses are unproven, and little in the way of research has been done on this drug. Black cherry juice is an anthocyanin-rich supplement (anti-inflammatory), but tart red cherries have the highest amount of anti-inflammatory content of any food (Sleigh et al. 2012).

CAUTION: Use professionally prepared formulations under the care of a professional holistic physician.

Notes: Ricola black cherry or wild cherry cough drops are still my favorite flavor for a cough antidote.

Chokecherry, Alpine, Montana

Veterinarian/Wildlife: Either tree provides a wildlife-attracting addition to your yard. Cherries are important food for birds, raccoons, bears, skunks, and porcupines.

Osage Orange

Moraceae (*Maclura pomifera* [Raf.] Schneid)

Identification: Deciduous tree to 30′ tall, with a distinctive, pimpled orange fruit, that is brainlike and similar to a navel orange in appearance. Tree has a rounded silhouette and the main trunk is short. Twigs zigzag and interlace. Leaves are alternate, simple, oval with a long stem and sharp, long point. Edges glabrous (smooth) and glossy dark-green on top, lighter dull green on bottom, and a milky sap excretes from torn petioles. Leaves 3″ to 5″ in length. Some varieties produce thorns; others don't. Also known as hedge apples or osage apples. Hedge apples are produced only by female trees.

Habitat: Originally found in the south central states, Texas, Oklahoma but are now widely distributed. Look along fence rows, in the south, east, and west across

Two Osage oranges in the garage keep the mice away.

the United States. Drought and cold tolerant.

Food: Fruit inedible.

Traditional uses: American Indians used root bark to make a yellow dye and root in cold infusion as an eyewash.

Modern uses: Inner bark and leaf extraction considered by a few modern

herbalists as an anticancer agent. The active principles are five unique flavonoids and immune-stimulating compounds (Tsao et al. 2011).

Notes: Considered by most First People Nations as the premier bow-making wood. Wood and branches used as raw material for bows, canes, and ceremonial staffs. Osage fruits are sold at the South Bend, Indiana, Farmers' Market and used to repel rodents, arachnoids, and insects.

Veterinarian/Wildlife: Stick one or two hedge apples (osage fruit) in the pantry to keep the insects away, and a couple in the garage to keep the rodents from taking up residence.

Sassafras

Lauraceae (*Sassafras albidum* [Nutt.] Nees)

Identification: A small to medium tree to 50′. Leaves mitten-shaped and irregular. Twigs and root aromatic, odor somewhat like root beer. Flowers are yellow green. Branches and twigs break easily.

Habitat: Eastern forests and midwestern and prairie states. Located along edges of woods, in drier, well-drained areas as a first-growth companion with oak and hickory in eastern forests.

Food: Spring leaves are dried and used as filé in gumbo and other Cajun dishes. Simply crush the dried leaves to powder and use as a spice. Spread the leaf powder on pasta, soup, cheese, and other savory dishes. For root tea, peel the root, discard the peel, and boil the pith.

Traditional uses: Extracts were used to make perfume and root beer. The root oil was used as an antiseptic until 1960, when the USDA declared it unsafe because of the content of safrole, a carcinogen. The root decoction was used in traditional healing as a drinkable tonic and blood purifier to relieve acne, syphilis, gonorrhea, arthritis, colic, menstrual pain, and upset stomach. Bark tea was used to cause sweating.

Sassafras, *Sassafras albidum*

Modern uses: Sassafras has no proven effect as a medicine, and because of the toxic effects of safrole, the root tea should be taken judiciously. Small amounts of the dried leaves of spring are used as a spice. A twig chew is refreshing but overuse is not recommended. Recent evidence shows safrole, a component in sassafras oil, is added as an adulterant to the drug Ecstasy in Cambodia.

CAUTION: Sassafras oils, including safrole, may be carcinogenic.

Notes: When camping, I use the twigs as a toothbrush (chew stick). Chew the end of the twig until it is bristly, then "worry" the bristles between teeth and gums. Slippery elm twigs, rich in antioxidants, also make fine chewing sticks. The flavor is refreshing and the sap is a mild sialagogue (promoting the secretion of saliva). Dried leaves make a fine tea.

Veterinarian/Wildlife: Turkey, bears, and birds eat the berries; rabbits and deer chew on the twigs—and so do I.

Hawthorn

Rosaceae (*Crataegus* spp.: *C. laevigata* [Poiret] DC.; *C. monogyna* Jacquin Emend.; *C. oxyacantha*; *C. douglasii* Lindl; *C. macrosperma* Ashe)

Identification: Shrubs to small trees from 6′ to 20′ in height, many branched. Branches thorny. Yellow-green leaves glossy, three- to five-lobed, with forward-pointing lobes and serrated leaf edges. Numerous white flowers in terminal clusters, with ten to twenty stamens that give rise to small applelike fruit. Fruit ovoid to round, red or black, mealy. There is one seed in each chamber of the ovary.

Habitat: Hawthorn species are found nationwide. *C. macrosperma*: United States east of the prairie. Damp woods and fringes of forests. They prefer some exposure to sun.

Food: The fruit may be eaten out of hand. It's mealy and seedy, but its heart-protecting value makes it worth the trouble. The fruit may be sliced and dried and decocted or infused in water to make a health-protecting drink. It blends tastefully with green tea. Berries are gathered in August and immersed in boiling water for 30 seconds and then cut in half, seeds removed, and dried in a food dryer. Berries may be cooked in hot cereals or added to tea. Be creative.

Hawthorn, *Crataegus* spp.

Traditional uses: Hawthorn has long been used to treat heart disease in Europe and China. The active phytochemistry includes bioflavonoids that improve peripheral circulation to the heart and the extremities, including the brain. They also improve coronary blood flow and are hypotensive. American Indians chewed the leaves and applied the masticated mash to sores and wounds as a poultice. Shoots were used in infusion to treat children's diarrhea. Thorns were thrashed on arthritic joints as a counterirritant. The Okanagan-Colville Nation's herbal art included burning the thorn down to the patient's skin, not totally unlike incense burning (moxibustion) on Chinese acupuncture needles to heighten effect. A decoction of new shoots was used to wash mouth sores. Numerous other

remedies are discussed in *Native American Ethnobotany* (Moerman 1998).

Modern uses: Most studies have been on *C. laevigata* leaves, fruit, blossoms, and new end growth. Hawthorn is said to improve and protect cardiac and vascular function by dilating coronary blood vessels and initiating heart muscle regeneration. The extract may be antiangina and improve Buerger's disease (paraesthesia of foot or single toe, an arterial spasm). It's also used to treat tachycardia. Hawthorn is considered cholesterol lowering and hypotensive. The anthocyanidins and proanthocyanidin fraction are said to be synergistic with vitamin C. In European studies, use of the standardized extract improved exercise tolerance in heart patients. Other studies suggest that the extract may alleviate leg pain caused by partially occluded coronary arteries.

Chinese practitioners decoct the dried fruit and use it for treating irritable bowel and gallbladder problems. The berry is considered antibacterial to shingella (dysentery) species. A decoction of dried fruit is considered antidiarrheal and helpful in treating dyspepsia. Dr. Ann Walker, University of Reading, in the United Kingdom, published in the *British Journal of General Practice* a human study, placebo controlled, using hawthorn extract to lower blood pressure in diabetics. Patients taking hawthorn had a significant reduction in diastolic blood pressure but no difference in systolic pressure with no drug/herb interactions. Dr. Walker reported the blood pressure effect from the study was real (Walker 2006).

CAUTION: Not recommended during pregnancy and lactation. Proanthocyanidins have been shown not to be mutagenic when tested by means of the Ames test (a standardized measure of carcinogenicity). Safety with berry extracts is well established.

Notes: Some herbs with circulation-stimulating properties, in addition to hawthorn, include garlic, ginger, ginkgo biloba extract, and cayenne. On my brother's farm they grow about a dozen hawthorn trees that have the biggest, sweetest fruit I have ever tasted. In spring we cut off a few dozen clusters of flower buds and emerging new-growth leaves to make a tea. The hot water extracts the bitter bioflavonoids that are hypotensive and antiangina. I have decocted fresh flower tops and experienced flushing and lightheadedness. Perhaps the decoction was too concentrated—I definitely felt enhanced peripheral circulation in the form of face flushing.

Veterinarian/Wildlife: The berries are a valuable wildlife food. Squirrels and game birds relish this fruit. Harvest them first or lose out! Hawthorn also serves as a nesting tree and wildlife habitat. Hawthorn extract has been indicated as a possible therapy for senile pets. Consult your veterinarian.

Honeysuckle

Caprifoliaceae (*Lonicera japonica* Thunb)

Identification: Numerous species. Shrublike or climbing vines. Elegant flowers, trumpetlike, white to off white, other species have red flowers. Leaves green, glabrous, oblong to 2″ in length. Fruit is black, spherical berry.

Habitat: Fringes of woods, invasive along trails and edges of streams. Likes to border woods and not stand alone. Can colonize and become predominant invasive species in areas of development or waste ground.

Food: Flowers are picked and sucked to taste nectar.

Traditional uses: American species, *L. dioioa, L. canadensis* Bartr. Ex Marsh, were all used by American Indians: Floral tea used to treat dysentery, acute infections such as flu, colds, laryngitis, enteritis. Tea is antimicrobial. Tea also applied externally as a wash for edema, boils, scabies, breast cancer. Also used by First People as a blood purifier. These traditional uses suggest antimicrobial properties of bark infusion for treating syphilis, gonorrhea, urinary infections.

Honeysuckle berries are usually found in clusters.

Modern uses: Flower extracts may lower cholesterol. Chemical extracts from leaves are anti–platelet aggregating, perhaps preventing strokes (unproven). Saponins in the plant are anti-inflammatory.

Notes: Honeysuckle patches are like elfin playgrounds—the little folk's equivalent to a rhododendron maze.

Veterinarian/Wildlife: Honeysuckle is a significant source of food for deer, rabbits, hummingbirds, and other wildlife and one of the best environments to find free cap morels (Meuninck 2015).

Pines

Pinaceae (*Pinus* spp.: *P. strobus* L.; *P. edulis* L.)

Identification: White pine (*Pinus strobus*) is an evergreen tree with medium to long needles. Needles in clumps of five, light green with single white stripe. Pinyon pine (*P. edulis*) is a stubbier plant isolated in dry alpine areas of the four-corner region north to Canada, especially

White pine, *Pinus strobus*

abundant on the east side of Flaming Gorge, both in Wyoming and Utah. Its cones harbor the delicious pine nut used to make pesto.

Habitat: Pinyon pine found on dry plateaus from Mexico north to Canada (to 7,000 feet). Scotch pine: planted as an ornamental in yards, fencerows, and fallow fields.

Food: White pine needles may be made into a tea. I take a handful of needles, crush them, and add them to a gallon jar of water containing mountain mint, lemon thyme, and lemon balm. Squeeze in juice of half a lemon and let the mixture infuse in the refrigerator for six hours. Uplifting! Seeds from pinecones may be eaten. Pinyon pine provides the most notable edible seeds used in pesto.

Traditional uses: Pine sap is styptic and wound sealing and was used by pioneers and First People to treat gunshot wounds, cuts, scrapes, and lacerations. There is historical evidence that the presence of antiscorbutic quantities in pine needles helped prevent scurvy, which supports the historical tradition of drinking pine-needle tea.

Modern uses: Oil from the needles of Scotch pine shoots is Commission E–approved to prevent infection and to treat blood pressure problems; colds, coughs, and bronchitis; fevers; oral and pharyngeal inflammations; and neuralgias. Most pines and firs have vitamin C in their needles, especially end needles—a wilderness way to get the tree's *antiscorbutic* (remedy for scurvy) effect.

Notes: I brew a tea from all of these pines, mixed with lemon balm, mint, fennel, and lime juice. It's invigorating and anti-infective. This brew is made overnight by cold infusion. Stuff the leaves into a gallon jar, fill the jar with pure water, refrigerate for 12 hours, then drink. Pinyon pine nut ice cream, served in Guanajuato and Dolores Hidalgo, Mexico, is one of my favorite treats. Chop some pine nuts, mash them into vanilla ice cream, and let them infuse overnight. Terrific!

Veterinarian/Wildlife: Squirrels and rodents eat the seeds and make nests with the needles. Doves prefer to nest in pines and spruce. Needles provide winter beds for burrowing animals. Certain mushrooms, such as the matsutake and cep (Bolete) prefer pine forests and needle beds.

Poplars

Salicaceae (*Populus* spp.: *P. balsamifera L.*; *P. tremuloides* Michx.; *P. deltoides* Bartr. ex Marsh)

Identification: Many poplars have ovate leaves on long petioles that provide a quaking effect when the wind blows. Flowers are drooping catkins. Cottonwood (*P. deltoides*) when mature has thick, furrowed bark. Aspen (*P. tremuloides*) is

Cottonwood, *Populus deltoides*

distinctive with its greenish-white bark and quaking leaves. Balsam poplar (*P. balsamifera*) has broad heart-shaped leaves, 6″ to 10″, edged with fine teeth; slightly flattened to rounded leaf stalks. New-growth end buds of balsams are sticky (resinous) and aromatic. The young balsam poplar's bark is gray green and smooth; the mature tree has dark, grooved bark.

Habitat: Wide distribution in United States. Requires ample water. Balsam poplar is found in the northern tier of states and throughout southern and central Canada. Cottonwoods reside typically in low, wet areas. Aspens are found in stands on mountain slopes, in mountain meadows, and along wild rivers.

Food: Balsam poplar cambium (inner bark) is eaten raw. The cambium was boiled, dried, pounded to flour, and mixed with corn flour (masa) and/or wheat flour to make bread. Shoots, leaf buds, and catkins taste best when simmered in water. The vitamin C content is high.

Traditional uses: American Indians considered balsam poplar a panacea: The inner bark decoction was used as a tonic, a treatment for colds, and a system cleanser after acute infections. The bark maceration and decoction was used as a wash for rheumatism. Pioneers gathered the reddish resin covering new-growth leaf buds and dissolved and thinned the resin in an alcohol solvent. The resulting salve was applied to seal and heal wounds and relieve inflammations.

Modern uses: Bark, leaves, and leaf buds are used in modern therapies. Leaf bud extract is Commission E–approved to

Aspen, *Populus tremuloides*

treat hemorrhoids, wounds, and burns. The leaf-bud extract is healing, antibacterial, and antiphlogistic (relieves inflammation). Salicin from the bark and leaves is analgesic (it's considered a precursor of aspirin, the synthetic was modeled after the natural drug). The bark and leaves are considered antispasmodic and are used to treat arthritis, rheumatism, and pain and urinary complaints due to prostate hypertrophy. The bitter tonic effect and alterative effect may make it helpful in treating anorexia.

CAUTION: Do not use poplar if you are allergic to aspirin or other salicylates.

Notes: Poplar is not a particularly good firewood. Although poplar tree sap may be tapped, its sugar content is low, and

Balsam poplar exuding balsam

too much boiling is required to sweeten the brew.

Veterinarian/Wildlife: Young trees, leaf buds, and shoots are browsed on by deer, moose, and rodents. Dead and dying poplars are a favorite place to find oyster mushrooms.

White Cedar

Cupressaceae (*Thuja occidentalis* L.)

Identification: Aromatic evergreen tree to 40′ or 50′ in height. Many branched from the trunk skyward. Flat, scalelike needles to 1″ in length. Cones slender, bell shaped, to 0.75″ in length. Heartwood light; bark fibrous with thatched ridges. Also known as northern white cedar or arborvitae.

Habitat: Northern states of eastern United States, in Canada from Ontario to Newfoundland and Labrador. Swamps, bogs, and coastal areas of Lake Superior.

Food: Jacque Cartier's French expedition was spared scurvy by drinking the tea from this tree's needles and chewing the needles.

Traditional uses: *T. occidentalis* was named "arborvitae" (meaning "tree of life") by the French when they discovered First People using the bark decoction and leaf tea to treat and prevent scurvy. Eastern tribes like the Algonquin steamed branches to treat colds, fever, pleurisy, rheumatism, and toothache. The fruit was infused into water for treating colic. Chippewa scarified (pricked with a stick or thorn) charcoal from the burned wood of the plant into the temples to treat headache. Leaf and bark juice was pricked into the skin to treat dizziness and headache. Leaf tea was administered for dysentery and scurvy. The Penobscot Nation poulticed leaves over swollen hands and feet.

White cedar, *Thuja occidentalis*

Modern uses: *T. occidentalis* is a preferred drug with homeopaths to treat rheumatism, poor digestion, depression, and skin conditions. Red cedar and white cedar still used by American Indians in smudging rituals and sweat lodges.

CAUTION: Because of its toxic thujone (a carcinogen and liver toxin) content, this plant drug must be used with professional consultation and supervision.

Notes: Arborvitae was the first tree to be exported from America to Europe. Soak needle sprays in water and add them to a sauna or steam bath for a relaxing and olfactory experience.

Veterinarian/Wildlife: Red squirrels eat the buds in spring and cut and store seed-laden branches for winter forage. Rabbits, moose, and deer browse on the leaves. Porcupines eat the bark and may inadvertently girdle a tree, killing it. Seeds are eaten by the pine siskin, a small finch of northeastern evergreen forests. Boughs are used as a snake repellent.

Pawpaw

Anonaceae (*Asimina triloba* L. Dunal)

Identification: Small, delicate, shade-loving tree. Leaves large, 8″ to 12″, toothless, lance shaped, broadening toward the tip, terminating in a point; darker green above, lighter underneath. Showy red flowers with six petals precede leaves, and (if pollinated) develop gradually into 3″ to 6″ fruits. Fruit banana to mango shaped, soft and dark brown when ripe. Harvested in Michigan in early October, earlier farther south. Also called papaw.

Habitat: Texas east to Florida and north to Iowa, Illinois, Michigan, and New Jersey. Understory in mature forests.

Food: The fruit is eaten fresh. Unripe fruit will ripen in a few days or a couple of weeks, but when ripe the soft, fresh fruit will keep only a couple of days in the refrigerator. The flavor is sweet, intense, and mangolike—loved by many, disdained by a few. The fruit may be eaten with ice cream or blended into milk shakes, but it's best eaten fresh from the tree. Or try five pawpaws blended into a Betty Crocker chocolate cake mix. Stud the mix with black walnuts and precooked wild rice. Follow the cake box directions, but cook for an additional 3 to 5 minutes. Good Lord, it is delicious!

Traditional uses: Cherokee and Iroquois ate the fruit. The fruit was sometimes smashed and dried into small cakes for winter use. When reconstituted, the dried fruit was blended into corn masa to make corn bread. The inner bark was used to make cordage. Medicinal uses are undocumented.

Pawpaw, *Asimina triloba*

Modern uses: Non-mutagenic acetogenins from pawpaw are anticancer: Research suggests acetogenins from pawpaw will prevent the growth of cancer cells and shrink tumors. A standardized pawpaw extract, Pawpaw Cell-Reg, containing mixtures of acetogenins is now available. Research studies also show that pawpaw extracts are antimicrobial, antifungal, and effective against intestinal worms and head lice (Blossom).

Notes: Pawpaw trees are protogynous; that is, the stigma of the flower (the female receptive organ) ripens before the pollen, thus the tree cannot self-pollinate. Hand pollination is accomplished with difficulty due to the tall, frail nature of the tree. When pollinated the fruits are located out of reach, and the delicate trees won't hold a ladder safely. In the fall, shake and pound the trees to fell the fruit. Pawpaws grow under the sheltering canopy of mature maples and beech trees. They are difficult to cultivate and must be protected from direct sunlight.

Veterinarian/Wildlife: Pollination is touch and go from flies and beetles transferring pollen from a different tree. Some seasons the pawpaw trees fail to bear fruit due to an infestation of *Eurytides marcellus*, a beautiful butterfly with a larval stage that feeds on the pawpaw leaves, and *Talponia plummerian*, a moth whose larva burrows into the flower, causing it to wilt and die.

Eastern Hemlock

Pinaceae (*Tsuga canadensis* L. Carr.)

Identification: Evergreen tree rounded, less spire shaped, maturing to 70′ or more in height. Bark and twigs rough. Flat needles less than 1″ long, green on top, white beneath, silvery looking; attached by means of delicate, slender stalks. Drooping cones are small, exquisitely formed, distinctive. Resin smells of turpentine and tastes just about as good.

Habitat: East Coast west to Minnesota and Michigan. Rocky ravines; dunes; understory, climax species in beech/maple forest, stream and riverbanks.

Food: Hemlock needle tea is a lumberjack's favorite, best infused in fresh maple sap.

Traditional uses: American Indians and pioneers used the needles and end-growth twigs in decoction to treat coughs and colds. Wet branches were used over hot rocks in sweat lodges to purge evil spirits and treat arthritis (rheumatism), colds, and coughs. Resin from the bark was used to seal wounds. End branches and twigs were boiled down to form a paste applied externally to sore and arthritic joints. Roots were cleaned and chewed to stem diarrhea. The twig and bark infusion induced sweating. The inner bark was infused and fermented and taken for colds or stomach pain.

Eastern hemlock, *Tsuga canadensis*

Modern uses: Eastern hemlock has no proven modern medical uses, but it is still applied to hot rocks along with cedar boughs in sweat lodge cleansing ceremonies. It is considered a powerful warrior plant capable of expelling disease (Meuninck et al. 2007).

Notes: This sparse and delicate dweller of the Lake Michigan dunes offers a heartwarming splash of green while cross-country skiing through our drab and dunkel winter landscape. Try a few needles in maple syrup and needle tea or needles and agave sap.

Veterinarian/Wildlife: Squirrels and grouse share the seeds. Needles and twigs are used by rodents as bedding. Deer and hare eat the soft, young buds and new growth.

Balsam Fir

Pinaceae (*Abies balsamea* L. Mill)

Identification: Spire-shaped evergreen to 60′ in height. At higher altitudes this tree is spreading, low, more matlike. Smooth barked; bark has numerous resin pockets. Flat, stalkless needles to 1.25″ in length with white stripes beneath, more thickly rounded at the base. Cones purplish to green, to 4″ in length, scaly, twice as long as broad.

Habitat: Canada south through the northern tier of the eastern United States. Moist woods and their fringes.

Food: The needle infusion is a relaxing tea, traditionally considered a laxative.

Traditional uses: American Indians used the resin to treat burns and wounds and to soothe sores, scrapes, insect bites, stings, and bruises. Tea from needles was used to treat upper respiratory problems: asthma, bronchitis, and colds. Leaves were stuffed into pillows as a general cure-all. Children chewed raw sap to treat colds and sore throats. In sweat lodges, balsam gum was applied to hot, wet stones and the smoke inhaled as a cure for headaches. Branches were steamed to treat arthritis (rheumatism). A bark decoction will induce sweating as a way of treating acute infections.

Balsam fir, *Abies balsamea*

Modern uses: The resin obtained from bark blisters is considered antiseptic and is an integral ingredient in many salves and lotions, including ointments and creams used to treat hemorrhoids. Proprietary mixtures incorporating balsam resin are sold to treat diarrhea and coughs.

Notes: Balsam wood is used to make canoes, canoe paddles, and cradle boards. For years balsam fir has been our favorite aromatic Christmas tree, because its needles are long lasting and fragrant. Balsam gum, a waterproof cement, is used along with pitch to seal leaking birch-bark canoes.

Veterinarian/Wildlife: Deer, moose, and rabbits browse the young shoots and twigs. Seeds are eaten by grouse.

Witch Hazel

Hamamelidaceae (*Hamamelis virginiana* L.)

Identification: Deciduous small bushy tree or shrub to 10′ in height, occasionally much taller. Bark thin, brown on the outside, red on the inside. Younger branches haired and yellow brown. Leaves alternate, blunt, indented, with rough margins. Five to seven yellow, short-stemmed flowers appear in clusters before leaves emerge, a golden appearance. Flowers grow from the axils of leaf buds. Petals are bright, long, narrow, linear, and roll to a spiral in the bud. Fruit

capsule oddly shaped, woody, oval, about 0.75″ long.

Habitat: Typically east of the Mississippi River. Coastal forests. I find it growing along trails, specifically Grand Mere State Park, Stevensville, Michigan.

Food: Not edible.

Traditional uses: Witch hazel was used by the Cherokee, Chippewa, Iroquois, Mohegan, Menominee, and Potawatomi peoples living in the range of the plant east of the Mississippi. They used the leaf tea externally to treat muscle aches, athlete's foot, wounds, burns, and various skin afflictions. Tea was consumed for coughs, asthma, colds, sore throats, dysentery, and diarrhea. Twigs and inner bark are still used in infusion to treat colds, pain, sores, fevers, sore throat, and tuberculosis. An infusion of twigs was used to treat dysentery and diarrhea. A decoction of new-growth tips and shoots from the base of the plant was used as a blood purifier or spring tonic. Young end tips were used in decoction to treat colds and coughs. Root and twig decoctions were considered a cure-all for just about any ailment: bruises, edema, cholera, and arthritis.

Modern uses: Commission E–approved for external use on hemorrhoids, skin inflammations, varicose veins, wounds, and burns and for mouth and pharynx treatment. Commercial products include liniments, eye ointments, and skin-toning astringents. Witch hazel water is distilled from the leaves and twigs and used as an

Witch hazel, *Hamamelis virginiana*

eyewash and to treat hemorrhoids, colitis, varicose veins, sore muscles, bruises, and sprains. Tannins derived from distilling the active compound are used to treat local skin irritations and inflammations, including eczema. Distilled witch-hazel water contains no tannins but is still astringent and is used as a gargle for sore throat and sore gums.

Notes: Witch hazel is commonly grown in nurseries, gardens, and arboretums. Popular as a topical astringent, witch hazel is an integral part of an effective wash blended for psoriasis called Pharmaclean.

Veterinarian/Wildlife: American Indians decocted the twigs to make an insect-bite wash. They placed a twig in an animal-skin bag, filled it with water, and then dropped hot rocks in the bag. The fire-heated rocks provide an instant boil. Water-filled gourds and pottery were heated in the same way. The drug was stirred in, and the wash was applied to bites.

Slippery Elm

Ulmaceae (*Ulmus rubra* Muhl.)

Identification: Deciduous tree to 70′ in height. Spreading branches with an open crown. Older bark rough and fissured; young branches reddish brown and downy. Leaf buds large and downy. Leaves obovate to oblong, darker green on top, rough to the touch, with a double serrated toothed margin; to 8″, typically shorter. Flowers with up to nine sepals and stamens grow in dense, sessile clusters. Spinning top-shaped fruit grows to 1″ long.

Habitat: North America, typically east of the Missouri River. Forests and fields.

Food: The powdered inner bark is dried and made into a beverage to relieve irritated mucous membranes of the throat, stomach, and intestines.

Traditional uses: The inner bark in infusion was traditionally used to treat gastritis and ulcers. The bark extract from this tree acts as an antioxidant and, because it is mucilaginous and demulcent, as an emollient. Externally the extract is an excellent wound dressing, often used on burns and to treat gout, rheumatism, and arthritis. Internal uses included treating gastritis and ulcers of the stomach and duodenum. The outer bark was used to induce abortions.

Modern uses: Slippery elm is still used by holistic medicine practitioners to treat colds, sore throats, and bronchitis. The outer bark is used to make salve. The inner bark is dried and powdered, then added to water and drunk for gastric ulcers, duodenal ulcers, and colitis. It is considered antisyphilitic and antiherpetic, claims not yet substantially proven. The bark fraction is used in the Essiac cancer remedy, an unproven combination of slippery elm bark, sheep sorrel, burdock root, and turkey rhubarb root. These compounds may be purchased as lozenges, powder, or cut and sifted for making tea as a demulcent for respiratory irritations. See your licensed professional holistic health-care practitioner for consultation.

Slippery elm, *Ulmus rubra*

Notes: Its leaves are rough enough to shave with, but this attractive tree should be added to the garden for its beauty and timeless medicinal qualities.

Veterinarian/Wildlife: Slippery elm is used in training mixes and wormers for horses. One supplemental formula containing slippery elm claims to help maintain joints in horses, and another product for horses called Power Dust reportedly helps heal horses' wounds.

CHAPTER 4

Medicinal Plants of Wetlands

When I tell you these stories, do you see it, or do you just write it down?

—A ZUNI SPEAKING TO AN ETHNOBOTANIST

These soft-tissue plants are found in wetlands and other low-lying areas, such as marshes, bogs, rivers, lakes, streams, and fens—a few of which are found nationwide.

American Lotus

Nelumbonaceae (*Nelumbo lutea* Willd.)

Identification: American lotus is a perennial plant, often confused with water lilies, and like water lilies, can form large colonies that spread by seeds and large fleshy rhizomes. Flowers grow to 10″ across, yellowish-white to yellow with more than twenty petals. The center of the flower, the seed structure, is cone-shaped (or like an inverted showerhead) and has openings in which the seeds develop. Leaves are simple, round, bluish-green in color, up to 2′ in diameter, attached to the stem in center. Leaves are flat when floating and conical when emerging and the plant may stand above the water's surface as high as 3.5′ on a rigid stem.

Habitat: A water- and sun-loving plant widespread in Florida and the South and found near shore in waterways without substantial current. Plant pictured was photographed in the reservoir above a Corps of Engineers dam on the Mississippi River near Davenport, Iowa. I have also seen them harvested by Vietnamese Americans on Spring Lake near Peoria, Illinois. Habitats range south of the Rockies, east to the coast, and as far west as California. They are found as far south as Colombia in South America.

American lotus found on the Mississippi River

Food: Lotus was a vital food source for American Indians who ate the roots, shoots, flowers, and young seeds. The

root has a high calorie count. Root is best if cooked, to reduce bitterness. Unopened leaves can be cooked and eaten like spinach or used like a tortilla wrap around an edible filling. Stems are said to taste like beets. The long banana-shaped root is cut in cross-sections, cooked, and eaten. The Asian variety of the root and seed is widely available in Asian groceries and food and medicine. Seed paste is used in pastries. Boil young seeds for twenty minutes, pinch them from their shell (covering), and eat like peas.

Traditional uses: Numerous nations considered American lotus a spiritual plant with mystical powers, and it was used in many ceremonies by the Dakota, Pawnee, Omaha, Ponca, and Winnebago. Roots were pounded into water and then applied to wounds as a poultice. A related species is widely consumed in Asia for its reported health benefits. Culturally the lotus has been cited for thousands of years. It is found in the early art of India, Assyria, Persia, Egypt, and Greece. It is considered sacred in India and a vital part of Ayurvedic medicinal formulas. In ancient Greece, the lotus symbolized beauty, eloquence, and fertility. And "Idylls," a poem written by Theocritus of Syracuse between 300 and 250 BC, described how maidens wove lotus blossoms into Helen's hair on the day she married. The Egyptians often placed a lotus flower on the genitalia of female mummies.

Modern uses: Japanese extract the health-providing juices from the leaf stems by sucking alcohol through the hollow stem tubes. In Asia, lotus seeds are eaten to benefit the spleen, kidneys, and heart. They are used as food to treat diarrhea and to treat weak sexual function in men. The whole seed as food is said to be calming and to alleviate restlessness and insomnia. These modern and traditional remedies combine the seed in soups and desserts. For diarrhea soak 1 ounce of American lotus seeds in warm water for 2 hours, sweeten to taste, and then simmer until lotus seeds are soft. The soup is consumed with black tea, a helpful astringent. The alkaloids in the seeds help lower blood pressure.

Notes: *Lutea* means yellow in Latin. This colony-spreading species can produce more than 8,000 long-stem yellow flowers per acre and its empty seedpods are often found in floral arrangements. The stamens of the flower can be dried and used to make a fragrant tea that is said to have health benefits for the fatty liver. Dried American lotus seeds have bloomed after 200 years, and in China the Asian variety were found to be viable after 1,200 years of dormancy. This plant is now widely foraged for by Asian Americans.

Veterinarian/Wildlife: Submerged portions of the plants provide habitats for micro and macro invertebrates. These invertebrates in turn are eaten by fish and other wildlife species. After lotus die, their decomposition by bacteria and fungi feeds micro aquatic creatures and the food cycle is repeated. Consider also that the large acornlike seeds of lotus are eaten by some ducks and other wildlife. Beavers and muskrats consume the rhizomes.

Arrowhead, Wapato, Duck Potato

Alismataceae (*Sagittaria latifolia* Willd.)

Identification: Arrow-shaped leaves, 3″ to 5″ long, widely and deeply cleft, veins palmate, white, platter shaped, flowers with three petals, deep-set tube growing up from a soft bottom. Also known as wapato or duck potato.

Habitat: Edges of slow-moving streams, ponds, and along shorelines of lakes with soft bottom edges; ranges across northern tier of states, from Maine to Washington.

Food: Harvest tuber in fall or early spring. Good source of vegetable starch and protein. Boil until tender, pluck away skin, and sauté, or smash and cook like hash browns. American Indians roasted the tubers, peeled them, and ate out of hand.

Traditional uses: Root said to settle the stomach, alleviate indigestion. Poultice of root applied to cuts and abrasions.

Duck potatoes—good enough for Cochise, good enough for me

Modern uses: American Indians still use the tuber in the traditional way to treat indigestion and stomachache. Poultice is applied over cuts and wounds.

Notes: Considered a nuisance by riparians and heaven-sent by foragers; protect your source and educate those who jerk this plant from our waterways.

Veterinarian/Wildlife: Food for aquatic microorganisms, waterfowl, and me, the most dangerous manimal.

American Pond Lily

Nymphaeaceae (*Nymphaea odorata* Aiton)

Identification: Large white flower to 5″ in diameter with numerous petals and yellow reproductive parts; roots (strong, long rhizomes) submerged in fresh water, floating leaves are flat and smooth, platter-shaped, 6″ to 10″ across.

Habitat: Found floating on still or gently moving shallow water to 3′ in depth. Aquatic across the northern tier of states, primarily the eastern states, and rarely in the southwest United States, but found as far south as El Salvador.

American water lily Painter Marsh, Michigan

Food: Eat the unfurled leaves of spring and unopened flower buds. Wash petals

and cook to remove potential larvae and other aquatic pests.

Traditional uses: Dried and powdered root sucked in mouth to relieve mouth sores. Juice of root used to treat colds. Numerous tribes used the root juice, decoction, and powdered roots in many ways, primarily to treat colds and coughs.

Modern uses: Homeopathic treatment for diarrhea. Root is tannin rich and used as a gargle for irritations or diseases of the mouth and throat. Decoction still applied as medicine to treat various vaginal conditions (WebMD).

Notes: Transplanted where legal to decorative ponds. Harvesting is illegal in several states, so check with your department of natural resources.

Veterinarian/Wildlife: Flower is a reservoir and breeding safe area for aquatic insects and their larvae as well as larval fish.

Cattail

Typhaceae (*Typha latifolia* L.; *T. angustifolia* L.).

Identification: Distinctive perennial to 8′ tall, lance-shaped wild grass of the marsh. Two hot-dog-like flower heads in the spring: upper flower head is male, lower head female. After pollinating, the upper head degrades and disappears. Cattails grow in large stands and colonize handsomely. Two species are the broad-leafed cattail (*Typha latifolia*) and narrow-leafed cattail (*Typha angustifolia*).

Habitat: Nationwide on wet ground, edges of lakes, slow streams, marshes, shallow ponds, any wet and rich ground.

Food: I like to eat the young shoots of spring. New shoots also come up during the summer, and they too are tender after you peel a few layers of leaves away. Sauté the shoots in butter or olive oil. A quick meal can be made by stir-frying the shoots in Italian dressing. The upper (male) flowering head can be stripped in June and used like flour to extend starch dishes: bread, waffles, pancakes, muffins, and corn bread. Male flowering heads are

Cattail, *Typha latifolia*

vitamin and mineral rich, complete with essential amino acids. For more recipes see my book, *Basic Essentials Edible Wild Plants* (Meuninck 2006).

Traditional uses: Cattail roots are polysaccharide rich. Beat the roots in water

and use the starchy water as a wash over sunburn. The ashes of burned cattail leaves are styptic and antimicrobial; use them to dress and seal wounds.

Modern uses: Although no longer used medicinally, cattail root provides polysaccharides that, when beaten into clean water, may provide an immune-system boost to help prevent acute infections in a wilderness setting. The cattail is a wilderness medicine chest for trekkers and paddlers; learn how to use it (see Meuninck, *Edible Wild Plants* on YouTube). Ash from burned leaves helps seal and keep wounds clean.

Notes: The dry fluff (cattail seed dispersal hairs) of late-season cattails is an excellent, almost explosive, fire starter. Tom, my brother, eats cattail shoots from his property by simply plucking them from the ground and popping them in his mouth. This past spring, I tried one. I took a chomp and spit. Some slimy larval insect was residing in the nutritious young shoot. Upon further inspection we discovered that every cattail shoot had a tenant. For years Tom unknowingly had been adding pure insect protein and fat to his high-carb cattail repast! What bug larva resided there? If you know, shoot me a note on Facebook.

Veterinarian/Wildlife: Dog chow can be made by stripping the old flowering seed heads of cattails and firmly packing them into a quart canning jar. Mix that quart of seed heads in a baking dish with 1 pint milk, crack in 2 eggs, and combine. Stir in about a half cup of Parmesan cheese. Bake at 350°F for 30 minutes, then serve to your hound—a well-earned reward after a day of hunting. For more details, see *Herbal Odyssey* (Meuninck 2007). Cattail roots and shoots are relished by muskrats, deer, and beaver. Live and dead cattails are used as building material and edible bedding by muskrats and beaver. I have seen porcupines wade into the water to eat cattails and reed shoots.

Reed

Poaceae (*Phragmites communis* L.)

Identification: Tall wetland grass to 9′. Root adventitious, growing just under the soil and sending up new shoots as it travels along. Lance-shaped gray-green leaves. Flowers borne in the summer on hollow stalk in dense clusters on long panicles, crowned with “hair” that waves in the wind. In late summer the seed head takes on its characteristic plume shape and remains waving in the wind through winter. Also referred to as reed grass.

Reed, *Phragmites communis*

Habitat: Numerous species worldwide. Wetlands, lowlands, marshes.

Food: Find the edible shoots in early spring as they pop up around last year's bearded old growth. Peel off the tough outer sheath of leaves and chew on the softer, white-colored tissue, or cook until tender. I like to chew the stalk and suck away the tasty juices. The seeds are edible. Harvest them in late summer and add them to oatmeal, to seven- or twelve-grain cereals, or to other preparations such as bread and muffins.

Traditional uses: The root decoction has mild analgesic effect. In Traditional Chinese Medicine this herb is prepared in two ways. Method one: The fresh root is simmered in rice wine until the wine is absorbed. The resultant combination is dried, cut, and used in decoction to treat liver and kidney problems and problems related to the heart and kidney meridians, as well as issues with irregular menstruation, insomnia, tinnitus, impaired hearing, diabetes, frequent urination, and allergies. Method two: The root is steamed until black, cut, dried, and used in decoction for unproven treatments of leukemia, kidney and liver disorders, constipation, diabetes, hepatitis, internal bleeding, arthritis, and rheumatism.

Modern uses: The fresh plant is pounded and its juice collected and applied to bites and stings. The Chinese still practice the traditional uses discussed above.

Notes: The sharp, sturdy spring shoots can be darn near lethal if you are walking barefoot.

Veterinarian/Wildlife: Albeit not as popular as cattails, reed is a prized food and building material for muskrats, beavers, and porcupines.

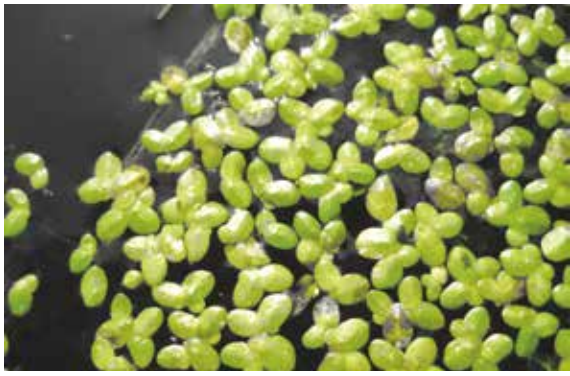
Duckweed

Lemnaceae (*Lemna minor* L.; *L. gibba*, and others)

Identification: A hydroponic plant; one of the smallest flowering plants, spreading a green floating cover over stagnant ponds, marshes, and swamps. Its matching leaves look like Mickey Mouse ears. Threadlike root hairs pull water and minerals from pond. A green pond cover that looks scum-like from a distance.

Habitat: Found nationwide floating on the surface of ponds, still water, and marshes.

Food: The plant can be dried and made into tea. Add the fresh or dried duckweed to soups or blend it into cream soups.



Lemna species

Always cook this plant, as its water source may be contaminated. It is virtually tasteless and tough, and small snails and other invertebrates are enmeshed in the tangle of plants. Be careful, and use sparingly.

Traditional uses: In China, the whole fresh plant was used as a warming agent to treat hypothermia, flatulence, acute kidney infections, inflammation of upper respiratory tract, rheumatism, and jaundice. The whole plant is dried and powdered, and used in infusion or decoction. The Iroquois used star duckweed, *L. trisulca*, as a poultice.

Modern uses: Homeopathically *L. minor* treats colds, fever, and upper respiratory tract infections (*PDR for Herbal Medicines* 2007, 264). Traditional Chinese Medicine uses the plant to treat acne, epilepsy, edema (swelling), and joint pain in combination with other herbs or with acupuncture as an adjunct therapy (Meuninck 2005). Duckweed is used to treat swelling (inflammation) of the upper airways and yellowing of the skin due to liver problems and related jaundice. Also considered a therapy for arthritis (unproven). Lemnagene, a transgene of the species, is used to upscale cell cultures to produce novel enzymes and proteins for food and as nutraceuticals ("Lemnagene Extols Duckweed Virtues for Biomanufacturing" 2004). Duckweed is used as a synthetic platform or chassis plant to produce and scale up the biosynthetic production of vaccines, antibodies, enzymes, and pharmaceutical proteins (Yang et al. 2021). It is also used to produce RuBisco: perhaps the most important enzyme on Earth.

Notes: While working in Japan, I watched *Lemna* farmers motor over a pond with a long-shafted outboard boat that had a boxed-in screen surrounding the propeller. With the prop tilted toward the surface, duckweed was blasted against the screen. When clogged, the screen was placed in the sun to dry. The dried duckweed harvest was used as food, animal forage, and medicine. Duckweed produces more protein per square meter than soybeans and is used to feed fish, shrimp, poultry, and cattle. Its ability to clean water by purifying and concentrating nutrients makes it a candidate for use on sewage ponds.

Veterinarian/Wildlife: As the name implies, duckweed is wildfowl fodder.

Mint

Lamiaceae (*Mentha* spp.: *M. piperita* L.)

Identification: There are many American members of the mint family. Common characteristics include: square, erect stem, leaves almost always aromatic when crushed, typically aggressive and spreading. Species vary in height from 8″ to 30″ tall. Root a spreading rhizome. Leaves plumply lance shaped (elongated) to ovate to roundish, typically serrated. Flowers in dense whorls culminating in a terminal spike of blossoms or in clusters

Mint, *Mentha* spp.

in the axils of leaves. Flower colors vary by species: white, violet, blue. One common species is peppermint (*Mentha piperita*).

Habitat: Nationwide. *M. piperita* can usually be found around water, shorelines, stream banks, and dunes of the Great Lakes and in or around mountain passes, blowdowns, avalanche slides, and wet meadows.

Food: Peppermint is used in teas, salads, and cold drinks; with sautéed vegetables; and as an integral part of the subcontinent and Middle Eastern flavor principles. Romans such as Pliny the Elder used mint to flavor wines and sauces. Mint is excellent in Mexican bean soups or in chilled soups of all kinds.

Traditional uses: Aristotle considered peppermint an aphrodisiac, and Alexander the Great thought that eating mint or drinking the tea caused listless, nonaggressive behavior. Peppermint leaves and flowers are infused in water and taken as an uplifting tea. The extracted oil (as well as the tea) is antiseptic, carminative, warming, and relieves muscle spasms. An infusion increases perspiration and stimulates bile secretion. Menthol and menthone, peppermint's inherent volatile oils, are antibacterial, antiseptic, antifungal, cooling, and anesthetic to the skin.

Modern uses: Leaf and flower extraction are Commission E–approved for treating dyspepsia, gallbladder, and liver problems. Peppermint oil is approved for colds, coughs, bronchitis, fevers, mouth and larynx inflammations, infection prevention, dyspepsia, and gallbladder and liver problems. Recent studies in Europe suggest it may be a treatment for irritable bowel syndrome. The tea and oil have an antispasmodic effect on the digestive system. Peppermint is also used to treat colic, cramps, and flatulence. It may help relieve diarrhea, spastic colon, and constipation. Headache due to digestive weakness may be relieved by taking peppermint, and trials using the extract to treat tension headaches look promising (the essential oil is diluted and rubbed on the temple to relieve headaches and tension). The diluted oil is used in aromatherapy for treating headache and as an inhalant (rubbed on the chest) for respiratory infections. Enteric-coated capsules are used for irritable bowel syndrome and to relieve colon spasms during enema procedures. In-vitro comparative research in 2014 found peppermint suppressed growth and induced cell death (anticancer effect) against human laryngeal carcinoma (Huang et al. 2014). So drink your mint tea and good things may happen.

CAUTION: In too high a concentration, the mint oils are a skin irritant and may burn. Be careful. Peppermint is contraindicated for ulcers, gastritis, and acid reflux because it relaxes the esophageal sphincter, allowing stomach acid to escape into the esophagus (acid reflux).

Notes: Peppermint, spearmint, mountain mint, and other mints have edible flowers and leaves that may be used in salads and desserts. Try mint blossoms on sliced pears. Mint is a carminative herb used to dispel gas. For a dollar or so buy mint lozenges (Altoids) and use them to alleviate gallbladder pain and pain from a spastic colon. The mint lozenges may quell the

discomfort from irritable bowel syndrome. Gardeners beware: Grow mints in a buried steel container to prevent their unabated spread.

Veterinarian/Wildlife: Historically mint was strewn around floors as a vermifuge to rid the home of insect and rodent pests. Veterinary products include mint flavoring in dog and cat Dental Clens pads. Several gourmet dog cookies are flavored with mint oil extract.

Watercress

Brassicaceae (*Nasturtium officinale* L.)

Identification: Water-loving plant that grows in floating mats that root beneath the water and rise as much as 14″ above. Grooved stem is tough, fibrous when mature. Leaves alternate, ovate, with paired and lobed leaflets. Each leaflet broader toward the base and about 0.75″ wide, but variable in width, with terminal lobe. White flower, 0.25″ wide, with four petals. Blooms in May and sporadically through summer and may be available year-round if warmer weather persists.

Habitat: Nationwide. Temperate areas; in or near seeps and springs, along the margins of slow-moving, muck-bottomed streams and creeks.

Food: Watercress is from the mustard family, and its taste is spicy and pungent. Harvest watercress from a clean water source, then cook it. You may pull watercress out by its roots and replant it in your garden. Keep it wet and it will reward you with peppery leaves. It is one of the main ingredients in V8 vegetable juice. Watercress is great in Italian dishes: Try it mixed half and half with spinach in spinach lasagna. Sources near me provide edible leaves year-round.

Traditional uses: The pharmaceutical record all the way back to Hippocrates

Watercress, *Nasturtium officinale*

describes watercress as a heart tonic, stimulating expectorant, and digestive. It is good for coughs, colds, and bronchitis, and it relieves gas. As a diuretic it releases fluid retention and cleanses the kidneys and bladder. Mexicans revere this plant as a spring tonic. It is dampened and then grilled over charcoal.

Modern uses: Watercress is a good source of vitamins, minerals, and isothiocyanate (antioxidant). Watercress in 8 ounces of V8 cocktail juice provides two servings of vegetables. This cocktail has the right chemistry to provide protection from cancer. Watercress is Commission E–approved to treat coughs and bronchitis.

Notes: Watercress, often found growing wild in questionable water sources, should be relocated to your garden.

Keep it well watered and it will cleanse itself. There is a secret place near me, a spring, with more than 3 acres of solid watercress. It is a multimillion-dollar crop living out its life in a hallowed sanctuary. Be careful when harvesting. I once stepped into a seemingly 3-inch flowing water source and sank to my waist. It was snowing and by the time I mucked out of the hole, my core temperature was dropping. After stripping naked and squeezing the excess water out of my clothes (about 20 pounds' worth) I ran the mile back to my truck to survive the embarrassment.

Veterinarian/Wildlife: Mats of watercress are habitats for snails, insect larvae, and frogs. These creatures attract fish. Should you find a mat on your favorite trout stream, approach cautiously and expect to be surprised.

Horsetail

Equisetaceae (*Equisetum hyemale* L.; *E. arvense* L.)

Identification: Perennial to 3′ or 5′ in height. Appears in the spring as a naked segmented stem with a dry-tipped sporangium (spores may be shaken from it). Later the sterile-stage stem arises, with many long needlelike branches arranged in whorls up the stem. Also known as scouring rush or equisetum.

Habitat: Nationwide. Around marshes, fens, bogs, streams, lakes, rivers.

Food: American Indians of the Northwest eat the plant's tender young shoots as a blood purifier (tonic). The strobili (tips) are boiled and eaten in Japan. Mix them with rice wine vinegar, ginger, and soy and enjoy. The roots are eaten by American Indians in the Southwest.

Traditional uses: Mexican Americans use the dried aerial plant parts of horsetail in infusion or decoction to treat painful urination. Equisetonin and bioflavonoids in the plant may account for its diuretic effect. American Indians used a poultice of the stem to treat rashes

Horsetail, *Equisetum hyemale*

of the armpit and groin. An infusion of the stem was used by the Blackfoot Indians as a diuretic. Cherokees used the aerial-part infusion to treat coughs in their horses. An infusion of the plant was used to treat dropsy, backaches, cuts, and sores. Baths of the herb were reported to treat syphilis and gonorrhea.

This is one of the First Peoples' most widely used herbs.

Modern uses: Commission E–approved externally for wounds and burns and internally for urinary tract infections and kidney and bladder stones. Available over the counter.

CAUTION: An overdose of the herb may be toxic. Use only under the supervision of a skilled holistic health-care professional.

Notes: When we were kids, my brother and I called this plant snakeweed. The segmented stem can be pulled apart and put back together at the joints to make necklaces and bracelets. This fast-spreading garden plant does well in the shade or sun and makes an interesting addition to a flower arrangement, albeit a wandering denizen traipsing here and there through your garden. Use the stems to clean pots and pans when camping because it is high in silica.

Veterinarian/Wildlife: Ingestion of horsetail by grazing animals has caused weight loss, weakness, ataxia, fever, and other symptoms. The Meskwaki peoples fed the plant to wild geese and claimed it fattened them within weeks.

Angelica

Apiaceae (*Angelica atropurpurea* L.)

Identification: Biennial to 9′. Stem thick, erect, purple. Large compound leaves divided into three to five leaflets with hollow petioles. Upper leaves sheathed as they emerge; sheath remains around the base of the petioles. Greenish-white flowers grow in umbrellalike clusters 4″ to 6″ in diameter. Flower somewhat similar to poison hemlock, be circumspect in your identification.

Habitat: Northern tier of United States, specifically east of Mississippi River. Wet lowlands, along streams, rivers, roadsides.

Food: Whereas there is little literature on the edibility of *A. atropurpurea*, a similar Chinese herb, *A. sinensis* (dong quai), is eaten as root slices added to stir-fries or soups. A favorite eye-opener and "lip flapper" is a yin and yang cordial. To prepare it, combine 100 grams of *A. sinensis* root (typically available at an Asian market or drugstore) with 100 grams of whole ginseng root. Add this to a half liter of peppermint schnapps. Saponins (phytosterols), including phytoestrogens, are drawn from the roots into the schnapps. It takes at least three weeks to get a good tincture. I use the cordial as an aperitif that balances yin and yang and boosts energy. Laplanders supposedly eat the cooked roots of *A. atropurpurea*.

Angelica, *Angelica atropurpurea*

Traditional uses: American Indians used *A. atropurpurea* root decoctions to treat rheumatism, chills and fevers, and flatulence and as a gargle for sore

throat. It was often used in sweat lodge ceremonies for treating arthritis, headaches, frostbite, and hypothermia. The root was smashed and applied externally as a poultice to relieve pain. *A. sinensis* and *A. atropurpurea* are used differently in Asian and Western traditions, and there are minor chemical differences between the plants too. Unless stated otherwise, assume the uses described next are for *A. sinensis*, which may be purchased from herbs.com as seed or as dried roots from health-food stores and Asian markets. The root, a warming tonic, is the number-one female herb in traditional Chinese herbal medicine; it is used to treat menstrual cramps and may improve scanty menstrual flow. As an antispasmodic it is reported helpful in reducing angina. Like other members of the Apiaceae plant family, angelica contains calcium channel blockers, similar to the drugs used to treat angina and blood pressure. According to Chinese practitioners, angelica improves peripheral circulation to distal parts of body.

Modern uses: German holistic healthcare professionals prescribe 3 teaspoons of dried *A. sinensis* infused in water to treat heartburn and indigestion. *A. sinensis* also is used by European professionals for treating colic. American naturopathic physicians use both species; seek out a holistic naturapathic practitioner for professional advice.

Notes: Angelica roots are used as a flavoring agent for vodka, gin, cooked fish, and various jams.

Veterinarian/Wildlife: Oil from the root attracts fruit flies. Angelica is pollinated by bees, flies, and beetles. The fruit is crushed and decocted as a wash to kill head lice; a few use it on their pets.

Balmony

Scrophuariaceae (*Chelone glabra* L.)

Identification: Wetland dweller from 3′ to 5′ with a white, showy flower (with pink tinge) that blooms in late summer. Flower, 1.5″ to 2″ long, is two-lipped, snapdragon-like, and looks like the shell of a turtle. Leaves are opposite, coarsely toothed, lance shaped and dark green on a smooth stem. Seeds are round and bitter. Also known as turtlehead.

Habitat: Moist areas, fringes of bogs, lakes and streams east of the plains states—Northeastern United States south to Alabama, Georgia, Mississippi. Often found with Joe-Pye weed and boneset.

Balmony or turtlehead, *Chelone glabra*

Food: Not known to be edible.

Traditional uses: Cherokee used the plant to treat worms. Smashed roots infused to yield anti-witchcraft potion. Also used as a dietary aid to increase appetite due to its bitter taste. Various eastern American Indian nations used the herb to reduce fevers and as a laxative (Moerman 1998, 154). The ointment of the aerial parts of the plant was used to treat ulcers, painful breasts, and inflamed tumors.

Modern uses: Homeopathic preparation of above-ground parts of plant are used by homeopaths to treat liver and digestive orders, including worm infestation. Available in homeopathic doses. Other traditional uses may still be applied by holistic practitioners.

Notes: A lovely addition to a moist garden spot. Large, showy blooms and will tolerate some shade. Chelone was a Greek nymph, a mythological human who was punished by the gods and turned into a turtle.

Veterinarian/Wildlife: Frequented by butterflies. Eaten by deer and small mammals.

Blue Flag

Iridaceae (*Iris versicolor* L.)

Identification: Perennial iris to 3′ in height. Stems erect, flat, with gray-blue tint. Leaves sword shaped. Flower orchid-like (irregular), blue to violet. Also known as wild iris.

Habitat: Widely distributed east of the Mississippi; also found in the northern tier of western states and southern Canada. Damp marshes, fens, bogs, along streams, edges of lakes. It transplants to the garden and is resplendent.

Food: Not edible.

Traditional uses: The poisonous rhizome was prized by American Indians as a purgative: It is emetic, cathartic, and diuretic. A decoction of the root was used externally to treat sores and wounds, and taken internally to treat colds, cholera, and earache. Algonquins applied smashed roots to burns and used them as a poultice for wounds. Chippewas poulticed the root over swellings and

Blue flag, *Iris versicolor*

sores, including scrofulous sores caused by tuberculosis. The root decoction was used for arthritis and kidney disorders. The Malecite peoples infused iris with bulrush as a gargle for sore throat. Other tribes mixed the smashed root with flour and applied it to painful areas. The Omaha tribe would masticate a root hair, dip it in water, and let the resultant juice drip into the ear to treat earache. According to *Native American Ethnobotany*, the plant was viewed as a panacea, good for almost every complaint (Moerman 1998).

Modern uses: Naturopaths use homeopathic concentrations from the rhizome and root hairs to increase urination and bile production and as a mild laxative. Blue flag is given in homeopathic doses to treat indigestion and skin problems related to liver and gallbladder disease. The herb stimulates these organs, cleanses the body, and is reported to relieve acne, eczema, and other skin disorders related to constipation induced by gallbladder insufficiency. It's also used to treat headaches and respiratory disorders. A few believe it to be a weight-loss aid.

CAUTION: Overdose of blue flag may induce vomiting. Never use this plant during pregnancy. The plant juice is a skin and digestive irritant.

Notes: Prior to bloom time, wild iris can be confused with edible cattail shoots. Remember that cattail stems do not have the gray to blue tint and are rounded instead of flat. For details see *Basic Essentials Edible Wild Plants* (Meuninck 2006) or *Herbal Odyssey* (Meuninck 2007).

Veterinarian/Wildlife: Traditionally wild iris has been used for farm animals as a tonic to treat liver problems, jaundice, gallbladder problems, and as a laxative. A standard infusion is made by steeping 1 tablespoon the dried rootstock in 1 cup water, then administering 1 tablespoon of the liquid at a time twice daily. An alternative preparation was to steep dried root in wine for a half day to produce an extract and then administer 1 tablespoon twice during the day. Before using the product, consult a holistic veterinarian who is familiar with the plant and can assure you that its toxicity won't hurt your animal (visit earthnotes.tripod.com/blueflag.htm).

Jewelweed

Basalminaceae (*Impatiens capensis* Meerb.)

Identification: Fleshy, succulent annual to 7′ in height. Grows in dense colonies. Stems simple, light green, almost translucent, with swollen nodes. Leaves deep green, thin, ovate, with five to fourteen teeth. Flowers 0.5″ to 0.75″ in length; orange yellow with reddish brown spots; spur shaped, irregular, with the spur curving back, lying parallel to the sac. Fruit is oblong capsule that when ripe bursts open and disperses the seeds (thus its alternate common name, spotted touch-me-not).

Habitat: Widespread east of the Rockies; incidental in the west. Found as a dense ground cover in lowlands, wetlands, fens; along edges of lakes, streams, and bogs.

Jewelweed, *Impatiens capensis*

Food: Eat the small flowers of summer in salads and stir-fries. The young shoots of spring quickly form a complete ground

cover in wet lowlands and along streams, wetlands, and lakes. Pick the shoots and add them to your mushroom soup and egg dishes, or stir-fry or sauté them with spring vegetables.

Traditional uses: As a traditional treatment for poison ivy, crush and rub the aerial parts of jewelweed over the inflamed area—the plant juices immediately reduce itching as well as inflammation. Jewelweed was used by American Indians for treating dyspepsia, measles, and hives. The Creek Indians used an infusion of smashed spicebush berries and jewelweed as a bath for congestive heart failure. The crushed flowers were used on bruises, cuts, and burns.

Modern uses: The whole herb infused as an appetite stimulant and diuretic. Naturopaths administer it to treat dyspepsia. It is an effective anti-inflammatory indicated for the relief of poison ivy, poison oak, poison sumac, and other inflammatory skin conditions: not always a cure but a cooling treatment.

Notes: I grow jewelweed in my garden for greens, edible flowers, and its anti-inflammatory effect on poison ivy, poison sumac, and poison oak. To treat poison ivy, simply crush the aerial parts of the plant and rub them on the rash. Gather jewelweed seeds in fall and spread in a low-lying area of your garden, then get out of the way. It's aggressive and will spread. In the wild it grows in dense colonies often with stinging nettle.

Veterinarian/Wildlife: Jewelweed provides good cover and nesting sites for field sparrows. It may be helpful as a wash for skin inflammations on pets.

Boneset

Asteraceae (*Eupatorium perfoliatum* L.)

Identification: Perennial to 5′ in height. Plant rises from hairy, horizontal rootstock. Stems and leaves hairy, rough. Leaves opposite, to 7″ in length, lance shaped, tapering to a point, fused around the stem at the base. The stem appears to grow through the fused leaf. White flowers are florets that form large convex head at the top of the plant. Fruit is tufted.

Habitat: Eastern United States. Thickets and wetlands, open wet prairies, marshes.

Food: Not edible.

Traditional uses: The leaf tea was considered an excellent nineteenth-century remedy to break fevers associated with acute infections. The leaf tea was considered immune stimulating and used to treat colds, influenza, malaria, arthritis, painful joints, pneumonia, and gout and to induce sweating. Whole aerial parts of plant were applied as a poultice to relieve

Boneset, *Eupatorium perfoliatum*

Boneset stem appears to grow through the leaves.

edema, swellings, and tumors. This American Indian cure-all was poulticed over bone breaks to help set bones. Taken internally the infusion of the aerial parts was cathartic and emetic. The infusion was also used as a gargle to treat sore throat. Other uses included treating hemorrhoids, stomach pain, and headache; reducing chills; and alleviating urinary problems. For more information see my CD *Herbal Odyssey* (Meuninck 2007).

Modern uses: Homeopaths use a microdose to treat colds, flu, and other febrile conditions. The dried and commuted aerial parts of the herb infused in water are reported to be immunostimulating and are taken to fight colds, infections, flu, and other acute infections. These remedies are not supported by scientific studies.

CAUTION: Small doses (but larger than homeopathic prescriptions) of the herb are laxative and diuretic, whereas larger doses may induce catharsis and vomiting. Pyrrolizidine alkaloids present in this plant make it potentially dangerous to consume in any form, as these alkaloids have a liver-destroying capacity. Never use boneset without the consultation of a licensed holistic health-care practitioner.

Notes: A striking white flower head makes this plant worth adding to your garden. It provides late-season beauty.

Veterinarian/Wildlife: Grazing animals have displayed toxicity from eating this plant. Symptoms included drooling, nausea, loss of appetite, weakness, thirst, loss of muscular control, paralysis, and death.

Joe-Pye Weed

Asteraceae (*Etrochium purpureum* L. La Mont; *E. maculatum* L.)

Identification: Perennials to 5′ tall in the northern range, and up to 10′ in the southern states. It grows from a rhizome on a stout stem, topped with flower heads that are domed to flat topped. Flowers are pink to purple tubular-shaped disks. Leaves are lance shaped and in whorls, up to seven in a whorl, each leaf toothed, rough and hairy to the touch.

Joe-Pye weed

Another species is spotted Joe-Pye weed (*E. maculatum*).

Habitat: Marsh, wetlands, fringes of wetlands, seeps, lakesides on damp ground, primarily eastern United States and eastern Canada.

Food: Not generally edible. Some American Indian tribes used the root ash as a spice or as a salt substitute and as a healing tea. Aerial parts and roots drunk as a medicinal tea to treat infections and colds.

Traditional uses: Used to treat typhus in colonial America. American Indians used it as a revitalizing tonic to relieve constipation and as a diuretic to treat kidney stones and other urinary tract problems. Tea was used as a wash on infections to cleanse and promote healing. The root of *E. purpureum* is preferred as medicine and was also used by the Meskwakis as an aphrodisiac (they sucked on the root while wooing a man or woman). The root decoction was used to treat bed-wetting in children and as a diuretic to treat congestive heart failure (dropsy). The tea was used for treating asthma. American Indians used both species for treating menstrual disorders and dysmenorrhea and as a recovery tea for women after pregnancy. *E. purpureum* was used by Cherokees to treat rheumatism and arthritis and as a diuretic. An infusion of the root is said to be a laxative. Potawatomi used fresh leaves as a wound poultice. Navajos used the root as antidote to poisoning.

Modern uses: Hot infusions of the aerial parts are used by naturopaths to treat colds, fever, and arthritis. The plant is said to be antimicrobial and to induce sweating, loosen phlegm, and induce coughing to remove mucus. It is also used as a tonic and laxative to rid the body of worms.

CAUTION: This herb is no longer used with pregnant and lactating mothers.

Notes: Found in abundance in southwest Michigan but rarely harvested and used. Joe Pye, spelled historically Jopi, was a American Indian healer who introduced the plant to the colonists to treat typhus fever caused by the *Rickettsia* bacteria. When carrying the *E. maculatum* species, Cherokees and other tribes used the hollow stems like straws. This plant is a striking late-summer bloomer worth adding to your wildflower garden.

Veterinarian/Wildlife: Joe-Pye weed attracts butterflies and easily transplants to the garden. Watch for viceroys and their look-alike, monarchs.

Bittersweet Nightshade

Solanaceae (*Solanum dulcamara* L.)

Identification: Climbing vine to about 10′ in length. Short petioled leaves are dark green, lobed, alternate. Flowers in summer. Purple rocket-shaped flowers. Fruit 0.25″ to 0.5″, reddish orange, appears in fall. Member of the potato and tomato family. Also known as climbing nightshade.

Habitat: Nationwide. Along streams, ditches, thickets, lakeshores, and bogs. Often clings to willow and other shrubs.

Bittersweet nightshade, *Solanum dulcamara*

Food: Not edible. Berries are toxic and must be avoided.

Traditional uses: The roots were infused by American Indians to treat nausea and were mixed with an unspecified herb to treat gas and taken as an antiemetic. Its external use is documented in the form of an oil-based salve. It has long been considered an anticancer drug, but this is not proven.

Modern uses: Commission E–approved for treating warts, acne, eczema, and furuncles. Holistic practitioners have used the herb infusion for arthritis, gout, and respiratory problems, including bronchitis and coughing. Seek professional consultation and oversight when considering this herb. Research suggests the herb has anticancer chemistry.

CAUTION: Bittersweet nightshade is considered toxic, although it is rarely fatal. I have never tried the herb and therefore cannot recommend it. Definitely do not take during pregnancy and while nursing.

Notes: The herb can be gathered in the fall of the year. It makes an attractive seasonal decoration, albeit one that should be kept away from young children who may be attracted to the berries.

Veterinarian/Wildlife: Wildlife and domestic animals may be adversely affected by the toxins in the plant. It's a preferred habitat for cardinals.

Sweet Flag

Acoraceae (*Acorus calamus* L.)

Identification: Perennial about 2′ tall. Grows from a rhizome. Stem composed of long swordlike leaves arranged in two rows. Flowers green, on a clublike spadix. Entire plant has intense sweet aroma. Grows in large colonies. Also known by its species name, calamus.

Habitat: Typically east of the Mississippi. Wetlands, along creeks, marshes, lakes, streams, springs, and seeps.

Sweet flag, *Acorus calamus*

Food: Not edible.

Traditional uses: Sweet flag is considered the number-one herb both for medicine and ritual use among seven eastern American Indian tribes. The root is a sialagogue; that is, it induces mouth glands to secrete juices. During the Sun Dance ceremony, when First People may sing for ten hours or more, they put a piece of calamus root between cheek and gum to keep their throats moist. Sweet flag leaf garlands were used by American Indians as fragrant necklaces to mask body odors. The root tea is an appetite stimulant. The aromatic, bitter root was considered a stomach tonic to treat dyspepsia and gastritis. The root was chewed for toothache. Considered for centuries to be a fine nervine, sedative, and relaxant, the root was traditionally chewed or used in decoction by pioneers to treat colds, coughs, fevers, children's colic, and congestion. The dried and powdered rhizome was inhaled to treat congestion. It was considered an antispasmodic, anticonvulsant, and possible central nervous system depressant.

Modern uses: The extract from the peeled and dried rhizome is considered a carminative, tonic, antispasmodic, and stimulant. It increases sweating. In-vitro studies suggest it is anticlotting and that it may aid in treating aggressive and impulsive behavior. The extract is considered antispasmodic and sedative. In Traditional Chinese Medicine the root extract is used internally to treat gastrointestinal complaints and externally to treat fungal infections. The Asian variety is still considered an aphrodisiac. Triploid strains in Europe and the United States are sometimes used to treat ulcers. The triploid strain produces about one-third the amount of beta asarone as the tetraploid strain from India known as kalmus root oil. (Beta asarone is considered carcinogenic.) *A. calamus* var. *americanus* is still used as a bitters to relieve stomach spasms and a distended stomach with concurrent headache associated with poor digestion. According to the *Encyclopedia of Medicinal Plants* (Chevallier 1996), *A. calamus* var. *americanus* does not contain asarone. Animal studies suggest the root extract may lower serum cholesterol.

CAUTION: Beta asarone is a component of *A. calamus,* which when taken in ample amounts over time is carcinogenic to laboratory animals. Therapeutic doses of the triploid strain should be monitored. Avoid long-term use. Use only under the administration of a skilled holistic healthcare practitioner. Follow recommended dosages on the package.

Notes: A few herbalists chew or suck the dried root to keep them awake on long drives. I like to put about a pound of the fresh, crushed and chopped root in a pair of pantyhose and submerge it in a hot bath or Jacuzzi—it's aromatic and relaxing. If you don't want to kill the plant, crush only leaves and put them in the pantyhose and submerge. In foreign countries the dried, ground rhizome and root hairs are used as a spice and fragrance in food, but because of the beta asarone content, this use is not allowed in the United States. The plant is an interesting addition to the garden, an exotic aromatic used in flower arranging. A particularly striking stand is found along the

north side of US Highway 12 just east of White Pigeon, Michigan. Sweet flag has been used by the Potowatomi Nation for hundreds of years.

Veterinarian/Wildlife: The root fragrance may repel some insects, lice, and rodents, but has no effect on the movement of rogue cats and dogs through my yard!

Gentian

Gentianaceae (Numerous species: *Gentiana andrewsii* Griseb.; *G. crinita* Froel. M)

Identification: Gentian (*G. andrewsii*) is a perennial to 30″ in height, generally shorter. Stem has four ridges, with clasping oval leaves that embrace the clusters of blue flowers. Fringed gentian (*G. crinita*) has a conspicuous fringe atop the petals and is slightly smaller.

Habitat: Both plants are eastern species found in wet woods, moist fields around wetlands, wet edges of older growth forests, and seeps.

Fringed gentian

Gentian, *Gentiana andrewsii*

Food: Not edible. One European species is said to be an ingredient of Angostura bitters.

Traditional uses: Tea and tincture, a traditional bitters, were used as a tonic, a cooling herb that stimulates digestion and strengthens appetite by means of its bitter taste. Gentian is said to ease stomach pain. The Potawatomi used the herb to treat snakebite. The water made by boiling the root was applied externally to treat backache. Several sources report that pioneers ate the root to stimulate appetite and drank a tea from the aerial parts to aid digestion.

Modern uses: Both European and American species are an effective bitters, a liver stimulant and stimulating to the entire digestive system: increasing peristalsis and digestive secretions and promoting improved digestion, assimilation, and elimination. The extract, a constituent in digestives, may be purchased

at health-food stores here and in Europe; ask for a stomach bitters with gentian. *Gentian lutea* extract also has potential for treating diabetes: In a laboratory study, *G. lutea* extract inhibited the production of aldose reductase and subsequently sorbitol, opening the door for more research on the extract's potential to prevent various secondary complications from diabetes (Akileshwari et al. 2012).

Notes: I once saved a stand of fringed gentian that was about to be plowed under to make way for a housing development. These striking plants are most conspicuous in the fall of the year—a rare sight.

Veterinarian/Wildlife: Ask your veterinarian about using gentian to treat lack of appetite, sluggish digestion, indigestion, and flatulence and to stimulate the liver for your pets.

Lobelia

Campanulaceae (*Lobelia siphilitica* L.; *Lobelia cardinalis* L.)

Identification: *L. siphilitica* is a perennial 3″ to 4″ tall. Oval leaves. Flower distinctive, birdlike, typically blue to blue lavender, throat of corolla white striped. Cardinal flower (*L. cardinalis*) has similar birdlike features but is red (see photos) and not as widely distributed.

Habitat: Numerous species from coast to coast, including subalpine varieties. *L. siphilitica* is found in moist areas, streamsides, bogs, fens, wetlands of all sorts. Cardinal flower is primarily an eastern and southeastern plant, found as far south as Colombia, South America.

Food: Not used as food; toxic.

Traditional uses: Lobelia was used to induce vomiting and increase respiration and as a narcotic and analgesic (to treat toothache). *L. siphilitica* was used with *Podophyllum peltatum* (mayapple) to treat venereal diseases. Various species of lobelia were used for treating dysentery, cirrhosis, gastroenteritis, edema, eczema, and schistomiasis. A poultice of root was rubbed on sore neck and back muscles. Both roots and leaves were used as an external detoxifier and analgesic on bites and stings, boils, and sores. A cold infusion of the plant was considered a strong emetic. Lobelia is considered a cure for cigarette smoking, but fatalities may have occurred where

Lobelia, *Lobelia siphilitica*

Cardinal flower

the practitioner was not skilled in the use of the herb. Emetic, expectorant and nervine. The root is analgesic, anthelmintic, antispasmodic and stomachic. A tea made from the roots has been used in the treatment of epilepsy, syphilis, typhoid, stomachaches, cramps, worms etc. A poultice of the roots has been applied to sores that are hard to heal. The leaves are analgesic and febrifuge. A tea made from the leaves is used in the treatment of croup, nosebleeds, colds, fevers, headaches. A poultice of the leaves has been applied to the head to relieve headache. Cardinal flower was used traditionally in the same way as *L. siphilitica* and *L. inflata*. A few sources suggest that cardinal flower has only modest biological activity.

Modern uses: Alkaloids derived from various lobelia species have been patented. These include lobeline, lobelanidine, lobelanine, and their various salts. These patented chemicals are potential drugs in treating psychostimulant abuse and eating disorders. The drugs might be used to treat abuse of smoking (nicotine unproven), cocaine, amphetamines, caffeine, opiates, barbiturates, benzodiazepines, cannabinoids, hallucinogens, alcohol, and phencyclidine.

Cardinal flower and other lobelia species are being studied for their potential to treat nervous disorders. In a 2012 animal study published in the *Asian Pacific Journal of Tropical Medicine*, lobelia stopped convulsions in epileptic mice by enhancing the GABA release mechanism in the brain (Brad 2012).

CAUTION: This is a very potent and potentially toxic herb. Do not experiment with it. Consult your holistic health-care practitioner.

Notes: Lobelia varieties are found from coast to coast. In western mountains the high-altitude species are much smaller in size and abundant near and above the tree line in the Sierras and the Coastal Ranges. *L. siphilitica* may be transplanted to a moist, semi-shaded area of your garden.

Veterinarian/Wildlife: A wound treatment formula called Power Dust contains lobelia extract and is used to treat wounds in horses. Cardinal flower is frequently visited by the ruby-throated hummingbird, one of the plant's primary pollinators.

Sweetgrass

Poaceae (*Hierochloe odorata* L.)

Identification: Grass 18″ to 20″ tall. Shiny green with solitary stems, purplish base attached to a long adventitious rhizome. Flower inconspicuous, golden yellow, tulip shaped. Crushed leaf emits a distinctive sweet fragrance. Also known as holy grass or vanilla grass.

Habitat: Primarily in the East. Moist meadows, stream banks, bog edges. Prefers sunny locations. Cultivated by American Indians for ritual use (sweeping and smudging).

Food: Sweetgrass is used in Europe to flavor liqueurs and vodkas. The grain is probably edible, but little information about it is available. The plant contains coumarin, an anti–platelet aggregating compound that may cause excessive bleeding. Sweetgrass oil (coumarin free) is used as a flavoring for candy, soft drinks, alcoholic drinks, and even tea and perfume. Tobacco chews are flavored with the grass, and American Indians mix the grass with tobacco. Leaf tea is used to treat coughs and sore throat.

Traditional uses: Many American Indian nations use sweetgrass for spiritual healing. They burn the grass and dispense smoke (a process known as smudging) and sweep (brush) with the grass. An infusion is used internally to treat sore throats and coughs and externally as a wash for vaginal disorders, chafing, or venereal diseases. In Europe it was used in perfumes and sachets and strewn on church steps on saints' days.

Modern uses: Sweetgrass is still used by many Indian nations as a cleansing and purifying agent in ceremonies, including sweat lodges. It is considered a soft, pliable female plant and is used as such in sweat lodges, smudging and sweeping to bring in the good spirits and refresh the soul. Some American Indians weave the grass into baskets.

Sweetgrass, *Hierochloe odorata*

CAUTION: Internal use of sweetgrass should be avoided due to the presence of blood-thinning coumarins.

Notes: Sweetgrass must be contained in the garden because it is invasive. An American Indian friend gave me a start of this sweetly fragrant grass. I placed it in a metal tub to contain its explosive growth. Sweetgrass is great when used in a hot tub, sauna, or sweat lodge. Put a bundle of fresh or dried grass in a sock or pair of pantyhose and immerse the bundle in the tub.

Veterinarian/Wildlife: Flathead First People of the Northwest use sweetgrass as an insect repellent. It can be grown

around an odorous pigsty to combat the stench. Although sweetgrass contains coumarins, it is safely made into hay for grazing animals.

Cranberry

Ericaceae (*Vaccinium oxycoccus* L.)

Identification: Dwarf evergreen shrub 5″ to 15″ tall, but more likely a low-lying creeper weaving its way through bogs on slender stems. Bark hairy to smooth, brown to black in color. Flowers pink; solitary or in couplets, rarely three; nodding, with petals sharply bent backwards like shooting stars. Fruit color ranges from pink to red, depending on ripeness. Small berries are juicy and very tart.

Habitat: Nationwide in the upper tier of states. Along the floor of sphagnum bogs, in hummocks and wet alpine meadows to elevations of 6,000 to 7,000 feet.

Food: You've tried cranberries with turkey, now try them in your favorite apple crisp recipe—add black walnuts and invite me over. Cranberries also spark up persimmon pudding.

Traditional uses: The berries and berry juice were used as therapy for urinary tract infections—they were reported to acidify urine. Some claim that cranberry helps remove kidney stones. The juice was also used to treat bladder infections and to prevent recurrence of urinary stones. It contains vitamin C and prevents scurvy.

Modern uses: A study showed drinking the juice may prevent adhesion of *Escherichia coli* to the linings of the gut, bladder, and urinary tract, thus preventing the bacterium from multiplying and inducing disease. In another study 16 ounces of

Cranberry, *Vaccinium oxycoccus*

cranberry juice was shown to be 73 percent effective against urinary tract infections. A double-blind placebo-controlled study, however, showed cranberry supplements in pill form were ineffective against urinary tract infections (Linsenmyer et al. 2004). Cranberry juice also functions as a urine acidifier. Cranberries and cranberry juice are used to decrease the odor and degradation of urine in incontinent patients. In one small study 305 grams of cooked cranberries proved effective in decreasing pH from 6.4 to 5.3. In other tests juice showed little effect on pH levels. However, there is evidence that using the concentrated (no sugar added) juice with antibiotics may help suppress urinary tract infections. I have taken 1 ounce of the 100 percent extract in 6 ounces of water and effectively relieved a urinary tract infection. Of course, this may or may not work for you. The required amount of cranberries or cranberry extract to treat bladder infections and

stones has not been established. Seek consultation from your holistic health-care professional.

Notes: There are a couple cranberry bogs in my neighborhood. In October the berries ripen. I dry them in a food dryer or cook them fresh. They are tart and have many benefits. A popular over-the-counter cranberry cocktail juice contains too much sugar. It is prudent to take cranberry extract in pure 100 percent cranberry juice concentrate, add water, and sweeten it very little or not at all.

Veterinarian/Wildlife: Cranberry is a preferred food of ruffed grouse and cedar waxwing and twenty other species of birds. Fruits hang on the stems throughout the winter and serve as emergency food when other sources are not available. Dead cranberry brush provides valuable cover and nesting sites for birds. NaturVet Bladder Support is a veterinarian-formulated cranberry product providing nutritional support that helps to control maladies of your pet's urogenital system. Cranberry helps to minimize bacterial colonization of the bladder mucosa.

Beach Wormwood

Asteraceae (*Artemisia campestris* L. subsp. *caudata* [Michx.] H.M. Hall & Clem.)

Identification: *Artemisia* species comprise numerous plants found worldwide. *A. campestris* is not aromatic, unlike many other *artemisia*s. It is a biennial, a second-year flowering plant or a short-lived perennial. First-year leaves are a basal rosette, each leaf up to 4″ long and 3″ wide. Leaves are deeply divided with narrow, linear lobes; color is grayish blue. Upper mature (second-year) leaves have a green undersurface and whitish-green top. On the mature plant, leaves get smaller and more deeply cut or linear toward the top of the plant. Leaves are hairy at first and become smooth as they mature. Stems are branched, light green to red in color. Young stem ends are matte with fine hairs. The cobweb-like hairs disappear as the stem grows. Also known as dune wormwood or field sagewort.

Artemisia campestris in Warren Dunes, Michigan

Habitat: In Michigan, frequently found in Great Lakes dunes area. Widely dispersed, however, from coast to coast and south to Texas and north into Canada. Away from dunes, search on dry roadsides, sides of hills, and other dry, sandy areas.

Food: Not edible (see Caution). The leaves of *Artemisia* species are often made into bitter teas to treat indigestion. Absinthe from other *Artemisia* species is used to flavor vermouth and other spirits, including the cordial absinthe.

Traditional uses: People from the Tewa Nation chewed and swallowed juice to relieve gas and upset stomach. Leaf infusion was also used to treat fever and chills (Moerman 1998, 93). Numerous people and holistic practitioners have used the plant as medicine for thousands of years, particularly popular in Europe and China.

Modern uses: Thujone and artemisinin are anthelmintic, that is, they kill intestinal worms (including the malaria falciparum) and other parasites. In Europe, wormwood (*Artemisia*) is used as a stomach bitters and digestive (an after-dinner drink, such as vermouth or absinthe, that relieves indigestion). Artimisinin, a synthetic derivative from sweet wormwood (*Artemisia annua*) is used to control malaria and other parasites. Tu Youyou, who discovered this use, was awarded the Nobel Prize in 2015. A recent clinical trial showed artimisin to be 97 percent effective against noncomplicated cases of malaria (Ménard et al. 2007).

CAUTION: Thujone in Artemisia is a GABA antagonist—in large amounts it blocks gamma amino butyric acid, which can lead to seizures and even death. *Artemisia* chemistry is toxic in a large enough dose, and the amount of *Artemisia* extract used in alcoholic drinks is government controlled.

Notes: Many years ago I sipped absinthe, a drink made from *Artemisia*, at a sidewalk café in Paris, feeling pretty cool, James Bond–like. (I was, however, not James Bond–like and not pretty cool. In fact, I wasn't cool at all.) A friend of mine takes artemisinin pills to treat intestinal parasites with good results. I have a plant in the window and feel endeared to it.

Veterinarian/Wildlife: Wormwood extracts are used to treat worm infestations in domestic animals. For details: buckmountainbotanicals.net/treatments/wormwood.html. This is not an endorsement of the product but information that may be usefully explored. There may be benefits for using *Artemisia* as a companion plant among vegetables and flowers. It is an attractive and unusual houseplant and garden plant.

Wild Cucumber

Cucurbitaceae (Echinocystis lobata)

Identification: Wild cucumber is a native annual, a clinging vine that grows tall and long to 26′. It has pale yellowish-white star-shaped flowers, typically five petals. The leaves are shaped like cucumber or squash leaves, and are hand-sized. Flowers show from July to September and are monoecious with either male or female (or both sexes) on the same plant. It is insect pollinated or self-fertilized.

Habitat: The plant is widely distributed throughout Southern Canada and the United States where water is readily available. Wet places that experience spring

Echinocytis in bloom

flooding are ideal, providing both moisture and fresh deposits of silt. See them clinging to trees and shrubs.

Edible uses: None.

CAUTION: Avoid eating any part of this plant.

Traditional uses: The plant has been used medicinally by American Indians of New Mexico to treat rheumatism. Central and eastern tribes, including the Menominee of Wisconsin, made a bitter decoction from the roots to use as a love potion and as a pain-relieving analgesic. The powdered root was wetted and applied as a poultice to relieve headaches. The root decoction from the plant was used to treat kidney and stomach ailments.

Modern uses: The traditional uses are still practiced. None of the medicinal uses have been proven with double-blind, placebo-controlled trials.

Notes: The fruit is striking. The seeds are made into beads. And the female flower has an ovary that looks like a miniature fruit. Wild cucumber is also known as balsam apple, prickly cucumber, wild balsam apple, wild mock cucumber.

Veterinary/Wildlife: Deer resistant. Pollinated by bees and flies. Terrific spider habitat.

CHAPTER 5

Woody Wetland Plants

If you are against a dam, you are for a river!

—DAVID R. BROWER, IN JOHN MCPHEE,
ENCOUNTERS WITH THE ARCHDRUID, 1971

This chapter looks at trees, shrubs, and vines of lowland areas, wetlands, lakes, and streams, several of which are found coast to coast.

Willows

Salicaceae (*Salix* spp.: *S. alba* L.; *S. nigra* Marsh)

Identification: Tree or shrub from 10′ to over 100′ with lancelike fine-toothed leaves; yellow male flowers and green female flowers in the form of densely blossomed catkins. White willow (*S. alba*), sometimes called weeping willow, has drooping branches. Black willow (*S. nigra*) is erect, large with shedding branches. Both prefer wet ground and are considered dirty trees in that they constantly shed branches, flowers, and leaves.

Habitat: Nationwide north to the Arctic. Marshy areas, mountain streams, thickets, lakeshores, along streams and rivers.

Food: A tea can be made from the twig bark that contains salicin (an aspirin-like compound). Use the tea with extreme care, as salicin and other chemicals released by the infusion may damage your health (see caution).

Black willow blooming, Painter Marsh, Michigan

Traditional uses: American Indians used the bark of twigs and new growth in decoction to treat tendonitis, arthritis,

headaches, and bursitis. An infusion of the stem and leaves releases salicin, the natural chemical model for synthetic aspirin. Aspirin may help prevent acute infections, cancer, strokes, and heart attacks. It may help boost immunity, but it does have numerous side effects and may aggravate ulcers and cause intestinal bleeding.

Modern uses: The extraction, although infrequently used from the tree, is Commission E–approved for treating pain and rheumatism. Plant extract has anti-inflammatory and analgesic activity. Not to be used by people allergic to salicylates.

Notes: Do not garden under or too near a willow. Willow rootlets travel near the surface and suck water and nutrients from the soil. This can distress nearby garden plants. When a willow dies, be aware that the widespread root system has drained the soil of nutrients. Rebuild the soil before you replant the area.

Veterinarian/Wildlife: Cadmium accumulation in the kidneys and livers of birds may come from eating willow flowers and seeds. This is especially true of ptarmigan in the mountains near Durango, Colorado (Larison 2000). Scrub willow along the edges of Slide Lake, on the Gros Ventre River in Wyoming, is a favorite food and building material for beaver. White willow is used in several herbal formulas for horses, a fertility supplement, a joint support complex, and a hoof and foot relief compound.

Barberry

Berberidaceae (*Berberis canadensis* P. Mill.)

Identification: Thorny shrub, thorns to 1″ in length. Grows to 7′ tall, branches grooved, with tear drop–shaped, succulent leaves, alternate in whorled clusters; fruit round to ovate, scarlet color when ripe, tart tasting (sour). Flowers are yellow with six sepals hanging in clusters.

Habitat: Found in woodlands, open woodland (dry) and edges of woods, northern tier of states from coast to coast; however, most prevalent east of the plains.

Food: Berries cooked and juiced, dried and powdered for mush. Ripe fruit can be cooked to make jelly. Juice: Cook fruit and extract juice with a sieve, pantyhose, or cheesecloth, and dilute and sweeten to taste. Berries may be dried, then pounded to powder or paste and cooked like hot cereal.

Barberry, near Lexington, Kentucky

Traditional uses: Cherokee remedy was to scrape free bark, place in a gourd with water, drop a hot stone in water, then drink the resultant tea to treat diarrhea. Micmac, Mohegan, and other tribes used pounded bark on mouth sores, sore

gums, or sore throat. Placed in mouth, pounded roots induce salivation and promote healing. Mohegan used decoction of berries for reducing fevers. Shinnecock used the bitter leaves in decoction as a liver tonic. See also Oregon grape, which also contains the active chemistry, berberine.

Modern uses: Root bark a source of vitamin C. Root bark for mouth sores and sore throat (like other *Berberis* and *Mahonia* spp.). Decocted leaves used as a liver tonic. Increases bile flow in laboratory animals and stimulates peristalsis. Homeopathic and allopathic uses to treat liver disease (*PDR for Herbal Medicines* 2007, 66). Root bark in decoction or infusion used as a diuretic for urinary tract infections, gout, diarrhea, arthritis.

Notes: Angled branches and thorns form natural hooks and fasteners. A tart-tasting out-of-hand nibble while foraging in the woods. Jelly or jam of fresh berries used as laxative or cathartic, also as an appetite stimulant. Fruit can also be used as a wine or alcohol tincture for treating infections and colds. Tea (infusion) typically made with 1 to 2 teaspoons crushed ripe berries to 1 cup water.

CAUTION: Avoid overdosing root bark extract, which may cause drowsiness and/or nosebleed.

Veterinarian/Wildlife: Avoided by forest animals, perhaps due to its tart chemistry, an adaptive mechanism that protects the plant, as do its thorns.

Bayberry

Myricaceae (*Myrica cerifera* L.; *Myrica gale* L.)

Identification: Berry-producing shrubs from 3′ to 70′ tall; majority of species are evergreen. Leaves spiral up stem, 1″ to 5″ in length, bladelike (oblanceolate), having a tapered base and broader tip. Leaf margin is wavy or crinkled, often with a finely toothed margin. Flowers are catkin and the plant is dioecious with female and male catkins usually on separate plants. Fruit is a small drupe (0.5″ or less) with a wax coating.

Habitat: *Myrica gale* (about 3′ tall) is a northern species that grows in acidic peat bogs across the northern hemisphere. *Myrica cerifera* is found in the southeastern states down through Central America and can tolerate wet and dry

Bayberry with fruit

ranges. Other species typically inhabit warm, temperate niches in relatively small ranges.

Food: Not edible. Taken as a medicinal tea but may cause gastrointestinal pain, vomiting, and ulceration if used in excess. Also used to spice beer and schnapps.

Traditional uses: Traditional folk use as a tea for treating diarrhea. Herb is considered a stimulating tonic. Dried root bark in decoction used externally as astringent, wound treatment.

Modern uses: African Americans drink the tea to treat fever, diarrhea, colds, and headaches (Duke 1988, 318). Tea is considered a laxative and emetic. Physiologically active chemicals include: triterpenes (myricadiol, taraxerone, and taraxerol) and flavonoid glycoside myricitrin—all lend credibility to its traditional and modern uses. Commercially available as an ingredient in moisturizers and cleansers.

CAUTION: High tannin content makes the ingestion of this bark or root decoction potentially dangerous. Avoid internal use.

Notes: Used by pioneers and early settlers for candle making. The berry is covered with a film of wax that separates over heat, a half bushel of berries yielding 2 pounds of wax. Also used as a hops substitute to impart bitters to beer.

Veterinarian/Wildlife: Foliage of the bayberry is an insect repellent placed in and around a hiker's tent. The yellow-rumped warbler (North America) eats the energy-rich bayberry wax, enabling the bird to winter far north of other warbler species. Several species of moths thrive off *Myrica,* including *Buccalatrix myricae*, which feeds exclusively on the plant.

Paper Birch

Betulaceae (*Betula papyrifera* Marsh.)

Identification: Brown-barked sapling matures into white-barked tree of medium height. Bark yellow, black, or white, the white species peeling, paper-like, separates into layers clearly marked with horizontal stripes. Twigs slightly rough, warty, odorless. Leaf buds blunt, hairless. Leaves heart shaped, 1″ to 4″ long. Fruiting catkins for flowers. Paper birch is also known as white birch.

Habitat: Across the northern tier of the United States, throughout Canada, and in the southern half of Alaska. Loamy to sandy well-drained soil; in and around lowland and alpine areas.

Food: White birch and yellow birch (*B. alleghaniensis*) may be tapped for their sap in late winter and early spring.

Paper birch, *Betula papyrifera*

Traditional uses: White birch was considered by American Indians and herbalists as a tonic and blood purifier. The bark powder was used on diaper rash and other skin rashes. The Cree Indians used the bark powder to treat chapping and venereal disease. The Ojibwas used

it for stomach cramps. The outer bark was used as a poultice to cover wounds and as a cast for broken limbs. Wood was boiled in water and drunk to stimulate lactation. A decoction of the ends of stems and new growth treated toothache and teething. The inner bark was used in decoction for treating diarrhea. The decoction of new-growth tips of branches was used as a tea or tonic. Stomach cramps were treated with decocted root bark mixed with maple syrup. Sap was used to treat coughs.

Modern uses: Birch leaf extract is Commission E–approved for urinary tract infections, rheumatism, and bladder and kidney stones.

CAUTION: Birch leaf extract is not to be taken if you have edema, heart disease, or kidney dysfunction.

Notes: Shredded from the tree, the bark makes an excellent survival fire starter. The bone-dry, whitish wood from the top of a beaver dam is often the best source of firewood in the bush. Yellow birch, a long-lived species, has close-grained hardwood with rich dark tones and is used for tool handles, snowshoe frames, sleds, and sledges. The tough bark is peeled and stretched to make birch-bark canoes. Canoe frames are made of white cedar and pine, and balsam resin is used to seal seams. Rotten birch wood is burned and used for smoking foods. White birch is infected by the much-studied medicinal mushroom chaga (*Inonotus obliquus*) (Meuninck 2015).

Chaga medicinal mushroom on birch, Nordhouse Dunes, Michigan

Veterinarian/Wildlife: Beavers eat the cambium beneath the bark, stripping the wood clean, and then use the wood to build dams and lodges. White birch leaves and end twigs are winter forage for moose, deer, and hare. Grouse and ptarmigan feed on the buds, and smaller birds and rodents eat the seeds.

Blueberry

Ericaceae (*Vaccinium* spp.)

Identification: Deciduous shrub from 1′ to 15′ tall. Sharp-edged green branches. Leaves alternate, ovate and oblong, finely serrated. Flowers greenish tinged with pink, 0.25″ long, containing eight to ten stamens shorter than the styles. Globular fruit blue black, often frosted, with numerous seeds dispersed through the purple pulp. There are numerous species that vary significantly. The terms "blueberry" and "bilberry" may be used interchangeably.

Habitat: Northern tier states from coast to coast. Wetlands, lowlands, edges of forests, and highlands, including eastern and western mountains.

Food: This highly nutritious fruit may be eaten fresh, dried, stewed, or as a jam or marmalade. Leaves can be made into tea.

Traditional uses: American Indians used a decoction of fresh or dried berries to treat diarrhea. The Iroquois used a whole aerial part decoction as a topical application for dermatitis. Bog blueberry (*V. uliginosum*) leaves were infused in water and sugar and taken as a tonic by women after childbirth. Blueberries are a good source of vitamin C and have a folk use to prevent scurvy. Dried pulverized leaves were infused and taken for nausea. Other American Indian uses may be found in *Native American Ethnobotany* (Moerman 1998). Pioneers used the leaves in decoction for treating diabetes. Berry tea was taken to treat mouth sores and inflammations.

Blueberry, *Vaccinium* spp.

Modern uses: The use of fresh and dried fruits and dried leaves is Commission E–approved for treating diarrhea and inflammation of the pharynx and mouth. The fruit is considered an antioxidant and a capillary protectant that may improve blood flow to the feet, brain, hands, eyes, and other distal areas. It is antiatherosclerotic, anti–platelet aggregating, and it may prevent varicose veins. Blueberry has induced the release of dopamine. And it may be helpful as adjunct nutritional support for Alzheimer's disease.

Notes: Eat a fistful of blueberries daily when experiencing extended periods of bowel discomfort, gas, or diarrhea. Dry the berries in a food dryer and store them in the freezer to treat winter stomach problems—a good all-around tonic.

Veterinarian/Wildlife: Blueberry bushes provide important habitat and food for songbirds, raccoons, and bears. Don't spray them with pesticides.

Elderberry

Caprifoliaceae (*Sambucus racemosa* L.; *S. cerulea* Raf.; *S. nigra* L.; *S. canadensis* L.)

Identification: Clump-forming shrubs. All four species have pinnately compound leaves that are opposite. *S. racemosa* has five or seven leaflets per leaf, green and nearly hairless above and lighter colored and hairy below. *S. cerulea* leaves are shiny, evergreen in the southern range; ovate or lance shaped with long pointed tips, shorter points and unequal size at base; sawtoothed edges; yellow-green color on top, paler and hairy underneath. *S. cerulea* has a red fruit maturing in the summer, whereas *S. cerulea* fruit is blue, also ripening in the summer. *S. nigra* (an introduced European variety and the most studied) and our native eastern variety *S. canadensis* are similar. *S. nigra* and *S. canadensis* grow to 25′ in height. Bark light brown to gray, fissured, and flaky. Branches green with gray lenticels, easily broken. Leaves compound, leaflets oblong, ovate, serrated; matte green above, light blue-green underneath. White flowers in large rounded clusters. Fruit oval, black to deep violet.

Habitat: Nationwide. Typically in or near wet areas, along streams in lowlands and mountains of the West. *S. canadensis* is typically found in wet thickets, along edges of streams, rivers, and lakes in the eastern states and southeastern Canada. *S. nigra* (endemic to Europe) can be purchased in nurseries and transplanted to your property.

Food: Use elder flowers and berries sparingly as food because their safety is not universally established—imbibe at your own risk. I recommend pre-cooking 2 minutes in boiling water. We dip the white cluster of blossoms in tempura batter and then cook them like fritters. Sprinkle with powdered sugar and serve as a health-protecting, heart-stimulating dessert. Or cook elderberries, then strain the juice through a sieve, thicken with pectin, and combine with other berry jams and marmalades. The cooked juice may also be added to maple syrup. The juice mixed with brown sugar, ginger, mustard, and soy makes a good wonton dip.

Elderberry fruit

Traditional uses: Flower infusions are reported to lower fever. A wash of the flowers may reduce fever and be soothing to irritations; it is considered alterative, anti-inflammatory, and diuretic. Flowers and fruit are made into tea for influenza, flu, colds, arthritis, asthma, bronchitis, improved heart function, fevers, hay fever, allergies, and sinusitis. American Indians scraped the bark and used the root in infusion as an emetic and a laxative. The berry infusion was used to treat rheumatism. The flower infusion was given to colicky babies. Roots were pounded, decocted, and applied to swollen breasts. Leaves in infusion were used as a wash for sores.

Modern uses: Standardized extractions are Commission E–approved for treating cough, bronchitis, fevers, and colds. The therapeutic dose of flowers is reported to be 1 to 3 teaspoons dried elderberry flowers to 1 cup water off the boil. Over-the-counter elderberry extracts indicate the recommended dosage on the bottle. Flower and berry extractions are used to treat acute infections like colds and flu. Herbalist Michael Moore claims that a tincture of the flowers is alterative and diaphoretic, stimulating the body's defense systems. Elderberry flower tinctures may be more effective and more tasteful when combined with mints. The berries can act like a mild laxative, yet at the same time they are antidiarrheal and astringent. Research by Erling Thom, of the University of Oslo, presented findings that Sambucol (an elderberry over-the-counter preparation) treats and shortens flu symptoms if taken early in the episode; 93 percent of sixty patients responded positively (Thom 2002). Elderberries are high in heart-protecting antioxidants.

CAUTION: The leaves, bark, root, and unripe berries of *Sambucus* species may cause cyanide poisoning. Cook the berries before consuming them. The western variety, *S. racemosa*, with red berries, may be more toxic than the blue and black berries of the varieties *S. cerulea*, *S. canadensis*, and *S. nigra*. Avoid eating red elderberries—the fresh berry juice has caused illness.

Notes: Elderberry, *S. canadensis*, grows close to my home; I hop in my boat and can fill two grocery bags with flowers in twenty minutes. Elderberry (fruit) may be dried in a food dryer, then frozen and used in cooking throughout the cold months for disease prevention. I eat the dried berries of *S. canadensis* throughout the winter on cereal, pancakes, waffles, and porridge and in stir-fries. Berries are best when cooked after drying. Flowers may be gathered in June, dried, and made into tea. Be sure to cut away the stems before eating the flowers and remove the stems from berries too.

Veterinarian/Wildlife: At night raccoons raid this plant for the fruit. Numerous songbirds eat the berries. My tree is a favorite nesting site for a couple of prolific robins. Aphid infestations can wreck a tree.

Mountain Ash

Rosaceae (*Sorbus sitchensis* M. Roem; *S. americana* Marsh)

Identification: Shrub or small tree to 40′. Compound leaves, eleven to seventeen toothed leaflets; leaves long and narrow, three times longer than broad; flowers and fruit in 5″ to 7″ rounded clusters. Berries are red when ripe, best eaten after a frost.

Mountain ash, eastern Utah

Habitat: *S. sitchensis* is found in the western United States, at higher elevations and moist areas; *S. americana* is found in the northern tier of the eastern states, typically around moist areas, abundant along the coast of Lake Superior and northern latitudes of Lake Michigan.

Food: Berries are best after a frost (or you can freeze them in the freezer and then thaw). Their high pectin content makes them a good addition to preserves and jellies. Mix about a quarter cup mountain ash berries to 1 cup blueberries or cherries. Boiled berries used as relish for meat, sweetened to taste; very good over goose and duck. Green or ripe fruit may be mashed and used to marinate meat.

Traditional uses: American Indians used the inner bark and gummy terminal buds of *S. americana* as a tonic. The tonic is reported to enhance mood and treat depression. Bark and bud infusion is considered antimicrobial and an appetite stimulant. Inner bark and/or gummy red terminal buds infused for colds. Inner bark infusion used to reduce pain after childbirth; root infusion used to treat colic. Root and bark decoction used for treating rheumatism and arthritis. Twigs of western species used as chewing stick (toothbrush).

Modern uses: Wood ash of *S. americana* is styptic and considered useful for treating burns and boils in wilderness settings. Root of sweet flag and *S. americana* were combined and infused as spring tonic, that is, considered energy boosting. Berries can be used as a digestive aid.

Notes: This is a late-season, late-autumn harvest, a prerequisite for Halloween and Thanksgiving.

Veterinarian/Wildlife: An important food for migrating birds and stay-at-home thrushes.

Spicebush

Lauraceae (*Lindera benzoin* L.)

Identification: Shrub found in rich woodlands and along streams. Grows to 15′, with numerous spreading branches. Smooth branches give off spicy odor when soft bark is scratched with thumbnail. Leaves smooth, bright green, pointed (widest near or above middle section), simple, alternate, deciduous, 2.5″ to 5.5″ long and 1.5″ to 2.5″ wide. Flowers small, yellow, in dense clusters along previous year's twigs. Fruits in clusters, widest in middle (somewhat football shaped, but with more rounded ends), start out green and become bright red in autumn. Flowers appear in early spring, before leaves.

Spicebush, the sweet smell of wilderness

Habitat: Eastern United States, roughly to the Mississippi. In densely shaded,

rich, moist forest as understory in birch, beech, and hardwood forest.

Food: In the spring, gather end twigs, tie them together with string, and throw them in a pot with leeks, nettles, mushrooms, and dandelions. Bundles of stems can be steeped in boiling water to make tea (sweeten with honey). Young leaves can be used in the same way. In the fall, try drying the fruits in a food dryer. Dry fruits are hard and can be ground in a coffee mill and used as a substitute for allspice. Fruits also used in meat marinades; try it with your ribs recipe, like juniper berries; three to five berries are sufficient. Chew green end twigs as you walk as a chew stick to freshen your mouth and cleanse your teeth.

Traditional uses: American Indians used the bark in infusion for treating colds, coughs, and dysentery. The Creek Indians used an infusion of smashed spicebush berries and jewelweed as a bath to treat congestive heart failure.

Modern uses: Still used in traditional ways: Tea made from the bark is used as a spring tonic. Bathing in this tea reportedly helps rheumatism. Tea made from the twigs is used to treat dysmenorrhea.

Notes: Abundant in a marshy area near me, an aromatic addition to the herb and spice cabinet. Sun-dry and grate on pears and other fruit; experiment on savory dishes.

Veterinarian/Wildlife: Berries eaten by numerous woodland bird species, especially thrush as they flock together for the winter months.

Tamarack, American Larch

Pinaceae (*Larix laricina* [Du Boi] K. Koch)

Identification: Medium to large deciduous tree to over 100′ that at first glance looks like a pine or fir. Bark flakes off in scales. Non-drooping branchlets (in contrast, the European larch has drooping branches). Needles slender, to 1″ long, in clusters, single or several, emanating from short spurs on branch. Cones less than 0.75″ long. Also called the American larch.

Habitat: Northern tree found across the entire United States and southern Canada. The bald cypress is a similar species found in wet areas of the southern United States.

Food: Tender new shoots can be infused into tea or pan-fried as food. The inner bark can be scraped, dried, and pounded into flour. Reconstitute it with water and make flatbread.

Tamarack, *Larix laricina*

Traditional uses: American Indians used a decoction of tamarack bark extraction in combination with balsam resin and other plants to treat acute infections such

as colds, flu, fever, and coughs. Various tribes used the bark infusion of young shoots as a laxative. A bark and wood poultice was used to treat wounds and draw out infection. The inner bark infusion was considered warming. The resinous balsam was used as a stimulating inhalant. Leaf and bark were pounded, crushed, and used as a poultice to reduce headache. This ritual sweat lodge plant is useful for relieving tension, backache, and headache; its needles, twig, and bark were dampened and applied to hot stones to produce steam. Western larch, *L. occidentalis*, found west of the plains states, was used in similar ways, including a decoction of the new growth as a wash to treat cancer. The resinous pitch of the western species was mixed with animal fat and used on wounds, cuts, and burns.

Modern uses: *L. decidua*, tamarack's European cousin, is Commission E–approved for coughs, colds, bronchitis, and fever and to promote resistance to acute infections. The outer bark extraction and balsam (resin) are used to make ointments, gels, and other emulsions for external application. Old growth, western tamarack species are host to agarikon (*Fomitopsis officinalis*), a mushroom with antiviral, antibiotic, and antioxidant qualities (Meuninck 2015).

Notes: This rot-resistant relative of cypress makes long-lived railroad ties. The tree's tough, fibrous, and rot-resistant roots make good material for sewing and for weaving baskets, and it was often used to sew birch bark together to make canoes.

Veterinarian/Wildlife: Needles, seeds, bark, and inner bark are eaten by grouse, snowshoe hare, porcupine, and squirrels. Seeds are eaten by nuthatches, chickadees, and crossbills. The shredded inner bark was fed to horses.

Spirea

Amygdaloideae (*Spiraea douglasii* Hook, *S. splendens* Bauman ex. K. Koch)

Identification: Hardhack spirea (*S. douglasii*) is an erect, many-branched shrub, a perennial to 7′ tall. Plants grow in thicket-sized colonies from Oregon to Alaska. Leaves alternate, oval to oblong; 3″ to 6″ long; dark green above, gray and woolly underneath. Rosy pink flowers, small and numerous, grow in a clublike terminal cluster (1″ to 12″ tall) that is longer than wide, whereas the flower cluster of subalpine spirea (*S. splendens*) is wider than tall. *S. splendens* is typically about half as tall as *S. douglasii*.

Hardhack spirea, *Spiraea douglasii*

Subalpine spirea, *Spiraea splendens*

Habitat: *S. douglasii* is found in western mountainous areas and coastal wet areas. Along stream banks, wetlands, lakeshores, damp meadows from sea level to mid-elevations. *S. splendens* is a subalpine member found on the slopes of Mount Baker and Mount Rainier and other mountains of the West.

Food: Aerial parts are decocted and taken as a health-protecting tea.

Traditional uses: Numerous *Spirea* species were all used medicinally by American Indians. The aerial parts contain an aspirin-like compound. American Indians crushed the seeds and used them in tea to treat diarrhea. Aerial parts were infused as a tonic.

Modern uses: Still used by some people in the traditional way. The aspirin-like compound collected in the tea may account for analgesic effect. This and white willow extract found in the bark contain the natural and impure salicylic acid, acetylsalicylic acid, the model for modern day aspirin.

Notes: This attractive and tall wildflower is aggressive, so contain it along walls, shorelines, and fencerows. Its brushy stems were made into brooms by American Indians.

Veterinarian/Wildlife: Dried flower spikes are eaten by wood grouse and ptarmigan. Bees visit the flowers for pollen.

Rosemary

Labiatae (*Salvia*)

Identification: Rosemary is an aromatic, woody, and perennial evergreen shrub in the mint family (Labiatae). It grows 4′ to 6′ high, with aromatic needle-like leaves. Flowers are irregular, the upper lip has two lobed petals and the lower lip has three lobes. Flower color variable: blue, violet, purple, pink, and white.

Habitat: Native to the hills and coastal areas along the Mediterranean, Portugal, Italy, and northwestern Spain. It has

Rosemary: European medicinal immigrant

escaped cultivation in the United States and may be found along coastal areas of California, Oregon, Washington, Georgia, Mississippi, and Alabama. Found in sunny, sandy soils, pine scrub, and sandhills. Drought tolerant, grows in sandy and rocky areas.

Food: Rosemary blossoms provide a milder flavor and delicate texture as compared to the leaves. Use rosemary leaves and blossoms with either sweet or savory dishes. The aromatics and flavor of the leaves enhance and complement the flavor of lamb and pork, beans, garlic, onion, potatoes, tomatoes, anchovies, olive oil, lemon, apples, pear, quince, honey, lavender, and thyme. Experiment. You can be inventive with this plant.

Traditional uses: Rosemary blossoms have antimicrobial, antiseptic, anti-inflammatory, and antioxidant properties. Extracts from rosemary blossoms can improve circulation, aid digestion, relieve headaches or joint and muscle pain, and treat dandruff and hair loss.

Modern uses: Aromatherapy: Rosemary flowers and leaves improved cognitive function and awareness in a small study. Another study showed the essential oil increased relaxation and improved memory.

Notes: Ancient Greeks used rosemary blossoms to improve memory. They wore cuttings of leaves and flowers in their hair. Current research suggests this application may work.

Veterinarian/Wildlife: Rosemary blossoms attract hummingbirds, bees, and butterflies. Rosemary also attracts aphids, whiteflies, thrips, spittlebugs, spider mites, and leaf hoppers.

CHAPTER 6

Medicinal Plants of the Mountain West

When the white men first came in, some of them tried to smoke the Indian tobacco. They thought: "We can smoke it." They took it into their lungs. Just once, they thought, "We will do like Indians do." Then they were sick for a week. The Indian tobacco is so strong.

—KARUK INFORMANT QUOTED BY HARRINGTON, IN *BUREAU OF AMERICAN ETHNOLOGY BULLETIN* 91 (1929)

Pasque Flower

Ranunculaceae (*Pulsitilla* spp.)

Identification: Across all thirty-three species the plant characteristics are similar: finely dissected leaves, hairy stems, and bell shaped flowers. The biggest variable is height; species range from 3″ to 9″. Showy parts of the flower are the sepals. Seed heads are plumed.

Habitat: Found in the prairie and mountain meadows. Pictured specimen from the Cloud Peak Wilderness, Bighorn Mountains, Wyoming.

Food: Not edible, highly toxic. May slow heart and cause cardiac arrest.

Traditional uses: Used historically by the Blackfoot Nation to induce uterine contractions leading to abortion. Also believed to speed difficult childbirth.

Pasque flower at 9,200 feet in Wyoming

Modern uses: Used as a homeopathic preparation or in combination homeopathically for a variety of ailments, including colds, coughs, and digestive problems. The olfactory essence of the flower is used in aromatherapy and reported to relieve shyness.

CAUTION: May slow heart and cause cardiac arrest.

Notes: This potentially dangerous plant is included in this text for its reported safe use homeopathically to reduce stress. My first experience with this homeopathic remedy is documented in the DVD *Natural Health with Medicinal Herbs and Healing Foods* (Meuninck et al. 2007).

Veterinarian/Wildlife: Alpine variety pictured visited by wild bees and other high-altitude pollinators. Used as a homeopathic regimen for dogs that are very dependent, jealous, and needy.

Monkshood

Ranunculaceae (*Aconitum species* L.)

Identification: Mountain wildflower from 2′ to 8′ tall with dark green leaves, deeply cleft and palmate or deeply palmate with five to seven segments or lobes. Leaves are basal with sharp and coarse teeth. Lower leaves have longer petioles (stems) and leaves are alternate. Numerous flowers, blue to midnight blue, but may vary from purple to white, yellow, or pink. Flowers borne on an erect stalk and lack stipules. Flower appears to be a hood over reproductive parts; this characteristic is distinctive. Also known as wolfsbane.

Habitat: Shady parts of mountain meadows, drainages, washes, stream edges in moist coniferous forests to 9,000 feet. From the Rockies west to the coast. Often found in the same location as larkspur.

Food: Extremely toxic! Neurotoxin found throughout aerial parts and root. Poisoning similar to rabies; no effective antidote. If ingested, call 911 and then employ gastric lavage and/or emesis followed by 2 milligrams atropine; maintain blood pressure and apply artificial respiration.

Toxic medicinal monkshood, for professional practitioners only

Traditional uses: Folklore has it that werewolves and vampires are generated by eating the plant.

Modern uses: Michael Moore in his book *Medicinal Plants of the Pacific West* speaks of the traditional and modern use of the plant to treat pain. It is used externally (very toxic internally) to treat sciatica, bruises, shingles, and various forms of neuralgia (Moore 1993). Plant is cultivated in Europe and used internally under the direction of a physician as a sedative and analgesic (homeopathically

to relieve fear and anxiety). In China and Japan aconitum, monkshood, or Chinese wolfsbane is used to treat shock resulting from heart attack, low blood pressure, coronary heart disease, and chronic heart failure (Zhou 2014).

Notes: There are numerous references in film and books to the poisonous powers of aconite blossoms, including the Harry Potter series, the television series *Dexter*, and the 1931 film *Dracula* starring Bela Lugosi. A garden flower cultivated for its unusual beauty. I find numerous colonies of this herb in the Absarokee Beartooth Wilderness at Rock Creek and East Rose Bud Trail. Although a toxic herb, it is covered here to prevent accidental use.

Veterinarian/Wildlife: Food for numerous moth caterpillars and once used to exterminate wolves. Veterinarians may use the drug to lower blood pressure and slow circulation in animals.

Blackberry

Rosaceae (*Rubus armeniacus* Focke; *Rubus allegheniensis* Porter; *R. laciniatus* Willd)

Identification: Similar to raspberry, but fruit clings to the receptacle instead of falling free. Shrub 3′ to 20′ spreading with spiny branches; compound leaves, approximately five leaflets, toothed (whereas raspberry typically has three leaves), and the white blackberry flower bloom appears after raspberries. *R. laciniatus* has sharply cut leaves. There are several species that ripen in mid- and late summer. *Rubus armeniacus*, the Himalayan blackberry, is a perennial with biennial stems. First-year leaves are 2.5″ to 8″ across, palmately compound with five leaflets. Second year, stem does not grow longer but produces side shoots with smaller leaves, oval-acute, dark green above and pale to whitish below; leaf margin is toothed and there are three leaflets and numerous thorns along the midrib on the underside. Flowers on second-year side shoots, five white or pale pink petals. Fruit 0.5″ to 1″ in diameter, longer than wide, ripening black or dark purple.

Blackberry in Ferndale, Washington

Habitat: Blackberries are found near your raspberry source, throughout the United States, fields, gardens, roadsides (more like side roads) fencerows, edges of woods. Does well in wet or well-drained areas.

Food: A low-calorie, high-nutrition breakfast is made with blackberries. Mix 2 cups berries with 2 cups low-fat sweetened vanilla yogurt. Add a dash of milk and

blend—a wonderful ice-cream substitute with half the sugar and fat. Also use in pies, muffins, pancakes, jellies, and jams. Make tea from the leaves.

Traditional uses: American Indians used roots with other herbs for eye sores, backaches, and stomachaches. Pioneers made blackberry vinegar to treat gout and arthritis. The Chinese use *Rubus* species in a tea to stimulate circulation—they claim it helps alleviate pain in muscles and bones.

Modern uses: Blackberries contain several cancer-fighting antioxidants and are an important addition to the diet. The leaf tea is Commission E–approved for relieving non-specific acute diarrhea. Tannins in the leaves are responsible for the binding effect. A heaping teaspoon of blackberry leaves daily as a tea may be helpful. The University of Maryland Medical Center (UMMC) lists a standard dosage of blackberry leaf tea for relieving diarrhea as 1 heaping teaspoon of dried leaves per cup of hot water, and drinking a half cup per hour, but they also recommend talking to a doctor before taking blackberry leaf for treating diarrhea, because certain types of diarrhea can be worsened with herbal treatment.

Notes: The richest sources of blackberries are the coastal shores and offshore islands of Washington State, including the British Colombia coast and Vancouver Island. Best blackberry pies are made there too.

Veterinarian/Wildlife: Food for songbirds and nesting area for upland gamebirds, including the rare greater prairie chicken, wild turkey, bobwhite, and ring-necked pheasant. These various animals help distribute the seeds far and wide. It is also the escape biome for Bre'r Rabbit and rabbits everywhere. The nectar and pollen of the flowers attract many kinds of insects, especially long-tongued and short-tongued bees, including honeybees, bumblebees, and Andrenid bees. Also included as friends of blackberries are wasps, flies, small- to medium-sized butterflies, skippers, and beetles. Many flies and beetles feed on pollen. Caterpillars of the butterfly *Satyrium liparops strigosum* (striped hairstreak) and several species of moths feed on the common blackberry.

Columbine

Ranunculaceae (*Aquilegia caerulea James, Aquilegia vulgaris L.*)

Identification: Perennial, 2′ to 3′, showy petaled flower with long backward-extending spurs that are pouchlike extensions of the petals. Sepals and petals brightly colored. Various species are white, blue, red, and yellowish. Compound leaves and leaflets usually rounded and notched. The flower irregular and unique, blooms through summer season.

Habitat: Can grow in full to partial shade, on soils that are neither very wet nor very dry. Naturally occurring in wood borders or clearings, roadsides, and riverbanks. Generally associated with mixed or deciduous woods along mountainous lakeshores, rivers, and thickets.

Columbine growing in the rocks, Wind River Range, Wyoming

Food: Flowers edible and sweet. Attractive garnish on entrees or atop salads. Leaves are toxic. Seeds and fruit not edible.

Traditional uses: Leaves and stems used to make medicine. People have taken columbine for gallbladder disorders, general stomach and intestinal problems, vitamin C deficiency (scurvy), and rashes. The seeds of *Aquilegia canadensis* or wild columbine were crushed and used by American Indians for headaches, fevers and as love charms. Whole seeds were rubbed into the scalp and hair to control lice.

Modern uses: Unproven medicine still used today. Decoction of the root is said to help stop diarrhea. Flowers taken with wine promote perspiration, and the seeds with wine are said to speed the delivery of a child, open obstructions of the liver, treat jaundice, and bring relief to the pain of kidney stones.

CAUTION: Seeds are toxic. Leaves are sometimes used in lotions to soothe mouth and throat sores, a practice that should be applied only by an experienced holistic health-care practitioner.

Veterinarian/Wildlife: Flowers attract hummingbirds, bees, butterflies, and hawk moths. Seeds consumed by buntings and finches.

Fireweed

Onagraceae (*Chamerion angustifolium* L. Holub.; *C. latifolium* L.)

Identification: Stemmed perennial, 2′ to 6′ tall, with narrow lanced-shaped leaves that alternate, rising to a spire of pink flowers. Found singly or in colonies in burned-out areas, on disturbed ground, and along roadsides of the West. The erect stem bears a spired cluster of flowers with four petals. Leaf veins form distinctive loops, leaves paler underneath, darker on top. Seedpods, borne on spire, mature and release airborne fluffy seeds. Blooms April through August, dependent on altitude.

Habitat: Burnouts, roadsides, disturbed areas in profusion, more sparsely elsewhere. Tolerates damp and dry areas, lowlands and highlands, some shade, but prefers drier well-drained areas and full sun. Throughout the West to the

Fireweed near Walden, Colorado

coast and coastal and montane regions in California.

Food: Edible flower, raw or cooked. Vitamin-rich leaves and tender shoots of early growth are steamed, sautéed, or stir fried. Add tender young leaves to salads. Shoots pushing up from the ground are tasty, tender, and worth discovering.

Traditional uses: Intense infusion of whole plant used as a laxative. Leaf and flower tea considered antispasmodic. Root chewed and used as a poultice over wounds. Whole herb tea used to treat candidiasis.

Modern uses: The tea from the aerial parts (flowers and leaves, but not the stem) are used in decoction to treat diarrhea. Tea also anti-inflammatory when consumed over a few days and may relieve mouth sores or sore throat (non-streptococcus irritation). This is a stomach-toning laxative!

Notes: This plant is a hiker's treat. Pluck off flowers as you walk by. Particularly abundant in burnouts where I seek morels. Stir-fry young shoots with morels and serve.

Veterinarian/Wildlife: Important, nutritious food for moose and other ungulates, wild and domestic.

Gooseberry

Grossulariaceae (*Ribes cyosbati* L.)

Identification: Sprawling or erect shrub to 5′ with spiny branches with either spiny or smooth-skinned berries. Leaves alternate, deeply cleft, maplelike, and long hairy petioles, three to five lobes, 1″ to 2.5″ wide, as wide as they are long. Flowers are pale greenish yellow or white, about 0.25″ in diameter to slightly larger, flowers tubular.

Habitat: Various species found east and west of the Mississippi as undergrowth in forests, forest edges, bog fringes, and mountain slopes.

Gooseberry, Kentucky Lake, Kentucky

Food: Fruit and flowers eaten by American Indians. Berry may be eaten fresh, canned, or in pies. Needs a bit of lemon.

Not a strong flavor. Berries are cooked with sugar to make jam and jelly.

Traditional uses: Used as a gynecological aid for uterine problems, typically a decoction of the bark. Bark infusion used to treat eye conditions.

Modern uses: Decoction or infusion of root used for uterine problems (prolapse). Still used by folk practitioners as an eyewash.

Notes: This is a favorite fruit in Amish country pies, but their recipe could be a little less sweet—a shot of lime juice would help.

Veterinarian/Wildlife: Berries eaten by robins, doves, quail, and grouse.

Hops

Cannabaceae (*Humulus lupulus* L.)

Identification: Climbing perennial with pencil-thick stems that do not turn woody. The plant climbs through and atop shrubs and spreads to 30′. Leaves are opposite, three to five lobed and serrated. Male flowers are small and inconspicuous, yellowish green. Female flowers have numerous florets and a fruit cone grows from the flowers. The cone may be yellowish to gray depending on whether it is fresh or dried. The scales of the cone contain the bitter drug.

Habitat: The plant has escaped from cultivation and can be found in marshes, meadows, and the edges of woods. Cultivated stands are in northeastern Washington State, east of Seattle in the Okanagan of Washington and Canada, including northern Idaho.

Traditional uses: Pioneers put hops in a pillow for a sleep aid. Water extraction used as a calming tea.

Modern uses: Commission E–approved for treating nervousness and insomnia (sleep aid). The flavonoids in the plant have been shown to be antibacterial, antifungal, and antitumor in animal and in-vitro studies. Like so many plant teas,

Hops twining over shrubs in early September, eastern Washington

it is a diuretic. In mouse studies, humulon reduced the average number of tumors in cancer-induced mice. In another human study, hops, combined with valerian, balm, and motherwort, improved sleep in alcoholics (Widy-Tyszkiewica and Schminda 1997). A randomized double-blind study investigated the sedative effects of a phytotherapeutic containing valerian, hops, balm, and motherwort (Morin et al. 2005). The University of Chicago is completing a study of hops as a sleep aid. Related research suggests the use is “relatively safe and effective” in inducing sleep. Early research suggested the hop flower tea may impart an estrogenic

effect; subsequent research has not shown this effect.

CAUTION: Contact with hops and their pollen has caused allergic reactions. Fertilizers and pesticides have been eliminated as the cause—dermatitis is caused by the plant.

Notes: For steam bath, place leaves in a clean pair of pantyhose, tie off, and put in hot bathwater. Or make a sweat lodge from a dome tent by covering the tent with a tarp and a blanket, and then heating stones over an outside fire until hot. Place stones in a large container (five-gallon enameled metal) and transfer them to the floor of the tent. Place the metal tub on boards so as not to burn the tent floor. Drop water-soaked cedar boughs and hops on the hot stones, and use a long-handled ladle to dip water carefully over the rocks. Resultant steam will warm the lodge with healing aromatics. According to some sources, smoking hops may provide a mild sedative effect. To make a tea sleep aid, add about 1 teaspoon dried flowers to 6 ounces hot water just off the boil. Cover, cool, and drink. To improve what I call "football beer"—you know, the cheap, watery stuff—place two hops into the open can or bottle and drink. Ahhh, that's better.

Veterinarian/Wildlife: Dogs have perished in as little as six hours after eating hops. Keep hops away from pets and don't share your beer with anyone's dog.

Pearly Everlasting

Asteraceae/Compositaceae (*Anaphalis margaritacea* L. Benth.)

Identification: Erect stiff-stemmed colonial plant arising from a parallel and adventitious root stringing members together. Leaves are long and linear, hairy underneath, dark green to gray above, closely alternate and toothed. Plant appears downy. Flowers are pearly white, globular, as tight balls or beads, about pea size and then open to become larger as they mature. The yellow bracts in the center of the ball are the flower.

Habitat: Widespread (nationwide, except for southern Gulf states and North Dakota) in forests and mountains up to 5,500 feet, in dry, stony, clay soils. It is prevalent as a first growth in burnouts, foresting road cuts, and logged areas.

Pearly everlasting in Hyalite Canyon Wilderness study area, Washington

Food: Not edible. Used medicinally as a tea.

Traditional uses: American Indians used this herb as a smoking mix with tobacco to treat sore throat. They also used it to treat burns, ulcers, cuts, and bruises with a poultice of flowers and/or the whole

plant applied to the affected area. Whole plants steamed as an inhalant for headache. Internally, they used an infusion to treat dysentery and related diarrhea, as well as for respiratory problems and rheumatism and as a laxative and emetic.

Modern uses: Infusion still used by folk practitioners, herbalists, and naturopaths to treat diarrhea, symptoms of the flu, and irritated mucous membranes. Poultices still applied traditionally (see traditional uses). A wash from the flowers may relieve sunburn.

Notes: The name describes the long-lasting quality of the plant as a dried-cut flower suitable for a vase or wreath. Find this in abundance in the Beartooth Wilderness, Montana.

Veterinarian/Wildlife: Used to attract butterflies and feed larvae of such. Pearly Everlasting is also host to the tiny moth *Tabenna anustana*.

American Licorice

Fabaceae (*Glycyrrhiza lepidota* [Nutt.] Pursh)

Identification: Member of the pea family with clusters of pealike flowers and compound pealike leaves. Grows to 5″ in colonies.

Habitat: Grows in moist, sandy soils along rivers and sunny stream banks. Pictured plant filmed on the banks of the Yellowstone River in Paradise Valley, Montana. Ranges over the entire West and prairie states, with some extension into the East, but not Southeast.

Food: Warriors and hunters chewed the root as a sialagogue (produces saliva) to increase running endurance.

Traditional uses: The Cheyenne drank medicinal tea made from the peeled, dry roots of the plant for diarrhea and upset stomach. The Lakotas used the root as a medicine for flu. The Dakotas steeped the licorice leaves in boiling water to make a topical medicine for earache. The roots were also chewed and held in the mouth to relieve toothache. Blackfoot made

American licorice on the banks of the Yellowstone River

a tea from roots to treat coughs, sore throat, and chest pain. They also considered it antirheumatic and applied foliage and wet, smashed roots to swollen joints. Dakota used infusion of the leaves to treat earache (Moerman 1998).

Modern uses: Used as a flavoring agent and to sweeten tobacco. Holistic health practitioners use the herb in the same way as Asian licorice (*Glycyrriza glabra*) for ulcers, boosting the immune system,

improving mental function, and reducing stress.

CAUTION: Go gently, my friend; glycyrrhizin in root may raise blood pressure.

Notes: My backcast has snagged and lost too many artificial flies in dense wild licorice foliage while fishing the Shoshone River dumping out of Yellowstone National Park.

Veterinarian/Wildlife: Roots were used to treat horse windgalls by American Indians. Foliage eaten by pronghorns and deer. Birds and numerous rodents eat the seeds and the pocket gopher eats the roots.

Oxeye Daisy

Compositae (*Chrysanthemum vulgare* L. Lam)

Identification: Large daisy flower with white petals (up to 3″ wide) with yellow center. Basal leaves are spoon shaped with long stems (petioles); teeth on leaf margins are round. Leaves on upper mature plant lack petioles. Plant grows from 2′ to 3′ and blooms throughout the summer. Early spring basal cluster of leaves are choice edibles.

Habitat: Found along roadsides, highways and byways, waste ground, meadows and fields; prefers drier areas, prevalent in the western mountain states. This European import has become widespread and a nuisance in the West. Get on your knees and start eating.

Food: Young basal leaves (which grow in abundance) are delicious fresh-picked in salads or sautéed—closely approximating the flavor of romaine and Bibb lettuce. Eat in abundance, as the locals and ranchers want to eliminate the weed.

Traditional uses: Brought to the United States as a medicinal and escaped cultivation. Nutrient- and vitamin-rich summer tonic.

Modern uses: Eating leaves and leaf tea is diuretic and may act as an antihistamine, to help relieve allergies and consequent mucus production. Leaves applied to wounds have a hemostatic quality and help stem bleeding.

Oxeye daisy: edible and medicinal, yet vilified

Notes: Every visit to Montana Bill, in Swan Valley, Montana, requires a walk over the property pulling daisies. I figure we are all aliens, all from somewhere else, and that truth has become the unwitting law of the human diaspora.

Veterinarian/Wildlife: This edible flower appears to be shunned by most ungulates. Bees will visit, but the pyrethrum and other chemicals in the plant spoil the taste of milk pulled from goats, sheep, and cows. Insect repellent for garden flowers.

Western Skunk Cabbage

Araceae (*Lysichiton americanus* Hultén and St. John)

Identification: Perennial with green to yellow elephant ear–like leaves, to 3.5′ in length, lustrous and waxy in appearance, with skunky odor when torn. Yellow flower is an archaic, showy sheath surrounding a clublike flower spike (spathe and spadix).

Habitat: West of the Rocky Mountains north into British Columbia. Undercover in wet woods:, swamps, lowlands, wet coastal areas.

Food: Kitchen utility not a food: Never eat these plants fresh or uncooked. They contain toxic oxalate crystals that will burn your digestive system if eaten raw or fresh. Western skunk cabbage leaves and roots were washed and steamed or pit-cooked until they reached a mush-like consistency. Several Western tribes ate roots after boiling them in eight changes of water. Root can be dried, roasted, and ground into flour. Leaves were placed over cooking vegetables as a spice. Young leaves were thoroughly dried, then cooked in soups. Drying the leaves or roots of western skunk cabbage eliminates some of the peppery, hot taste of the calcium oxalate crystals. The waxy leaves were used as plates for meals, to line cooking pits and cedar cooking boxes, to wrap meat and vegetables for pit-style cooking, and to store foods and cover fresh berries. Roots are numerous and tentacle-like.

Traditional uses: Western skunk cabbage was used in the same way as the smaller-leaved eastern skunk cabbage

Western skunk cabbage, *Lysichiton americanus*, found on Vancouver Island near Port Renfrew

(*Symplocarpus foetidus*). Western skunk cabbage flowers and/or roots were steamed and placed against joints to treat arthritis. Warm leaves were used in the sweat lodge as sitting mats to treat arthritis. A poultice of smashed root was used on boils and abscesses. The root was burned and its smoke inhaled to treat nightmares, disrupted sleep, and flu. The leaves served as poultice for burns. The Makah tribe chewed the raw root to induce abortion. Charcoal from the burned plants was applied to wounds.

Modern uses: A liquid extract of skunk cabbage is still used to treat bronchitis and asthma. The plant is considered antispasmodic, expectorant, sedative, and diaphoretic. Its use is reserved for skilled practitioners only.

CAUTION: Skunk cabbage contains toxic and inflammatory oxalate crystals that will burn the digestive tract if eaten raw and fresh. Only experts should use this plant.

Notes: Botanical Beach in Port Renfrew on Vancouver Island has some of the

largest-leaved skunk cabbages I have ever seen. The leaf veins are tough enough to make emergency cordage.

Veterinarian/Wildlife: Skunk cabbage is endothermic: It generates enough heat to melt snow and ice around its base. It comes up through the soil about a month before other plants. Oxalates in its roots provide protection from infection and predation.

False Hellebore

Liliaceae (*Veratrum viride* Ait.)

Identification: Perennial to 3′ that projects itself from the soil in spring, often in a colony of thick shoots, tubes of the rolled leaves. Basal leaves football shaped, with deep veins; to 12″, leaves smaller as they unfurl up the single 3″ tall, unbranched central stalk. Flowers yellow to green, borne on branching terminal stalks at top of plant. Fruit to 1.5″ in length producing winged seeds.

Habitat: The mountain West, including the Cascades, in and on ravines, streamsides, riverbanks, springs, roadsides.

Food: False hellebore shoots look edible, but they are toxic.

Traditional uses: A poultice of the bulb was used to treat arthritis. The Bella Coolas took a bulb decoction for respiratory problems such as chronic cough. The raw root and decoction were considered emetic. The Blackfoot peoples dried and powdered the root to use it like snuff as an analgesic for headaches. Snuffing the powder also induced sneezing. The Cowlitz placed poulticed leaves over painful areas.

Modern uses: False hellebore is an obsolete drug. Its steroid saponins are severely toxic, and the inherent toxic alkaloids stimulate motor neurons, leading to convulsions and respiratory failure. *V. viride* is included here as a cautionary tale, once a medicine, now disdained.

False hellebore, *Veratrum viride*

CAUTION: Toxic! Look but don't touch.

Notes: False hellebore, one of the most striking plants of the mountainous West, was integral to Spanish traditional medicine. *V. album* root, a close relative of *V. viride*, was used as an analgesic, emetic, cathartic, antirheumatic, and sternutatory (induces sneezing). The root was prepared with oil or grease as a salve. Once reserved for the skilled holistic health-care provider, today false hellebore is considered too toxic to warrant further use.

Veterinarian/Wildlife: The false hellebore *V. californicum* of California was used by the Paiutes as a snakebite remedy. A poultice of pulped root was applied to snakebites. They also applied the poultice over saddle sores on horses.

Arnica

Asteraceae (*Arnica* spp.: *A. montana* L.; *A. acaulis* Walt; *A. cordifolia* Hook; *A. latifolia* Bong.)

Identification: Perennial to 18″. Rhizome brownish. Leaves form a basal rosette. Hairy stem rises from the rosette and has two to six smaller leaves, ovate to lance shaped and dentate (toothed). Terminal yellow flowers emerge from the axil of the top pair of leaves. Flowers are from 2″ to 3″ in diameter with hairy receptacle and hairy calyx. Tiny disk flowers reside inside the corolla and are tubular; as many as 100 disk flowers per flower head.

Habitat: Typically shady mountainous areas, along seeps and stream banks to 10,000 feet, and wet alpine meadows. Arnica species are abundant in the mountainous West from the Little Bighorns through the Rockies and on into the Pacific Northwest. They are numerous in and around the slopes of Mount Rainier, Mount Adams, and Mount Baker in the Cascades of Washington State and found throughout the Bighorn Mountains and the Beartooth Absarokee range.

Food: Not edible; toxic. Internal consumption causes stomach pain, vomiting, and diarrhea. High doses may induce cardiac arrest. Several people have had dermatological complaints when using an external application of the plant extract.

Traditional uses: Volatile oils in the flowers were used in making perfume. American Indians used an infusion of the roots externally for back pain. A poultice was used on edemas to reduce swelling. The plant was considered anthelminthic,

Arnica, *Arnica cordifolia*

antiseptic, astringent, and choleretic, as well as an emmenagogue, expectorant, febrifuge, stimulant, and tonic. Typically it was used as a topical agent for wound healing. The whole plant is used after extraction in ointment or as a compress with antimicrobial and fungicidal action. In folk medicine, it was used to induce abortions.

Modern uses: Commission E has approved the external use of arnica flower for injuries and for hematomas, dislocations, contusions, edema due to fracture, and rheumatic muscle and joint problems. It is also approved homeopathically for use in inflammation of the oral and throat region, furunculosis, inflammation caused by insect bites, and superficial phlebitis. Medicinal parts include the roots and rhizome, dried flowers, and leaves collected before flowering. Because of the toxic nature of the plant, homeopathic doses are used to manage pain, treat diabetic retinopathy, and treat muscle soreness. The plant extract is used in antidandruff preparations and hair tonics. In clinical research, arnica has presented mixed results as an anti-inflammatory. Topical preparations of

arnica are used to treat bruises, sprains, muscle aches, phlebitis, joint pain, inflammation from insect bites, and swelling from broken bones. More recent studies suggest it may also be helpful in the treatment of burns (Mount Sinai 2023).

CAUTION: Flowers may be a skin irritant, causing eczema. Do not use during pregnancy. Do not use if sensitive (allergic) to members of the daisy family. Healthcare practitioners are warned not to use arnica on mucous membranes, open skin wounds, or the eyes. Do not use it orally except in homeopathic concentrations. Arnica may interact with anticoagulants and induce bleeding.

Notes: My spouse used arnica homeopathic salve to alleviate pain in her feet. I have never experienced arnica, but friends in the holistic health-care practice maintain its usefulness. Please consult a professional and use a professional product.

Veterinarian/Wildlife: Arnica is an important food for song and game birds and ground cover for small game. American Indians used juniper branches found near arnica (see Juniper) around tepees and shelters to fend off rattlesnakes. Arnica is used with horses to treat aches and pains.

Sitka Valerian

Valerianaceae (*Valeriana sitchensis* Bong.; *V. officinalis* L.)

Identification: Perennial to 24″, sometimes taller. Leaves opposite and staggered up the stem, often with several basal leaves. Terminal cluster of white- to cream-colored odiferous flowers in umbels 2″ to 5″ across, petals are feathery. Blooms April to July.

Habitat: Montane plant, typically found on north-facing slopes. Plentiful in alpine meadows and along trails in the Olympics, Cascades, North Cascades, Mount Rainier, and Mount Baker, especially along Heliotrope Trail toward the climbers' route.

Food: Edible roots are not worth the effort. (If you have tasted the foul-smelling valerian tea, you are nodding in agreement.)

Traditional uses: Stress-reducing, tension-relieving mild sedative for insomniacs. *V. sitchensis* roots were decocted in water to treat pain, colds,

Sitka valerian, *Valeriana sitchensis*

and diarrhea. A poultice of the root was used to treat cuts, wounds, bruises, and inflammation.

Modern uses: A few people still use *V. sitchensis* in the traditional way. Aqueous extract of *V. officinalis* root can have relaxing effect on poor or irregular sleepers and smokers. Sometimes combined with hops (*Humulus lupulus*) and skullcap (*Scutellaria lateriflora*). The effect of valerian on gamma amino butyric acid (GABA) may reduce blood pressure and help mild depression. This chemical is also found in evening primrose seeds and several varieties of tomatoes.

Notes: Take the road to the Sunrise Lodge on the north side of Mount Rainier, walk to the learning-center garden, and see this plant and many other medicinal plants of the West and Northwest. A splendid setting. The plant's odiferous flowers are not particularly pleasant to many, but I love the stink; it means I'm back in the mountains.

Veterinarian/Wildlife: One might try using root extract, as is done with other valerians, as bait to lure wild cats, rodents, and mountain lions in close for hair-raising photo opportunities. Deer forage on the leaves of this plant. *V. edulis* extract is used in animal calming products such as Ultra Calm, and as part of a fertility booster for horses.

Bistort

Polygonaceae (*Polygonum bistortoides* Pursh.; *P. viviparum* L.)

Identification: Perennial to 30″ but more often much shorter. Basal leaves. White flowers in single dense cluster atop erect stalk, later forming a seed head with brownish achenes (seeds). Species include meadow bistort (*P. bistorta*) and alpine bistort (*P. viviparum*).

Habitat: Both species grow from New Mexico to Alaska on wet, open slopes. Abundant in the alpine meadows of Mount Rainier and the Cascades and the Snowy Range of Wyoming.

Food: Young leaves and shoots are edible raw or cooked. They have a slightly sour taste. Older leaves are tough and stringy. Use leaves in salads and cooked with meat. The starchy root is edible boiled in soups and stews or soaked in water,

Bistort, *Polygonum bistortoides*

dried, and ground into flour for biscuits, rolls, and bread. The cooked roots are said to taste like almonds or chestnuts. The seeds are edible and pleasant tasting.

Traditional uses: This vitamin C–rich plant was used to treat or prevent scurvy. As an alcohol tincture it is astringent and used externally on cuts, abrasions, acne, insect stings and bites, inflammations, and infections.

Modern uses: Little used today as a medicinal. Traditional uses still employed by montane-dwelling American Indians and Europeans. In animal studies, the tannin content in *P. bistorta* proved hepatoprotective, protecting the liver from environmental toxin carbon tetrachloride (Mittal 2011).

Notes: Easily identified and harvested in areas where harvesting is allowed. Particularly abundant in the Bighorn Mountains near Medicine Wheel.

Veterinarian/Wildlife: Flowers of *P. amphibium* are used as fish bait.

Beargrass

Melanthiaceae (*Xerophyllum tenax* [Pursh] Nutt.)

Identification: Perennial to 3′ in height. A stout grass with sharp, long, saw-edged blades, blue-green in color, producing a long, central flower stalk with terminal raceme crowded with small white flowers. Often grows in dense, spectacular clusters. A distinctive plant, no look-alikes; once you see it you'll never forget.

Habitat: Mountainous West north from California to Alaska, east to Montana and Wyoming. Mountain slopes, openings in alpine forests, edges of mountain lakes and streams to the tree line.

Food: Roots can be boiled until tender and eaten.

Traditional uses: According to *Native American Ethnobotany*, Blackfoot Indians chewed the roots and applied them to wounds as a poultice (Moerman 1998). Pounded and grated roots were applied externally to sprains and broken bones. Other indigenous folks used wet roots to wash wounds.

Beargrass, *Xerophyllum tenax*

Modern uses: No proven modern uses. But a decoction of the roots is used by traditional practitioners on breaks and sprains as adjunct therapy. Roots still used as an antiseptic wash to clean sores.

Notes: This plant is considered an environmental "canary in the coal mine": When beargrass disappears from a forest, the forest is in decline. Leaves are gathered for flower arranging. The tough leaves were used to decorate belts and dresses and to make baskets. Soaking the first leaves of spring softens them

and makes the shoots pliable weaving material. The best stand of beargrass I ever saw was in Idaho along US Highway 287 in the Beaverhead National Forest en route to the Bitterroots.

Veterinarian/Wildlife: According to *Wildflowers of the Olympics and Cascades* (Stewart 1988), bears eat the roots. I have not found this documented anywhere else.

Usnea

Parmeliaceae (*Usnea* spp.)

Identification: Parasitic epiphyte, a tree lichen, a fungus living symbiotically with an algae. There are numerous hair-like parasitic organisms hanging from conifers. Usnea is light gray-green and best identified by teasing apart the outer mycelia sheath of its skin to expose a tough white central core or cord, thread-like and supple. Other clinging lichens do not have this white central core. Also called old man's beard.

Habitat: Forests of the Pacific Northwest and in the broader north temperate climate zone of the West; worldwide in temperate moist and damp habitats.

Food: Unlike several lichen species, usnea is not eaten.

Traditional uses: American Indians moistened the crushed plant and applied it as a poultice over boils and wounds. In Traditional Chinese Medicine it is used to treat tuberculosis. In Europe and Asia, it was used for thousands of years as an anti-infective.

Modern uses: Commission E–approved for mouth inflammations and inflammations of the pharynx. Widely used by naturopaths to treat acute bacterial and fungal infections. Scientific studies report that the extract is effective against gram-positive bacteria (pneumococcus and streptococcus). Antiviral effects have been shown in vitro. Where available, the drug is produced in the form of lozenges. Usnea species contain antioxidants as tested in vitro.

Usnea, *Usnea* spp.

Notes: Campers used the lichen as stuffing material for mattresses, pillows, and as a soft bedding under sleeping bags. *Native American Ethnobotany* reports that the Nitinaht women used usnea as sanitary napkins and as diaper material for babies (Moerman 1998).

Veterinarian/Wildlife: Abundant nesting material for birds.

Arrowleaf Balsam Root

Asteraceae *(Balsamorhiza sagittata* [Pursh] Nutt.)

Identification: There are numerous species. *B. sagittata* grows 1′ to 2′ in height and is found in clumps. Leaves are basal, petioled, and arrow shaped; hairy, rough to the touch; from 8″ to 12″ in length. Flowers yellow, long stalked. Up to twenty-two yellow rays encircle the yellow disc of florets.

Habitat: Foothills and higher elevation of the Rockies from Colorado north to Canada and west to British Columbia. Dry or well-drained sunny slopes.

Food: Young leaves and shoots are edible, as well as young flower stalks and young stems. They may be steamed or eaten raw. Peeled roots are also eaten but are bitter unless slow-cooked to break down the indigestible polysaccharide (inulin). The roots may be cooked and dried, then reconstituted in simmering water before eating. Seeds are eaten out of hand or pounded into a meal used as flour. The roasted seeds can be ground into pinole. The Nez Perce roasted and ground the seeds, which they then formed into little balls by adding grease.

Traditional uses: American Indians used the wet leaves as a wound dressing and a poultice over burns. The sticky sap sealed wounds and was considered antiseptic. Although balsam root is bitter when peeled and chewed, it contains inulin that may stimulate the immune system, providing protection from acute sickness such as colds and flu. The sap is considered antibacterial and antifungal. A decoction of the leaves, stems, and roots

Arrowleaf balsam root, *Balsamorhiza sagittata*

was taken for stomachache and colds. The root was also used for treating gonorrhea and syphilis. In the sweat lodge, balsam root smoke and steam is reported to relieve headaches. It is considered a warrior plant, and in smudging ceremonies it is a disinfectant and inhaled for body aches. The chewed root was used as a poultice over sores, wounds, and burns.

Modern uses: Little studied or used in any modern context. Traditional uses are still practiced.

Notes: This plant is widespread in the Bitterroots and other Idaho wilderness areas and on the south-facing slopes of Rainbow Lake, Absaroka/Beartooth Wilderness. In a pinch—should you get lost in these vast mountainous expanses—here is a food that helps you survive. But freeing the root, deeply and intricately woven into bedrock, without a backhoe, is an exhausting task.

Veterinarian/Wildlife: A poultice of the root is used on saddle sores. It is low-quality forage for lamb, often used to test discriminating prowess of lambs when

arrowleaf is coupled with a better forage. Leaves are eaten by Rocky Mountain elk, mule deer, pronghorn antelope, bighorn sheep, and Columbia ground squirrels. Cavity-nesting bees get most of their nourishment from balsam roots.

Pipsissewa

Ericaceae (*Chimaphila umbellata* L. Nutt.)

Identification: Small evergreen shrub to 12″ tall. Glossy green leaves in whorls, lance shaped, shiny, toothed. Whitish pink to rose-colored flowers, about 0.375″ across, grow in clusters atop a long stem. Fruit is a locolocidal (seed capsule opens like tulip petals) capsule, not a berry and not edible.

Habitat: Nationwide in forests, foothills, and montane coniferous woods of Colorado, Wyoming, Montana, Alberta, and British Columbia south to California and east to Maine, south to Florida. Not found in the American Southwest, Kentucky, or Tennessee.

Food: The plant is used as a flavoring agent for candy and pop, and the tender top leaves are boiled and eaten. Capsules are eaten as a digestive.

Traditional uses: The tea was used as an expectorant and considered a dermatological, urinary, and orthopedic aid. Tea made from aerial parts was used to treat water retention and kidney and bladder problems. An infusion from the plant was used as an eyewash. The astringent herb was used to treat fevers, stomachaches, backaches, coughs, and sore throats and as a wash for wounds, sores, blisters, and rashes. Fresh leaves were crushed and applied externally to reduce inflammation. American Indians used the tea to regulate menstruation.

Pipsissewa, *Chimaphila umbellata*

Modern uses: Considered to be a treatment for kidney problems. Used by homeopathic practitioners to treat inflammation of urinary tract, mammary glands, and prostate.

CAUTION: Leaves applied as a poultice may cause inflammation and dermatitis.

Notes: This fragrant flower grows in profusion around the slopes of Mount Baker and Mount Rainier in Washington State, but it has been overharvested and is becoming difficult to find elsewhere. Abundant on the wet west slope of the Cascades bordering Mt. Baker, Washington, and abundant on the east shore of West Rosebud Lake, Beartooth Wilderness, Michigan, just south of Fishtail.

Veterinarian/Wildlife: The plant is used in farm animals in the same way it was traditionally used in humans.

Sheep Sorrel

Polygonaceae (*Rumex acetosella* L.)

Identification: Sheep sorrel is a spreading herb with arrow-shaped leaves and small green flowers—at first low lying, and at maturity taller by 7″ or 8″. It is sour tasting—distinctive. Flower stalk is deeply ridged, elongated, flowers maroon tinged.

Habitat: Edges of sidewalks, or even in the cracks of sidewalks, including recently disturbed ground. It is drought tolerant and heat tolerant and, like purslane, a common garden volunteer.

Food: Edible with caution; it is tart. Try in bean soups and mesclun mix salads. Leaves eaten raw, boiled, fried, or stuffed into breads and pies. Used as a lemony spice with vegetables.

CAUTION: Eat only occasionally because of high tannin and oxalic acid content, which may induce the growth and collection of kidney stones if eaten excessively; the same is true of spinach and other oxalic acid–rich foods. A few in a salad, however, does no harm.

Traditional uses: Considered a cooling diuretic, the leaf tea is used in Europe to fight scurvy, inflammation, fever. Root tea taken to treat diarrhea and excessive menstrual discharge. The plant, like many fresh greens, is a diuretic and may improve immune system resistance to infections. Folk uses include a spring tonic and blood purifier to treat stomachaches, and liver and biliary ailments (similar to uses of uva-ursi). Leaves are steamed and used as a poultice or compress over sores, wounds, bruises (Aleut, Cherokee). Mohegans ate leaves to ease

Sheep sorrel

stomach problems. According to *Native American Ethnobotany*, Squaxin ate sheep sorrel leaves to treat tuberculosis. Various tribes ate the leaves, including, alphabetically: Bella Coola, Chehalis, Cherokee, Delaware, Hanaksiala, Hesquiat, Iroquois, Miwok, Okanagon-Colville, Saanich, Thompson (Moerman 1998). The widespread distribution of the plant is evident by the number of First People who used it.

Modern uses: Sheep sorrel is one of the components of the Essiac Compound; for more information see *The Essiac Report* (Thomas 2015). Essiac is a folk treatment for cancer. Essiac consists of sheep sorrel, burdock, slippery elm bark, rhubarb root, watercress, blessed thistle, red clover, and kelp. The primary parts eaten or compounded are the leaves, stems, and flowers. Over-the-counter preparation may be purchased in tablet form, taken orally, or made into a tea. Sheep sorrel contains emodin, a laxative, and oxalic acid. German and Spanish researchers discovered oxalic acid lowers glucose and cholesterol levels in the blood. It may assist in weight loss and reduce inflammation. Because of oxalic acid's ability to

inhibit digestion, it lowers blood sugar, perhaps of benefit to people with type 2 diabetes—see your physician. Oxalic acid does, however, block the assimilation of calcium.

Notes: I have eaten the leaves while on walks and have found the plant from coast to coast. The Essiac formula is not a proven cancer treatment and if you consider using it, use it only as adjunct therapy with modern allopathic therapy and use it only with the permission of your holistic health-care practitioner. In the battle against cancer, use all the ammunition. A dear friend of mine in the midst of this battle, in addition to his holistic therapies, traipsed over to the Mayo Clinic and they, after a horrible week, provided him many more years.

Veterinarian/Wildlife: Not commonly eaten by horses, cattle, and sheep—what do they know? Sometimes instincts are better than impulse.

CHAPTER 7

Medicinal Plants of the West Coast

Measure your health by your sympathy with morning and spring.

—HENRY DAVID THOREAU, 1859

Devil's Club

Aralioideae (*Oplopanax horridus* Sm. Torr. & Gray ex Miq)

Identification: Shrubby perennial to 10′. Spreading, crooked, and tangled growth covered with horrible thorns. Wood has sweet odor. Dinner-plate-size maplelike cleft leaves with seven to nine sharp-pointed lobes armed underneath with thorns. Clublike flower head with white flowers grouped in a compact terminal head. Berries shiny bright red, flattened.

Habitat: Coastal mountains and coastline. Seepage sites, stream banks, moist low-lying forested areas, old avalanche tracks. Typically grows at low altitude, but in Canada it may grow to the tree line.

Food: Not often eaten as food, its berries are considered inedible. According to *Native American Ethnobotany,* spring buds were boiled and eaten by the Oweekeno tribe (Moerman 1998).

Traditional uses: Related to ginseng, devil's club's roots, berries, and especially greenish inner bark are used. The plant is one of the most important medicinal plants of West Coast First People and is still used in rituals and medicine. Berries are rubbed into hair to kill lice or add shine. The inner bark is chewed raw as a purgative and emetic or taken with hot water for the same purpose. The inner bark is infused or decocted to treat stomach and bowel cramps, arthritis, stomach ulcers, and other unspecified illnesses of the digestive system. Root, leaves, and stems are added to hot baths and sweat lodges to treat arthritis. The cooked and shredded root bark is used as a poultice for many skin conditions. The stem decoction is used for reducing fever.

Devil's club, *Oplopanax horridus*

Tea from the inner bark is used for treating diabetes, a common ailment in aboriginal people who now eat a fatty and carbohydrate-rich Western diet. The dried root was mixed with tobacco and smoked to treat headache. An infusion of crushed stems was used as a blood purifier. Stem ashes and oil were used on skin ailments. The traditional use as an abortifacient has been disproved.

Modern uses: The plant continues to be used by American Indians in traditional ways. German clinical trials show the plant has anti-inflammatory and analgesic activity. Animal studies show that a methanolic extract of the roots reduces blood pressure and heart rate (Circosta et al. 1994).

Notes: American Indians burned devil's club, then mixed the ashes with grease to make a black face paint that was said to give a warrior supernatural power. Bella Coola Indians used the spiny sticks as protective charms. The scraped bark was boiled with grease to make dye. American Indian hunters sponge a decoction of the plant's bark over their bodies to remove human odor. This is a dense and spreading shrub with long, sharp, painful spines barring access for the intrepid wilderness trekker.

Veterinarian/Wildlife: Northwest tribes carved fishing lures from the thorny wood.

Red Alder

Betulaceae (*Alnus rubra* Bong.)

Identification: Member of the birch family to 80′ in height, often much smaller. Bark smooth and gray when young, coarse and whitish gray when mature. A. *rubra* bark turns red to orange when exposed to moisture. Leaves are bright green, oval, coarsely toothed and pointed. Male flowers clustered in long, hanging catkins; female seed capsule is ovoid cone. Seed nuts small, slightly winged, flat.

Habitat: Species ranges from California to Alaska east to Idaho. Moist areas.

Food: Members of this genus provide a generous resource of firewood in the Northwest for savory barbecue cooking. The bark and wood chips are preferred over mesquite for smoking fish, especially salmon. The sweet inner bark is scraped

Alder, North Cascades, Washington

in the early spring and eaten fresh, raw, or combined with flour to make cakes.

Traditional uses: Sweat-lodge floors were often covered in alder leaf, and switches of alder were used for applying water to the body and the hot rocks. Alder ashes were used as a paste with a chewing stick to clean the teeth. Cones of subspecies *A. sinuata* are also used for medicine, as are other alder species. Spring catkins were

smashed to pulp and eaten as a cathartic (to help move the bowels). The bark was sometimes mixed with other plants in decoction and used as a tonic. Female catkins were used in decoction to treat gonorrhea. A poultice of leaves was applied to skin wounds and skin infections. In the Okanagan area of central Washington and British Columbia, First People used an infusion of new end shoots as an appetite stimulant for children. The leaf tea infusion is said to be an itch- and inflammation-relieving wash for insect bites and stings and poison ivy and poison oak. Upper Tanana informants reported that a decoction of the inner bark reduces fever. An infusion of bark was used to wash sores, cuts, and wounds.

Modern uses: This is still an important warrior plant in sweat-lodge ceremonies. For more on sweat lodges, see the DVD *Native American Medicine* (Meuninck et al. 2007). Black alder, *A. glutinosa*, is endemic to the Northern Hemisphere and is used in Russia and eastern European countries as a gargle to relieve sore throat and reduce fever. Research suggests that betulin and lupeol in alder may inhibit tumor growth.

Notes: To smoke meat with alder, soak the wood chips overnight in water, then place the moist chips on coals or charcoal to smoke meat. In 1961 I saw more than a hundred American Indians smoking fish, moose, and caribou for winter storage along a 10-mile stretch of the Denali Highway in Alaska. Hunting rules at that time required any person shooting a caribou to give some of the meat to the First People, who preserved it for winter food. Fish were flayed, stabbed through with a stick, and hung from wood weirs above a smoldering alder fire until smoked and dry. Ashes of alder were mixed with tobacco and smoked. In hardwood-poor areas of the West, alder burns slower than pine and is a suitable home-heating fuel. Bark may be stripped and soaked in water to make an orange-to-rust dye. Numerous alder species are found across North America, often in impenetrable mazes surrounding stream beds—great bear habitat, so be careful.

Veterinarian/Wildlife: The reddish-brown bark dye makes fishnets invisible to fish. Wood is carved to make fishing arrow points.

Western Red Cedar

Cupressaceae (*Thuja plicata* D. Don.)

Identification: Aromatic evergreen to 230′ tall. Many branched from the trunk skyward. Needles flattened; dark green above, lighter green below. Heavy seed crops are produced every 3 years. Fertility is reached at about 20 years of age.

Habitat: Windward side of the Cascades,

Western red cedar, *Thuja plicata*

moist areas preferred, including Vancouver Island and the Olympic Peninsula—bottomland with deep rich soils.

Food: *T. plicata*'s primary use is and was for making cooking boxes and planks for flavoring and cooking salmon. The cambium (inner bark) could be eaten as a survival food, but there are numerous other safer alternatives (Meuninck 2006).

Traditional uses: *T. plicata*, red cedar, is a male warrior plant used by American Indians in sweeping and smudging and steam-bath rituals to clear the body and mind of evil spirits and unhealthy conditions that prevent good health. Northwestern tribes make fine cedar boxes for cooking and storage. Europeans use the wood to line chests and encasements because of the fine fragrance and insect-repelling chemistry of the wood. A decoction of dried and powdered leaves was used as an external analgesic to treat painful joints, sores, wounds, and injuries. Leaves in infusion were used to treat coughs and colds. The decoction of the bark in water was used to induce menstruation and possibly as an abortifacient. The leaf buds (new end growth) were chewed to treat lung ailments. A decoction of leaves and boughs was used to treat arthritis.

Modern uses: *T. occidentalis* is preferred over *T. plicata* as a homeopathic drug to treat rheumatism, poor digestion, depression, and skin conditions.

CAUTION: Because of its thujone (a carcinogen and liver toxin) content, don't use this drug without professional consultation and supervision.

Notes: This magnificent tree, tall and thick, a giant of old-growth forests in the Northwest, provides a durable, decay-resistant wood. Cedar boxes are still used to steam salmon and other foods. Hot rocks are placed on wet plants—often skunk cabbage leaves—wrapped around the salmon. The box is covered with a lid and the salmon slow cooked in steam. Cedar boxes are also used for making seaweed more palatable. Red laver seaweed (*Porphyra perforata*) is decomposed for five days, then pressed into wood frames and dried in the sun, then transferred to cedar boxes. Then people chew chiton meat (from a tidal mollusk with an armorlike scaly shell) and spit the meat between layers of seaweed. The boxes are secured for about a month and then the ritual preparation is repeated three more times. Finally, the cakes are packed in a cedar box with cedar boughs and used as winter food, often eaten with salmon at potlatchlike feasts. The trunk of red cedar is used to make totem poles and canoes. The inner bark is used to make baskets.

Veterinarian/Wildlife: Red squirrels eat the buds in spring and cut and store seed-laden branches for winter forage. Rabbits, moose, and deer browse on the leaves. Porcupines eat the bark and may inadvertently girdle a tree, killing it. Boughs are used as snake repellent.

Douglas Fir

Pseudotsuga (*Pseudotsuga menziesii* [Mirbel] Franco)

Identification: Medium to large conifer; coastal variety grows to 240′. Narrow, pointed crown, slightly drooping branches, and straight trunk. Deeply furrowed bark on mature tree. Needles single, flat, pointed but soft ended, about 1″ long, evenly spaced along the twigs. Cones to 4″ long have winged seeds, three pointed bracts extending beyond cone scales look like the legs and rear end of a mouse hiding in the cone; distinctive.

Habitat: Mountainous West and West Coast, from Mexico north to British Columbia. Grows best on wet, well-drained slopes but tolerates drier montane areas.

Food: The new end growth is made into a tea or added to soups and stews. The pitch is chewed like gum as a breath cleanser. Needles and branches are cooked with meat as flavoring. Rare Douglas fir sugar, or wild sugar, accumulates on the ends of branch tips on trees found in sunny exposures on midsummer days. According to *Traditional Plant Foods of Canadian Indigenous Peoples* (Kuhnlein and Turner 1991), the sugar candy looks like whitish, frostlike globules.

Traditional uses: This is a popular and important sweat lodge plant. Its aromatic needled branches are steamed to treat rheumatism and in cleansing purification rituals. Buds, bark, leaves, new-growth end sprouts, and pitch are all used as medicine by American Indians. A decoction of buds is unproven treatment for venereal diseases. The bark infusion was taken to treat bowel and stomach problems. The bark was burned and taken with water to treat diarrhea. The needle infusion was drunk to relieve paralysis. Leaves were made into tea to treat arthritic complaints. Pitch was used to seal wounds, chewed like gum to treat sore throat, and considered an effective first aid for cuts, abrasions, bites, and stings. Decoction of new-growth twigs, shoots, and needles treated colds. Ashes of twigs and bark were mixed with fat to treat rheumatic arthritis.

Douglas fir, *Pseudotsuga menziesii*; notice distinctive “mice” hiding in the cone.

Modern uses: Still very important ritual plant in American Indian spiritual rites and traditional medicinal uses.

Notes: Excellent firewood for cooking fish and meat. Also serves as an attractive Christmas tree and a top-ranked lumber tree, used to make veneer plywood and decks. Price per linear foot has skyrocketed.

Veterinarian/Wildlife: The wood was used by American Indians to make harpoon shafts, carved fish baits, wooden hooks, herring rakes, and wooden fish traps. Needle boughs were rubbed over hunters to provide a fragrance that would disguise human odor.

Juniper

Cupressaceae (*Juniperus communis* L.; *Juniperus osteosperma* [Torr.] Little)

Identification: Evergreen tree or low-lying spreading shrub; often grows in colonies. Leaves evergreen, pointy, stiff, somewhat flattened, light green; whorls of three spreading from the branches. Buds covered with scalelike needles. Berries blue, hard, emit a tangy smell when scraped, and impart a tangy flavor—a creosote-like taste. Male flowers are catkinlike with numerous stamens in three segmented whorls; female flowers are green and oval, round fruit ripens to blue, edible, aromatic, with one or more seeds.

Habitat: *J. communis* is found nationwide, *J. osteosperma* found in dry montane areas of Southwest and Wyoming.

Food: Dried berries are cooked with game and fowl. Try putting them in a pepper mill and grating them into bean soup and stews and on lamb, goat, venison, duck, and turkey. The berries may be made into tea—simply crush one or two berries and add them to water just off the boil. Gin, vodka, schnapps, and aquavit are flavored with juniper berries. Use berries in grilling marinades. Grate berries on cold cuts and on vegetated (soy) protein cold cuts, like Wham and Gardenburgers. Be judicious; large amounts of the berry may be toxic (as are large amounts of pepper and salt), so use in small amounts like a spice.

Traditional uses: The diluted essential oil is applied to the skin to draw and cleanse deeper skin tissue. The fruit's chemistry has been used to promote menstruation and to relieve PMS and dysmenorrhea. Traditional practitioners use 1 teaspoon berries to 1 cup water, boil for 3 minutes, let steep until cool. A few practitioners add bark and needles to the berry tea. The berry is considered an antiseptic, a diuretic, a tonic, and a digestive aid. It's strongly antiseptic to urinary tract problems and gallbladder complaints but contraindicated in the presence of kidney disease.

Juniper, *Juniperus communis*

Modern uses: Commission E–approved for treating dyspepsia. One tenth of a milliliter of the essential oil used to treat dyspepsia. The berry is diuretic, so the extract is diuretic (Odrinil). It's possibly indicated for treating heart disease, high blood pressure, and dropsy. The berry extract is used in Europe to treat arthritis and gout. Animal studies of the extract in various combinations showed anti-inflammatory and anticancer activity, but this is not proven in humans. It decreased glycemic levels in diabetic rats. In human trials the berry extract combined with nettle and yarrow extracts failed to prevent gingivitis. In one double-blind, placebo-controlled study, juniper oil and wintergreen oil (30 milliliters

of Kneipp-Rheumabad) were added to bath water and reduced pain in trial participants. Mice trials suggest the berry extract in pharmaceutical doses to be anti-inflammatory, at least in the rodents. Juniper oil has been used successfully as a diuretic and may be useful as adjunct therapy for diabetes.

CAUTION: Use juniper sparingly, as allergic reactions are possible. Pregnant women should avoid this herb because it may induce uterine contractions. It may increase menstrual bleeding. Do not use if kidney infection or kidney disease is suspected. Do not use the concentrated and caustic essential oil internally without guidance from a licensed holistic healthcare practitioner.

Notes: I occasionally chew on a berry—ripe, soft ones are tastiest. Add a half-dozen berries to duck, goose, lamb, or goat stew and brighten the flavor adventure. Juniper is easily transplanted to your garden and the wild varieties, especially the western ones, provide a windfall of fruit.

Juniperus osteosperma, Flaming Gorge, Wyoming, my favorite berry to put in marinades with wild game

Veterinarian/Wildlife: Juniper is used in many of the traditional ways with pets; talk to your vet.

Sweet Cicely

Apiaceae (*Myrrhis odorata* L. Scop.)

Identification: Be careful—this is a hemlock lookalike but much smaller, even when mature. Grows to less than 3′. Broken root smells like anise seed. Shiny, bright green leaves; small, white flowers in umbels. Sweet cicely, also called wild anise, has a sweet anise odor and taste. Flowers appear in late spring to early summer. Fruit is pyramid shaped, compressed at sides and brown to glossy black, plus or minus an inch in length. Leaves smell like lovage and taste like anise. Short feather- or fernlike leaves are covered underneath with hairlike soft bristles, leaves deeply cleft.

Sweet cicely root and flower

Habitat: Forest dweller. Found throughout entire United States except extremes of desert, mountains. Shade preferring.

Food: Leaves and root edible. Learn to differentiate from poison hemlock; be

careful. Use root to spice cooked greens and baked goods. Used as an anise substitute. Leaves can be added to salads. Cooked root can be eaten cold or pickled; try it in salads, soups.

Traditional uses: Used as a blood purifier and expectorant for hundreds of years. Traditionally used to treat asthma and other breathing difficulties.

Modern uses: Root tea used as an expectorant, decongestant, and digestive aid. Still considered useful in treating anemia, probably due to iron in root. As a food additive or spice, the cooked root acts as a carminative.

Notes: Sweet cicely will transplant from the wild into a shady, moist part of your garden. Pick leaves for salads. Use root for food and medicine. Anethole, a volatile oil, imparts the aniselike flavor. Preparation: Root is macerated and infused in water as a tea. Keep pot or cup covered so as not to lose essential oils. Keeping macerated root in stoppered bottle of water may yield more of the aromatic, volatile oils.

Veterinarian/Wildlife: Reported to attract wildlife—nonspecific. It appears to be untouched when I see it in the forest—a welcome chew as I walk along.

Sweet Clover

Fabaceae (*Melilotus officinalis* L. Pall.)

Identification: Yellow flowering plant from 2′ to 4′ tall on a smooth, heavily branched stem. Leaves are trifoliate (three leaflets), alternate, finely toothed on long petioles. Small yellow flowers abundant on long peduncled (stemmed) racemes. The fruit is obtuse, smooth, light brown to black, with thorny tip in a horizontally wrinkled pod, one seed per pod. Also known as yellow sweet clover.

Habitat: Mountain meadows below 7,000 feet. Also found in prairie states and east of the Mississippi. Universally available throughout the United States.

Food: Inedible. Sweet clover, when cut moist and moldy, presents coumarins, which are blood thinners and anticoagulants. This has caused death in cattle and therefore should not be eaten.

Traditional uses: American Indians used the flowers and root infusion as a wash

Yellow sweet clover crowding an Oregon spring

to treat pimples (acne) and sunburn. Cold infusion of aerial parts used by Ramah Navajo to treat colds. Dried flowers smudged to sweeten smell of house and invite good spirits.

Modern uses: Leaves, flowers, and stems used to procure drug. Infusion and other forms of the drug used to treat wounds, blunt injuries (edema), hemorrhoids, varicose veins. Commission E has approved use for blunt injuries, venous conditions, hemorrhoids. It is considered

anti-inflammatory. Used to increase venous and lymphatic performance.

CAUTION: Chemistry includes volatile oils, flavonoids (kampferol, quercitrin), saponins, and coumarins, so liver enzymes should be monitored while on the drug.

Notes: Traditional healers infuse 2 teaspoons or less of the dried aerial parts of the plant to a cup of boiling water. Then administer two or three times per day. Sweet clover health fractions are available in ointments, liniments, sachets, or whole-plant liquid extracts.

Veterinarian/Wildlife: Plant used to repel bedbugs.

Tansy

Asteraceae (*Tanacetum vulgare* L.)

Identification: Erect plant with tough, smooth reddish stem to 5′ tall. Leaves are alternate, compound, and feathery pinnate (finely divided), fernlike, with toothed edges. Numerous flower heads are in terminal clusters and flower looks like round yellow buttons with flattish heads, dense. Tufted seeds are wind dispersed. An aromatic plant with a bitter, toxic taste.

Habitat: Found nationwide near water, along stream banks, ponds, lakes, rivers. There is a large stand in Paradise Valley at Loch Leven campground on the bank of the Yellowstone River. It is a dominant herb at Sandy Point, Washington. And we have more than enough here in Michigan.

Food: Toxic, inedible.

Traditional uses: Dried whole plant prepared to treat worms, migraines, pain, lost appetite, gout, fevers, etc. Tansy is what herbalists might call a heal-all, but the plant contains thujone, a carcinogen and liver-destroying chemical that is a red flag. Don't use the plant.

Modern uses: Potentially dangerous as a medicinal. The oil of the plant, often high in thujone (a carcinogen and liver toxin), prompts this author to list this medicinal as potentially dangerous and best avoided. That is why you see it here—knowledge trumps ignorance every time.

Tansy: both repellent and pesticide should be used by skilled professionals only.

Notes: Thujone is contained in numerous plants (absinthe, for example) and comes prepared in beverages in amounts controlled by statutes—best avoided. This plant has spread from coast to coast. It is colonial and aggressive, spreading by adventitious roots and tough to eradicate.

Veterinarian/Wildlife: The tansy beetle is unaffected by thujone and thrives almost exclusively on tansy.

Tobacco

Solanaceae (*Nicotiana tobacum* L.)

Identification: Annual or biennial with many genetic varieties that grow to 10′ in height. Stem is many branched with large ovate to lance-shaped leaves. Leaves are pointed and alternate; may be 2′ in length—a large and impressive adult plant. Greenish-cream flowers are numerous in clusters, sepals to 0.5″, with 2″ funnel-shaped corollas containing four stamens.

Habitat: Originated in tropical and subtropical Americas and widely cultivated in the United States, Canada, and various other places worldwide. It has escaped cultivation and can be found in the Southeastern states.

Food: Inedible. Toxic drug containing alkaloid nicotine, tar, and volatile oils.

Traditional uses: American Indians use the herb in rituals as a sacred offering. Tobacco is a warrior plant, a male plant, and burned in sweat-lodge ceremonies. Tobacco-leaf poultice placed over snakebites, insect bites, and stings, and the juice is used as a potent insecticide. A pouch of tobacco as a gift is considerate and appreciated when visiting American Indian friends. Tobacco mixed with *kinnikinnick* (bearberry leaves) is smoked or chewed. Visit the Medicine Wheel monument off highway 14A in the Little Bighorns of Wyoming and see American Indians hanging tobacco pouches and other gifts as offerings to the Creator.

Modern uses: Nicotine is addictive, carcinogenic, euphoric, and an appetite depressant. It is both a stimulant and relaxant. The drug has laxative qualities,

Tobacco plant in bloom

induces vertigo, is emetic and is an excellent worm expellant. It is anodyne, diuretic, and slightly analgesic (smoke of leaf). Internally the lethal dose of the pure drug is 40 to 100 milligrams. Ingestion leads to nausea, vertigo, and collapse. Nicotine is easily absorbed through skin and is toxic—potentially fatal if a lethal does is applied. A nicotine patch (nonlethal dose) and/or nicotine gum used by smokers may help them kick the habit. Homeopathic cessation remedies are available, typically administered by a professional holistic health-care provider. Acupuncture is also a successful cessation tool. Smoking tobacco raises homocysteine levels in the blood, making the smoker more susceptible to cancer, high blood pressure, heart disease, kidney failure, dementia, and Alzheimer's disease.

CAUTION: Be careful not to get tobacco juice on your skin. It's toxic.

Notes: For every American who dies from tobacco use, more than twenty suffer from other serious tobacco-related illnesses. Individuals who experience major depressive disorder at some time in their lives are more likely to have a history of tobacco use than the population as a whole (Glassman et al. 2001). This is a striking garden plant, certain to amaze friends—and yes I have dried and rolled a leaf in appreciation for our ancestors and for the unique experience. Once was enough.

Veterinarian/Wildlife: Medical experiments with laboratory mice and hamsters provided much of the early proof that tobacco smoke induced cancer. A boiled dilution of tobacco is used as an insect repellent on plants.

Western Hemlock

Pinaceae (*Tsuga heterophylla* [Raf.] Sarg.)

Identification: Evergreen to 150′ tall. Narrow, conical crown. Slightly drooping branches. Needles spreading in two rows, to 0.75″ in length; flat, flexible, and rounded at the tip with a very short stalk—green above and whitish below; underside may have tiny teeth. Slender, brownish-yellow twigs with fine hair, rough to the touch. Cones elliptical, long, brown, without a stalk, hanging down at the ends of the twigs. Seeds paired and long winged.

Habitat: California north to southern Alaska and east to northern Idaho and Montana. Acid soils; moist, low flats; and lower slopes in dense stands.

Food: Inner bark is made into bread by coastal American Indians.

Traditional uses: The outer bark was decocted and the wash was used to treat wounds and burns. The inner bark was scraped and infused to treat acute infections such as flu and colds. The oil and resin of hemlock was used externally as a rub to treat arthritis and rheumatic joints.

Western hemlock, *Tsuga heterophylla*, Vancouver Island, British Columbia

Needle tea is antiscorbutic (high in vitamin C) and was used to prevent scurvy.

Modern uses: Teas and bark decoctions are still used in moderation by First People. Herring eggs, an important food of northwestern First People, are still harvested using hemlock boughs (see Notes). Modern pharmaceutical uses of hemlock are unproven and little employed.

CAUTION: Needle tea is occasionally taken for colds and flu, but it can be toxic in large amounts.

Notes: Hemlock makes excellent pulpwood and is a source of alpha cellulose used in manufacturing plastics, cellophane paper, and rayon. American Indians made fishing lures, paddles, and boats from the wood and used the resinous pitch to waterproof boat seams and baskets. Boughs make excellent aromatic bedding when camping. Live trees are cut across streams by American Indians to provide attachment places for herring spawn. The spawn-laden needles are harvested and the spawn removed, prepared, and eaten. Hemlock wood is used to make sugar and flour barrels. Eastern and western hemlock are the lyrical and operatic denizens of old growth.

Veterinarian/Wildlife: This evergreen is an excellent food source for deer and elk and a nesting site for bald eagles. Trappers used the boughs, wood, and bark to boil traps to remove human odor, and boughs were used to collect herring spawn. Saplings were stripped of boughs and twigs and then used as poles for salmon dip nets. Knots of the tree are dense and tough and were carved to make fishhooks. Animal and fish traps are made from the boughs. Young trees provide survival shelter for lost skiers, hikers.

Madrone

Ericaceae (*Arbutus menziesii* Pursh.)

Identification: Evergreen, broadleaf tree to 100′ tall. Young bark chartreuse and smooth; older bark dark brown to red, peeling. Evergreen leaves alternate, oval, 7″ long, shiny; dark green above, lighter, whitish green beneath; hairless and leathery. White flowers urn shaped, to 3″ long, in large drooping clusters. Berry orange red, about 0.5″ across, with granular skin.

Habitat: Coastal areas of northern California, Oregon, Washington, and British Columbia. Dry, sunny areas with a sea exposure.

Food: People of the Vancouver Salish Nation used the reddish bark in decoction to dye the white edible camas bulbs pink. Berries have been eaten, but there's little documentation. Berries were cooked before eating or were steamed, dried, and stored and then reconstituted in hot water before eating. Berries were also smashed and made into a ciderlike drink. The Miwoks claimed the cider was an appetite stimulant and that it resolved upset stomach.

Madrone, *Arbutus menziesii,* Whidbey Island, Washington

Traditional uses: The Saanich and other Indian nations used bark and leaves for treating colds, tuberculosis, and stomach problems and as a postpartum contraceptive. Decoctions of the plant were also used as an emetic. Leaves were

used by Cowichans of the Northwest as a burn treatment and wound dressing. The leaf infusion was used to treat stomach ulcers, and leaves were eaten off the tree to relieve cramps. The juice from the chewed leaves reportedly relieved sore throat. A leaf infusion was used by the Skokomish people to treat colds and ulcers. A bark infusion was used to treat diarrhea. An astringent bark decoction was used for washing sores, wounds, and impetigo and as a gargle for sore throat, according to Pomo and Kashaya people. The Karoks used the leaves in their puberty ceremony.

Modern uses: No longer studied. Traditional uses still employed by holistic practitioners. Leaf tea used to treat stomachache.

Notes: This is perhaps my favorite tree of the Northwest—an austere, yet becoming beauty, shedding her skin to nakedness, providing a place to stretch out on a horizontal limb and experience the rawness and beauty of nature. The wood was used to make canoes. Berries were also dried and used as beads when making bracelets and necklaces.

Veterinarian/Wildlife: Livestock eat the flowers, as do many wild animals. Leaves are eaten by cows. An infusion of leaves and bark was used by American Indians to relieve sore muscles in horses. The berries serve as steelhead trout bait.

Oregon Grape

Berberidaceae (*Mahonia aquifolium* [Pursh] Nutt.; *M. nervosa* [Pursh] Nutt.)

Identification: *M. aquifolium*: Evergreen shrub to 6′ tall. Gray stem. Hollylike, shiny leaves; pinnate, compound, pointed edges and tips. Flower small, bright yellow. Berries deep blue, waxy. Roots and root hairs, when peeled, are bright yellow inside due to the alkaloid berberine. *M. nervosa* is a smaller forest dweller with rosette of compound leaves in a whorl up to 3′ tall, berries on central spikes.

Habitat: *M. aquifolium:* Washington State east into Idaho and Montana. Along roadsides and forest edges. *M. nervosa*: Pacific Northwest. Along Mount Baker Highway in Washington en route to Mount Baker, in open forests and graveyards. It is an invasive plant and can be found where the birds have dropped the seeds.

Oregon grape, *Mahonia nervosa*, North Cascades, Washington

Food: The tart berries of *M. aquifolium* are eaten in late summer in the Northwest. American Indians smashed the berries and dried them for later use. They may be boiled into jam, but be certain to add honey or sugar, because the juice is tart. Carrier Indians of the Northwest simmered the young leaves and ate them. The smaller creeping *M. nervosa* was

prepared and eaten in the same way and is preferred, but it is not as abundant. Try berries mixed with other fruit to improve the taste. Berries may be pounded into paste, formed into cakes, and dried for winter food.

Traditional uses: Tart berries of both species were considered a morning-after pick-me-up. American Indians believed the berries were slightly emetic. A decoction of stems was used by Sanpoils as an antiemetic. These two species of bitter and astringent herbs were used to treat liver and gallbladder complaints. The bark infusion was used by American Indians as an eyewash. According to traditional use, the decocted drug from the inner bark (berberine) stimulates the liver and gallbladder, cleansing them, releasing toxins, and increasing the flow of bile. The bark and root decoction reportedly was used externally for treating staphylococcus infections. According to *Medicinal Plants of the Mountain West* (Moore 1993), the drug stimulates thyroid function and is used to treat diarrhea and gastritis. According to the *Encyclopedia of Herbs and Their Uses* (Brown 1995), *M. aquifolium* has been used to treat chronic hepatitis and dry-type eczema. A root decoction of *M. aquifolium* was used by the Blackfoot peoples to stem hemorrhaging. They also used roots in decoction for upset stomach and to treat other stomach problems.

Modern uses: *M. aquifolium* extractions are available in commercial ointments to treat dry skin, unspecified rashes, and psoriasis. The bitter drug may prove an appetite stimulant, but little research has been done. Other unproven uses in homeopathic doses include the treatment of liver and gallbladder problems. Three human studies showed *Mahonia aquifolium* skin application (10 percent cream or ointment extract from leaves and root) as effective in treating psoriasis. Each study had positive results. Participants rated the *M. aquifolium* extract as good as, or better than, standard Dovonex cream, an expensive prescription alternative (Gulliver 2005). This is good news to psoriasis sufferers, and that includes me.

CAUTION: Do not use during pregnancy or while nursing.

Notes: The shredded bark and roots of both species was simmered in water to make a bright yellow dye.

Veterinarian/Wildlife: Berries are eaten by birds. The Saanich people claim the berries to be an antidote to shellfish poisoning. They chewed *M. aquifolium* for protection after hunting when approached by a dying deer. Oregon grape is an ingredient in a training mix and nervous system formula for horses.

Buckthorn

Rhamnaceae (*Rhamnus cathartica* L.; *R. purshiana* [DC.] Cooper)

Identification: Bush or small tree 4′ to 20′ tall. Many branched, thornless, densely foliated. When mature, the bark is gray brown with gray-white lenticels. Leaves thin, hairy on the ribs, fully margined, elliptical to ovate, 2″ in length. Greenish-white flowers are numerous and grow on axillary cymes. Flowers are very small and have five petals. The ripe fruit

Cascara buckthorn, *Rhamnus purshiana*, Washington State

Rhamnus cathartica, Warren Dunes State Park, Michigan

is red to black-purple with two or three seeds. *R. purshiana* (cascara buckthorn) is taller, to 30″, with leaves that have twenty to twenty-four veins. White flowers are in irregular clusters.

Habitat: *R. cathartica* as pictured found in the dunelands of Lake Michigan and other lake dune areas. *R. purshiana:* foothills of British Columbia, Idaho, Washington, Montana, and Oregon.

Food: Not edible.

Traditional uses: Prior to World War II, you could find cascara tablets over the counter as a laxative in lieu of Ex-Lax or the like. American Indians used the bark infusion as a purgative, laxative, and worm-killing tea. An infusion of the twigs and fruit in decoction was used as an emetic. Curing the bark for a year is said to reduce its harshness.

Modern uses: The bark extract of *R. purshiana* is a powerful laxative. It is Commission E–approved for treating constipation. The laxative response may last eight hours.

CAUTION: The drug should never be used to clear intestinal obstructions. Bark infusion is considered a cleansing tonic, but chronic, continuous use may be carcinogenic. Use only under the care of a physician, holistic or otherwise.

Notes: A couple of naturopathic physicians once laced my salmon with the bark extract of cascara as a practical joke. Some joke! My experience was far worse than any bout with the "Mexican quick step." Berries from a Michigan R. cathartica I inadvertently taste-tested ruined our anniversary dinner. These berries can be mistaken for edible fruit with rueful consequences. *R. purshiana* is found in the great lakes region and is just as effective.

Veterinarian/Wildlife: A natural product containing cascara buckthorn extract may help rebuild damaged nerves in horses (talk to your veterinarian). Cascara taken internally by animals may not have the same physiological effect as with humans.

American Yew

Rhamnaceae (*Taxus brevifolia* Nutt.)

Identification: Evergreen shrub to scanty small tree to 50′ in height. Bark papery, reddish-purple to red brown. Drooping branches. Flat leaves (needles), in opposite rows. Flowers are small cones. Fruit scarlet, berrylike, with fleshy cup around a single seed.

Habitat: Northern California, Oregon, and Washington through Idaho and Montana north to British Columbia and Alberta. Foothills Pacific Coast Range, moist, shady sites.

Food: According to *Native American Ethnobotany* (Moerman 1998), the Karok and Mendocino tribes ate the red, ripe fruit. But the seed and all other parts of the plant are toxic. Avoid eating this plant.

Traditional uses: American Indians used the wet needles as a poultice over wounds. The needles were considered a panacea, a powerful tonic, and were boiled and used over injuries to alleviate pain. Bark decoctions were used to treat stomachache. American Indians were the first to use this plant to treat cancer.

Modern uses: The toxic drug taxine (paclitaxel) from American yew is a model chemical used to treat cancer. It prevents cell multiplication and may prove an effective therapy for leukemia and for cancer of the cervix, ovary, and breast. Clinical trials continue with the drug.

Yew, *Taxus brevifolia*

CAUTION: Both species can induce abortion. All parts of the plant are toxic. Unless guided by an expert, avoid eating any part of this plant.

Notes: Research reports that the cancer-fighting chemistry is in both species. It takes nearly 3,000 trees or 9,000 kilograms of dried inner bark of *T. brevifolia* to make 1 kilogram of the drug Taxol. At that rate all of the wild yew trees in America would be destroyed to produce the needed supply of the drug! Taxol today is grown in culture from cloned cells in huge bioreactor tanks, and nary a tree is destroyed. Researchers are attempting to produce the drug from pinene from pine trees.

Veterinarian/Wildlife: Birds and small mammals eat fruit and disperse seed. Moose, deer, and elk browse foliage in winter. Yew snags are habitat for cavity-nesting birds.

CHAPTER 8

Medicinal Plants of the Desert and Arid Regions

Forests preceded man, and deserts followed him.

—FRENCH GRAFFITTI, ANONYMOUS

These medicinal plants are found in arid biomes of the western United States and Mexico.

Buffalo Gourd

Cucurbitaceae (*Cucurbita foetidissima* Kunth)

Identification: Annual and/or perennial herb with hairs on stems often hardened by calcium deposits. Stems trailing or climbing, tendrils generally one per leaf node, stems often branched. Leaves simple, rough, hairy, alternate, palmately lobed, and veined, with 3″ to 7″ petioles. Flowers at nodes, white to off-white or cream colored, and corolla cup-shaped, generally five-lobed. Fruit 3″ diameter, round gourd or melonlike. Many seeded.

Habitat: Dry plains, semiarid areas of Southwest: Oklahoma, Texas, New Mexico, Arizona, Nevada, and California. Found growing along and up fences, or sprawling along the ground. Very large plants covering up to 100 square feet and more.

Food: It is a bitter food producing oily, protein-rich seeds that are edible after preparation. Seeds are eaten, but only after drying and roasting, a preparation that resolves the bitterness of the cucurbitacin (triterpenoid glycosides, toxic at high doses). Seeds are 43 percent oil and 35 percent protein, making them an excellent choice for cultivation. Unlike the pulp of the gourd, the seeds contain little of the bitter glycosides: cucurbitacin. Be certain to clean all bitter pulp from seeds before roasting. Cook the dried seeds in oil or on an oil-sprayed pan over an open fire or in

Buffalo gourd found in the Texas Hill Country

the oven. After fifteen minutes of cooking, the protease inhibitors in the seeds are deactivated, making the seeds more digestible. Like the pumpkin seed, the roasted seed coat can be eaten (it is rich in insoluble fiber) or removed. Seeds, like mesquite pods, may be dried and ground into flour. Roots are starch rich and may be smashed and then leached of their starch in water. Fibrous cellulose in roots is bitter; remove cellulose from starchy water to improve taste. Root water is fermented into an alcoholic beverage. This plant has commercial potential in arid biomes where there is a need for protein, starch, and oil. Bitterness is a problem with this survival food; if too bitter, do not eat.

CAUTION: A potentially toxic plant related to the edible squashes; eat only the prepared seeds.

Traditional uses: Dried hollow gourd used as a rhythm instrument in religious rituals. Ritual use may precede 10,000 years. Dried roots used as an emetic. Decoction of root used as a therapy for venereal disease. American Indians, following the Doctrine of Signatures, dug up the root (which often has a human shape) and cut away the root section that looked like a human body part. Then the section was prepared and applied to the injured body part it looked like. A poultice of the mashed stems and leaves was used externally to treat sores and infections.

Modern uses: Buffalo gourd is used as a laxative. Other than this potential, few practitioners use the plant in traditional medicinal ways. Nothing is proven concerning medicinal benefits.

Notes: Saponins in root make suds when pounded and mixed with water—an antimicrobial cleansing liquid used in emergencies. The plant is hardy and does well as far north as Michigan. It is a striking squash plant that will have your admiring friends asking questions.

Veterinarian/Wildlife: The saponins and cucurbitacin are antimicrobial and could be used as insecticides or repellents on flowering plants.

Sage

Asteraceae (*Artemisia tridentata* Nutt.)

Identification: Gray, fragrant shrub to 7′. Leaves are wedge shaped, lobed (three teeth), broad at tip, tapering to the base. Yellow and brownish flowers form spreading, long, narrow clusters. Bloom in July to October. Seed is hairy achene. Also referred to as sagebrush.

Habitat: Definitive shrub in dry areas of Wyoming, Eastern Washington, Montana, Texas, New Mexico, California, Idaho, Oregon, Colorado, and elsewhere in the West.

Big sage brush, *Artemisia tridentata*, Flaming Gorge, Utah

Food: Seeds, raw or dried, are ground into flour and eaten as a survival food. Seeds have been added to liqueurs for fragrance and flavor.

Traditional uses: This powerful warrior plant is used for smudging and sweeping to rid the victim of bad airs and evil spirits. Leaves are used as a tea to treat infections or ease childbirth, or as a wash for sore eyes. Leaves are soaked in water and applied as a poultice over wounds. The tea is used to treat stomachache. Tree limbs are used as switches in sweat baths. The infusion was used to treat sore throats, coughs, colds, and bronchitis. A decoction or infusion was used as a wash for sores, cuts, and pimples. The aromatic decoction of steaming herb was inhaled for respiratory ailments and headaches. The decoction was said to be internally antidiarrheal and externally antirheumatic. This panacea drug was also drunk to relieve constipation.

Modern uses: Still very popular and important in American Indian religious rituals, including smudging, sweeping, sweat lodges, and as a disinfectant. For details see the DVD *Native American Medicine* (Meuninck et al. 2007). Gram-positive bacteria are sensitive to the oil *of A. tridentata*.

Notes: Add this herb to your hot bath, hot tub, or sweat lodge for a fragrant, disinfecting, and relaxing cleanse. Often sagebrush is the only source of firewood in the desert.

Veterinarian/Wildlife: American Indians rubbed the herb over their bodies to hide the human scent when hunting. Considered a moth and flea repellent, the decoction of the herb was applied to the wounds of domestic animals.

Prickly Pear

Cactaceae (*Opuntia* spp.)

Identification: Spreading desert and arid land cactus with large oval pads (from 4″ to 10″) and thorny leaves of various sizes. Flowers yellowish. Fruits variable, typically white to red to purple, 2″ in length and 34″ wide.

Habitat: Various species found from coast to coast in dry, sometimes sandy areas and limestone hills (badlands), along roadsides in eastern Colorado, much of Wyoming, Utah, and other dry areas of western states.

Food: The pads, which are often mistaken for leaves (actually, the spines are the

Prickly pear, *Opuntia* spp.

leaves), are edible. Most edible species have flat joints between pads. Flowers and flower buds are roasted and eaten. Species with plump pads (the new growth is preferred) may be thrown on hot coals of fire and roasted. The fire burns off the spines and cooks the interior. Let the pads cool, then peel the skin and eat the inner core. I like to slice the inner "meat" and stir-fry it, or I chop the pad "meat" into huevos rancheros with yucca blossoms and salsa verde. I have eaten the flowers of several species, as have American Indian foragers, but there is little about this practice in the literature. Do so at your own risk. The fruit when red and ripe is tasty and often made into jelly. I like to eat it out of hand right off the plant (avoid the prickly hairs). The pads can be mixed with water, sugar, and yeast and fermented into an alcoholic drink. The young green fruit is boiled and eaten by Pima Indians.

Traditional uses: The flowers are astringent and can be poulticed over wounds. Flowers prepared as a tea are taken for stomach complaints, including diarrhea and irritable bowel syndrome. The stem ash is applied to burns and cuts. Pima Indians believe the edible pads are good for gastrointestinal complaints. Leaf pads are scorched of spines, then sliced in half and the moist side applied as a poultice for cleansing and sealing wounds, infections, bites, stings, and snake envenomations. The Pimas despined, cooked, sliced, and poulticed plants on breasts as a lactagogue. The infusion of stems of a Sonoran Desert species, *O. polyacantha* (plains prickly pear), was used to treat diarrhea.

Modern uses: In Mexico and the American Southwest, prickly pear is used in its traditional ways. According to the *Encyclopedia of Medicinal Plants* (Chevallier 1996), the flowers are still used for treating an enlarged prostate. The inner flesh of the pad is a chemotactic attractant, a *surfactant* that draws serum from the wound site, thus cleaning and sealing it. Try the fruit peeled, sliced, and eaten with a spicy dose of cayenne pepper. Prickly pear cactus (nopal fruit) contains twenty-four of the known betalains, which are potent anti-inflammatory agents. Betalains are polyphenolic pigments found in beets and nopal and other plants. The fruit juice is anti-inflammatory and hypoglycemic.

Notes: This cactus transfers to the garden and is hardy and a summer supply of edible flower petals. It is good to have handy for its antiseptic and sealing properties.

Veterinarian/Wildlife: *Opuntia* pads are sliced open and applied, moist side down, over wounds, bites, stings, and envenomations. Southwestern holistic practitioners report success in treating scorpion and recluse spider bites. I suspect the gel applied to an animal's wounds would be just as effective as it is with humans. Because of this thorny plant's aggressive, invasive nature, it is problematic for grazing animals. But goats will eat it as starvation food. I have seen antelope graze on flowers, and in a pinch they will eat the pads.

Rabbitbush, Brushbar

Asteraceae (*Ericameria nauseosa* [Pall ex Pursh] GL Nesom & GI Baird)

Identification: Erect, densely branched shrub from 2′ to 10′ tall, leaves elongated, narrow, to 2.5″ long. Yellow flowers in heads, to 0.25″ long, with five disked florets forming dense clusters at the tips of branches. Fruits seedlike achenes tufted with white hairs. Various species found throughout the range. Also called rabbitbrush.

Habitat: Dry, lower montane areas and desert, from Montana and Washington State as far north as British Columbia, especially in the Osoyoos area of the southern Okanagan valley, and then south to West Texas and southeastern California. Preferred habitat is dry, sandy, gravelly, or alkali soils in conjunction with sagebrush, juniper-pinyon and ponderosa-pine zones. Generally at low elevations and occasionally found at higher elevations.

Food: Inner bark and especially the exuding root latex used as chewing gum. No known toxicity. Try at your own risk, however, as this author has had no problem, but a close friend broke his personal spitting distance record when he tasted it.

Traditional uses: Blossoms used to make a yellow dye, and stems are woven into baskets by southwestern American Indians. Root decoction used to treat colds, fevers and coughs and believed to relieve menstrual cramps. Infusion of the leaves applied to forehead and temples to relieve headache. Macerated leaves were packed into dental caries to relieve pain, and leaf tea taken internally to treat stomach problems and as a laxative.

Modern uses: Many of the unproven traditional uses still employed today.

Notes: Although not as prevalent as sage or as important, rabbitbrush makes a significant contribution to the environment and its inhabitants. It is an attractive plant, adding color to the monochrome aspects of the desert. It is long blooming and an attractive addition to the Southwestern garden. Research studies by agricultural scientists are exploring the

Antelope watering the brushbar

use of rabbitbrush latex as tire rubber. It is of the same chemistry and substance.

Veterinarian/Wildlife: Rabbitbrush is an important winter forage for mule deer, black-tailed jackrabbits, and cottontail rabbits. It is lightly foraged by antelope and sheep. It provides desert nesting habitat for birds.

Yucca

Agavaceae (*Yucca* spp.: *Y. filamentosa* L.; *Y. glauca* Nutt.; *Y. baccata* Torr.)

Identification: Medium to large perennials (2′ to 20′) with robust, ever-expanding rootstocks, often growing in clumps and colonies. Leaves swordlike, radiating out from basal rosettes, waxy (shiny) green; long, tough, and fibrous. Flowers white or cream colored; cup, bell, or bowl shaped; borne on tall woody spikes extending well above leaves. Typically flowers from May through July. Also known as Adam's needle, Spanish bayonet, or Joshua tree.

Habitat: Upland prairies, high plains, sandy blowouts, California coastal hillsides, deserts.

Food: We eat the white flowers from this plant. Fold them fresh into frittatas or omelets. Garnish a plate with them. Shred them onto salads. The fruits of these plants are also edible, a few species more edible than others. *Y. baccata* has large succulent fruits that are bland but rich with health-protecting flavonoids.

Traditional uses: Folklore claims the root decoction will restore hair. The infusion of the smashed root was taken internally to relieve headache. Yucca root extract is a surfactant or wetting agent, capable of popping the cell membranes of microorganisms. It is therefore a useful, natural soap. Yucca root water decoction is still used to wash hair and kill lice. The root water decoction was drunk to treat arthritis (phytosterols), a potentially risky proposition with so little scientific study of the plant having been performed. See *Little Medicine* (Meuninck and Barnes 2005). *Y. filamentosa* root, with its steroid saponins, has been decocted and used to treat gallbladder and liver problems. A water extraction of smashed leaves was used to quell vomiting, and root water infusion used as a laxative. The root is a male warrior plant and used in smudging rituals to rid the body of bad airs and bad spirits. The root of *Y.*

Yucca, *Yucca glauca*

baccata was taken to ease childbirth; this author surmises that the bitter saponins stimulated contractions.

Modern uses: In Europe leaves ground and dried and extracts of the plant are available for medicinal use. The root and leaf extraction (steroid saponins) of Adam's needle (*Y. filamentosa*) are still used for liver and gallbladder complaints. The side effects of too much steroid saponin intake are stomach upset and nausea. These uses are scientifically unconfirmed. Saponins in the plant lyse (kill, rupture cellular wall) bacteria and produce suds—still used as a shampoo in American Indian rituals.

Notes: Yucca flower shoots—the tall stalks that bear the flowers—are dried and used by American Indians as arrow shafts and fire-starting spindles for Indian matches. See the video *Survival X: Eighteen Ways to Start a Fire Without a Match* (Jim Meuninck's YouTube). Yucca plants will grow in the yard or garden and are practical to have around.

Veterinarian/Wildlife: 1 cubic inch of the roots of *Y. baccata* or *Y. filamatosa* may be pureed in 2 cups water, strained, and filtered into a plant spray. Add another pint of water and use this insecticidal spray on fruit and vegetables. It's organic, water soluble, and a good alternative to more toxic sprays. Early informants suggested that American Indians pounded yucca roots into water to stun fish. Experiments I have conducted suggest it is the aerial part of the plant, principally the leaves, that knocks out fish. The root water actually appeared to stimulate my little finned friends. Yucca extracts are used in lawn-guard formulations that protect your yard from the brown die-off caused by pets urinating on the grass. Various horse supplements contain yucca, including joint support formulations and hoof and foot support supplements.

Agave

Agavaceae (*Agave* spp.: *A. americana* L.)

Identification: Grayish-green desert plant to 10′ with long, swordlike, succulent leaves. Produces flowers on a central fruiting spike. Also known as American century plant.

Habitat: Extreme southwestern United States—dry areas of California, Arizona, Nevada, and Mexico; Central and South America.

Food: American century plant roots are pit cooked, crushed in water, and fermented. Young leaves are roasted and eaten or stored for later use. Fruit heads, young buds, and flower stalks are roasted and eaten (I have also eaten the flowers).

Agave americana

Agave is made into pulque, vino mescal, and tequila. Mescal agave "leaves" are cut out from the center of the plant, then "water" from the plant weeps into the hole. A pulque farmer, using a hollow calabash with a cow horn snout fused to one end, sucks watery sap into a gourd. The sap is fermented in buckets for six or seven days, then served. Agave water harvested in this way is used as potable drinking water. Every Hispanic worth their salt (and a squirt of lime) grows an agave. Demand for tequila has greatly inflated the plant's value. Disease is also threatening the crop, and urban sprawl in Mexico leaves less land available for cultivation. The core of the tender inner leaves of the plant may be cooked and eaten.

Traditional uses: Agave water (juice, sap) is considered anti-inflammatory and diuretic. Also the fresh juice may raise metabolism and increase perspiration.

Modern uses: Leaf waste is gathered, concentrated, and used as starter material for steroid drugs (hecogenin). Agave roots contain suds-producing saponins and are used in the manufacture of soap products. The coarse fiber from leaves is used to make rope and fiber (sisal is manufactured from *A. sisalana*). The sap continues to be used as a demulcent and laxative. Agave nectar is commercially processed into low glycemic index sugar or liquid sweetener, but the rest of the story is bad news. Agave sugar and nectar contain ample amounts of fructose, which retards the release of insulin and actually leads to more fat formation and storage. Furthermore, evidence suggests that agave sugar or nectar may actually increase insulin resistance and fructose may increase the risk of heart disease.

Notes: The sap is used for treating and sealing wounds. Cortez dropped his axe half through his thigh and surely would have died had not the Mesoamerican natives stopped the bleeding and sealed the wound with a compress of sticky agave leaf sap, honey, and charcoal, then bound that with spiderwort stems.

Veterinarian/Wildlife: The root extraction is an insecticide. Seed production from an agave plant drops without its bat pollinators. *A. lecheguilla* has caused hepatotoxicosis in grazing animals, characterized by an itching photodermatitis and swelling of the skin.

Gumweed

Asteraceae (*Grindelia camporum* Green; *G. integrifolia* DC.; *G. nana* Nutt.)

Identification: All species are similar; *G. camporum* is described here: Erect biennial or perennial to 3.5′ tall but typically smaller. Light green leaves are alternate, ovate to oblong, serrated or smooth margins, with a clasping stem, often resin dotted. Flowers yellow to yellow orange,

Gumweed, Yellowstone National Park, Lamar Valley, Wyoming

dandelion-like (composite). Flower bracts are viscous and sticky, hence the name gumweed.

Habitat: *G. camporum*: Southwestern United States to California, up the Sonoran desert to British Columbia and other dry areas of the West. *G. integrifolia* is a Northwest coastal plant of salt marshes and open coastlines. *G. nana* is found in Idaho.

Food: Not edible.

Traditional uses: Used to treat upper respiratory infections. American Indians used the plant decoction externally to treat wounds, poison ivy and poison oak, boils, and unspecified dermatitis. Sticky leaves and flowers were applied to the sores.

Modern uses: Commission E–approved for treating bronchitis and cough. The resinous drug has shown in in-vitro studies to be antimicrobial, antifungal, and anti-inflammatory. Dried aerial parts are used in tea or tincture.

CAUTION: Large doses may be poisonous and a gastric irritant.

Notes: A variety of species can be seen as one travels the backroads diagonally across the upper West from Yellowstone to Vancouver. Gumweed is primarily found in dry areas, but you'll see the marine variety, *G. integrifolia*, when you reach the Pacific coast.

Veterinarian/Wildlife: Flathead First People rubbed curlycup gumweed (*G. squarrosa*) flower heads on horses' hooves for protection against injury. A decoction of tops and leaves of an unspecified gumweed was used as a wash for saddle galls and sores on horses.

Mormon Tea

Ephedraceae (*Ephedra viridis* Coville; *E. sinica*)

Identification: There are several joint fir species. *E. viridis* looks all stem, like it has lost all its leaves. It is a yellow-green plant, many jointed and twiggy, 1′ to 4′ tall, with small leaf scales and double seeded cones in the fall. It appears to be a leggy, branchy bush without leaves. Also called joint fir, ephedra, or ma huang.

Habitat: Various species are found on dry, rocky soil or sand in desertlike areas of the United States: Utah, Arizona, western New Mexico, Colorado, Nevada, California, Oregon.

Food: American Indians infused the roasted seeds. Roasted and ground seeds were mixed with corn or wheat flour to make fried mush.

Mormon tea, *Ephedra viridis*, Fifty Mile Mesa, Utah

Traditional uses: *E. viridis*, Mormon tea, was used in infusion as a tonic and laxative; to treat anemia, colds, ulcers,

and backache; to stem diarrhea; and as therapy for the kidneys and bladder. The decoction or infusion is considered a cleansing tonic (blood purifier). Dried and powdered stems were used externally to treat wounds and sores. The powder was also moistened and applied to burns. It was used by First People to stimulate delayed menstrual flow (dysmenorrhea). Seeds were roasted before being brewed into tea.

Modern uses: The Chinese species *E. sinica* is commonly used today. In China the dried jointed stems are powdered and used to treat coughs and bronchitis, bronchial asthma, congestion, hay fever, and obesity. It's used as an appetite suppressant and basal metabolism stimulant. American ephedra is available as a tea or in capsules over the counter and has little or no vasoactive effects, unlike *E. sinica*. Native ephedra is not cultivated for medicine, but extracts are being tested for antimicrobial action.

CAUTION: *E. sinica*, as a cardiovascular stimulant and central nervous system stimulant, may be dangerous to people with elevated blood pressure, heart disease, or tachycardia. It is federally regulated and is not to be used during pregnancy or by nursing mothers. Numerous drug interactions have been documented. The import and use of this drug is restricted in several countries. Deaths have been associated with its abuse.

Notes: I have enjoyed the twig tea of the American variety while filming wild plants in the Four Corners area around Mesa Verde. Found in abundance in Utah's Fifty Mile Mesa area.

Veterinarian/Wildlife: The twigs can be dried and powdered, carried in your first-aid kit, and applied to cuts, scrapes, wounds, stings, and bites—on you, your dog, or your horse. If available, cover the powdered ephedra with a slice of prickly pear pad.

Jojoba

Simmodsiaceae (*Simmondsia chinensis* [Link], Schneid.)

Identification: Evergreen shrub to 10′ with many branches and separate sexed plants (dioecious). Thick blue-green leaves, oblong and paired. Male flowers small, yellow in color. Female plant has small, inconspicuous, pale-green flowers. Fruit capsule has one to three seeds, single-seeded most common.

Habitat: Sonora Desert and the Desert-Southwest, and into Mexico. Cultivated in the Southwest for liquid wax.

Jojoba, *Simmondsia chinensis*

Food: Seeds are ground and percolated or decocted into a coffeelike drink. Waxy seed kernels are boiled or baked and eaten or blended into cake mix. Nuts can be shelled and eaten. Parched nut kernels are made into nut butter.

Traditional uses: American Indians of the Southwest dried the nuts, pulverized them, and applied the mass to wounds and sores. The nutlike fruit was powdered and taken internally for catharsis, but it was used primarily as a dermatological to treat acne and psoriasis. Chewing raw, green jojoba seeds was a treatment for sore throats.

Modern uses: Used as carrier oil for skin care products, the seed extract protects principal ingredients from oxidation. Jojoba has possible cholesterol-lowering potential, but more studies are needed.

Notes: Widely cultivated in the Southwest and used for skin health—numerous commercial products at health stores. Contraindications exist, so use the product as prescribed on the package.

Veterinarian/Wildlife: Jojoba shampoo may be used on pets and horses to soothe skin and scalp conditions.

Chaparral, Creosote Bush

Zygophyllaceae (*Larrea tridentata* [Sessé & Moc. ex DC.], Coville)

Identification: Resinous and aromatic shrub to 6′ tall. Reddish-brown bark near the base, lighter to almost white higher up and on limbs and branches. Leaves small; yellow green; with glossy, leathery look and texture. Flowers tiny, yellow colored, developing into fuzzy (hairy) seed-bearing capsules. Also called creosote bush.

Habitat: Southwestern United States and Mexico. Desert dweller.

Food: Toxic, not edible.

Traditional uses: A decoction of the evergreen leaves of the creosote bush was used by various North American Indian tribes to treat diarrhea and stomach problems. A poultice of the chewed plant was placed over insect bites, spider bites, and snakebites. A wash of leaf infusion was used to increase milk flow.

Chaparral, *Larrea tridentata*

Sap from heated twigs was packed into cavities to treat toothache, and a leaf poultice was applied to wounds and skin problems and as a therapy for chest complaints. Documented American Indian uses included chaparral as a treatment for rheumatic disease, venereal infections, urinary tract infections, and cancer, especially leukemia. A tea made from the leaves was taken internally as an expectorant and pulmonary antiseptic.

Modern uses: Until recently chaparral was widely used to treat many conditions, including fever, influenza, colds, gas, arthritis, sinusitis, anemia, fungal infections, allergies, autoimmune diseases, and PMS. It is considered an analgesic, antidiarrheal, diuretic, and emetic. The leaves and small twigs were collected, washed, and dried and then ground into an oily powder yielding the drug.

CAUTION: Today the commercial and medical value of chaparral is suspect due to concern over its potential toxic effect upon the liver, causing subacute or acute hepatitis. The chemistry of chaparral is well studied, and extensive literature has been published on the principal lignan component, NDGA (nordihydroguaiaretic acid). NDGA is a powerful antioxidant—in animal studies it has shown to be both anticancer and cancer promoting. Because of the cancer-causing potential, the questions concerning liver toxicity, and the unproven uses of the herb, it is best to consider an alternative to chaparral. In 2005 Health Canada warned consumers not to ingest the herb chaparral in the form of loose leaves, teas, capsules, or bulk herbal products because of the risk of liver and kidney problems. Holistic health-care professionals may still recommend and use the herb, but it is this author's contention that use of chaparral should be avoided until evidence of efficacy and safety are scientifically established.

Notes: One of the reasons for chaparral's great survival success is the presence a highly toxic substance produced in and released from its root that prevents other plants from growing nearby. Rainfall washes away the toxin, allowing other plants to grow. However, once the water drains away, the toxin is released again and the invading plants are destroyed. This ability ensures that chaparral does not have to compete with other life for scarce desert nutrients.

Veterinarian/Wildlife: Used as an insecticide and fish poison. Twigs were made into war and hunting arrow shafts.

Peyote

Cactaceae (*Lophophora williamsii* [Lem.], JM Coult)

DISCLAIMER: The use of peyote in the United States is restricted to religious rituals of the Native American Church. Possession and use are legal in Ukraine, the United Kingdom, and Thailand.

Identification: Peyote is a desert plant of religious significance to First People of Mesoamerica. It is a small (3″ to 5″ tall) cactus made up of what look like and are called buttons. Buttons are the part of

American Indian harvest north of the Rio Grande River, near Big Bend National Park

the plant consumed for the drug effect. Also called mescaline.

Habitat: Found in desert areas of Mexico, Baja, Southwest Texas, Arizona. In Texas, north of the Rio Grande between Comstock and Big Bend, American Indians who practice American Indian medicine legally collect the cactus.

Traditional uses: In American Indian medicine it is a ritual hallucinogenic medicine. Through an act of Congress, American Indians established the Native American Church that provides legal ritual use of peyote.

Modern uses: Peyote contains alkaloid mescaline and related alkaloids as well as hordenine, candicine, anhalamine, anhalanine, and other related chemicals. Mescaline belongs to a family of psychoactive drugs called phenethylamines. Structurally similar to amphetamines, phenethylamines have stimulating as well as hallucinogenic qualities. Researchers have tested the effects of psilocybin to produce emotionally and spiritually meaningful experiences in cancer patients (National Cancer Institute). Other studies suggest mescaline is hypoglycemic, may improve endurance and courage and lessen hunger and thirst.

CAUTION: Ingestion of peyote can cause intense nausea and perhaps (but not always) vomiting. Possible panic attack (bad trip). Hallucinations follow an increased sensory awareness to sound, feelings, and sight. It is a calming relaxant, leading to introspection.

Notes: Taking peyote in combination with other drugs is dangerous. Originally, the mescal bean was used as a ritual/religious hallucinogen, but due to its potential toxicity the bean was replaced with the extract from the peyote cactus. By comparison with other hallucinogens, peyote mescaline requires a more significant dose than, say, LSD, to get the desired effect. A hallucinogenic effect from mescaline requires on average about 5 milligrams mescaline per kilogram body weight. A 150-pound person would require 325 milligrams of the drug. LSD is over 3,000 times more potent. The therapeutic use of this drug and other related hallucinogenic drugs, including LSD, for psychotherapy did not yield significant positive results in controlled studies with human beings. Drug may not be addictive, but feelings of well-being may make the drug psychologically habit forming. For more, see *Poisonous and Psychoactive Plants* (Meuninck 2014).

Veterinarian/Wildlife: According to Stephanie Schwartz (*Psychoactive Herbs in Veterinary Behavior Science* 2005) there is no basis for the clinical veterinary application *of L. williamsii*. Studies on dogs, however, measured how well mescaline was absorbed by oral and parenteral presentation. Clinical signs of profound depression from exposure to the drug in dogs gradually cleared in ten hours (Gupta 2012, 487).

Yaupon, Yaupon Holly

Aquifoliaceae (*Ilex vomitoria* Ait.)

Identification: Evergreen holly, shrublike, 20′ to 30′ tall. Hollylike leaves are oval, alternating, glossy green; margins lined with round teeth, leaves 2″ to 3″ long to 1″ wide. Also called yaupon holly.

Habitat: Texas and throughout the southeastern states as far north as North Carolina. A borderline desert plant.

Food: Berries are toxic, but the leaves can be roasted into tea. Gather a mix of young leaves from near the tips and old leaves from the branch. Roast leaves at 200°F until the green changes to brown. Put a crushed teaspoon of leaves in a cup of water and microwave on high for ninety seconds. Cool and drink.

Traditional uses: Leaves and fruit were used in ritual healing by numerous First People Nations. A decoction of the roasted leaves was used to purge organ systems and as an emetic. Sipping the decoction helped older people sleep by quelling nightmares. It is said to cure talking in sleep and restlessness. It is considered hallucinogenic.

Modern uses: Leaves are roasted then steeped in water to make a light tea as a diuretic and stimulant. Strong infusions are used in American Indian purification rituals to purify the body through vomiting. The stimulating property comes from the presence of caffeine in the plant,

Yaupon, *Ilex vomitoria*

much like the infusion made from the South American holly, *I. paraquariensis*. Yaupon may be the only native plant of the United States to contain caffeine in its leaves.

CAUTION: Berries are toxic.

Notes: The long, straight branches were used to make ramrods for flintlock guns and arrow shafts. The leaves and berries can be used to make dyes. The ripe red berries make a red dye in a mordant of alum water. Use the dye on wool: Place the wool item in the dye and let the color infuse in full sunlight. Grays can be achieved by mixing leaves in water with iron and/or copper.

Veterinarian/Wildlife: This plant is an excellent addition to the homestead garden to attract cedar waxwings, robins, mockingbirds, and brown thrashers.

Appendix A: Longevity Index

While the United States is considered to have the costliest, albeit reportedly the best, health-care system in the world, other countries, whose citizens are zealous foragers of wild edibles, are getting it right. For example, according to WHO in 2013, Japanese citizens have an average life expectancy of 84 years. Tied for second place at 83 years are Spain, Andorra, Australia, Switzerland, Italy, Singapore, and San Marino.

Citizens in the following countries all live longer than Americans: Sweden, Norway, South Korea, Ireland, Malta, Netherlands, United Kingdom, Austria, Germany, Greece, Belgium, Chile, Slovenia, Denmark.

US citizens live on average 79 years, women typically longer than men. The United States is thirty-four spots from the top, tied with Colombia, Nauru, Costa Rica, Cuba, and Quatar (en.wikipedia.org/wiki/List_of_countries_by_life_expectancy).

Appendix B:
Jim Meuninck's Top Garden Herbs

1. Garlic: infection fighter, stimulant
2. Rosemary: cancer-fighting antioxidants, stimulant
3. Basil: antioxidants, infection fighter
4. Mint: stimulant, digestive
5. Lemon balm: relaxing tonic for mild depression, irritability, anxiety
6. Fennel: anti-inflammatory, analgesic, appetite stimulant, antiflatulent
7. Lovage: respiratory and digestive tonic, antibronchitic
8. Oregano: antiseptic, antiflatulent, bile and stomach acid stimulator, antiasthmatic
9. Cilantro (coriander): treats flatulence, bloating, and cramps; breath sweetener
10. Horseradish: perspirant, stimulant
11. Thyme: antiseptic, inhalant (antiasthmatic), stimulant, tea treats altitude sickness

Appendix C: Helpful Websites

American Botanical Council (https://www.herbalgram.org): Provides monographs from Commission E.

Canadian Institute of Natural and Integrative Medicine (https://www.cinim.org).

Clinical trials (clinicaltrials.gov): Searchable online database of clinical trials in the United States.

Ethnobotany (ethnobotany.org): Information on using plants as medicine.

Health Canada (https://publications.gc.ca/collections/collection_2012/sc-hc/H164-34-2006-eng.pdf): Database of 250 PDF files of Canadian monographs on medicinal herbs and other natural health products.

Herbal Odyssey CDs: Jim Meuninck's YouTube or Facebook, thousands of pages with photos and links, available from author.

National Center for Complementary and Integrative Health (https://www.nccih.nih.gov): Information from this organization within the NIH that focuses on alternative and complementary medicine.

Rain-Tree Publishers (rain-tree.com): Information on Amazon rain-forest plants and their medicinal uses.

Survival X: Eighteen Ways to Start a Fire Without a Match. Jim Meuninck's YouTube.

World Health Organization (WHO) (http://apps.who.int/medicinedocs/en/d/Js2200e): Collection of information on scientific and documented medicinal herbs.

Appendix D: References and Resources

Many of these references have direct web links; use them. If researching a particular plant for new benefits, go to the Web and type into the search window the scientific name of the plants followed by the words recent research.

Adámkováa, Hana, Vicar Jaroslav, Jirina Palasová, Jitka Ulrichová, Vilím Šimánek. 2004. "Macleya Cordata and Prunella Vulgaris in Oral Hygiene Products—Their Efficacy in the Control of Gingivitis." Biomedical Papers of the Medical Faculty of the University Palacky, Olomouc, Czechoslovakia 148 (1): 103–05. https://pubmed.ncbi.nlm.nih.gov/15523557.

Agha-Hosseini F., K. Borhan-Mojabi, H.R. Monsef-Esfahani, I. Mirzaii-Dzgah, S. Etemad-Moghadam, A. Karagah. 2010. "Efficacy of Purslane in the Treatment of Oral Lichen Planus. *Phytotherapy Research*: PTR. 2: 240–44. https://europepmc.org/article/med/19585472.

Akileshwari, Chandrasekhar, Puppala Muthenna, Branislav Nastasijević, Gordana Joksić, J. Mark Petrash, and Geereddy Bhanuprakash Reddy. 2012. "Inhibition of Aldose Reductase by *Gentiana lutea* Extracts," *Experimental Diabetes Research Journal*. ncbi.nlm.nih.gov/pmc/articles/PMC3403369.

Aller, Wilma. 1954. "Aboriginal Food Utilization of Vegetation by Indians of the Great Lakes Region as Recorded in the Jesuit Relations," *Wisconsin Archaeologist*: 59–73.

Alvarez-Suarez, Francesca Giampieri, Sara Tulipani, Tiziana Casoli, Giuseppina Di Stefano, Ana M. González-Paramás, Celestino Santos-Buelga, Franco Busco, et al. 2014. "One-month Strawberry-rich Anthocyanin Supplementation Ameliorates Cardiovascular Risk, Oxidative Stress Markers and Platelet Activation in Humans." *The Journal of Nutritional Biochemistry* 25 (3): 289. https://pubmed.ncbi.nlm.nih.gov/24406274.

Amaya-Carpio, L. F.T. Davies, Jr., T. Fox, C. He. 2009. "Arbuscular Mycorrhizal Fungi and Organic Fertilizer Influence Photosynthesis, Root Phosphatase Activity, Nutrition, and Growth of Ipomoea Carnea ssp. Fistulosa." *Photosynthetica* 47 (1): 1–10. https://ps.ueb.cas.cz/pdfs/phs/2009/01/01.pdf.

Anderson, James. 1994. Dr. Anderson's High-Fiber Fitness Plan. Lexington, KY: University Press of Kentucky. https://uknowledge.uky.edu/upk_medicine_and_health_sciences/6.

Atkinson, Charlotte, Juliet E. Compston, Nicholas E. Day, Mitch Dowsett, Sheila A. Bingham. 2004. "The Effects of Phytoestrogen Isoflavones on Bone Density in Women: A Double-blind Randomized, Placebo-Controlled Trial." *American Journal of Clinical Nutrition* 79, no. 2: 326–33. https://pubmed.ncbi.nlm.nih.gov/14749241.

Araya, Juan J., Kelly Kindscher, Barbara N. Timmermann. 2012. "Cytotoxic Cardiac Glycosides and Other Compounds from Asclepias Syriaca." *Journal of Natural Products* 75 (3): 400–7. https://pubmed.ncbi.nlm.nih.gov/22316168.

Banel, Deirdre K. and Frank B. Hu. 2009. "Effects of Walnut Consumption on Blood Lipids and Other Cardiovascular Risk Factors: A Meta-analysis and Systematic Review." *The American Journal of Clinical Nutrition* 90 (1): 56–63. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2696995.

Barrett, S. A. 1917. "The Washoe Indians." *Bulletin of the Public Museum of Milwaukee*.

Basehart, Harry. 1974. *Mescalero Apache Subsistence Patterns and Socio-Political Organization*. New York, NY: Garland Publishing.

Bauer, Brent A. 2014. "Can Huperzine A Prevent Memory Loss and Improve Cognitive Function in People with Alzheimer's Disease?" Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/alzheimers-disease/symptoms-causes/syc-20350447.

Birkeland, Jorkjend M. 1974. "The Effect of Chewing Apples on Dental Plaque and Food Debris." *Community Dentistry and Oral Epidemiology* 2 (1): 161–62. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1600-0528.1974.tb01867.x

Blossom, Mark, and Kathleen Blossom. "The Pawpaw Asimina Triloba: Scientific Paper." pawpaws.net/Pawpaw_Scientific_Paper.htm.

Blumenthal, Mark, ed. et al. 1998. *The Complete German Commission E Monographs: Therapeutic Guide to Herbal Medicines*. American Botanical Council; Integrative Medicine Communications.

Blumenthal, Mark, Alicia Goldberg, and Joseph Brinkmann, eds. 2000. *Herbal Medicine: Expanded Commission E Monographs*. Newton, MA: Integrative Medicine Communications.

Boyer, Jeanelle, Rui Hai Liu. 2004. "Apple Phytochemicals and Their Health Benefits." *Nutrition Journal* 3 (5). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC442131/#:~:text=Apples%20were%20the%20only%20specific,decreased%20risk%20in%20lung%20cancer.

Bradley, G. W., A. Clover. 1989. "Apparent Response of Small Cell Lung Cancer to an Extract of Mistletoe and Homeopathic Treatment." *Thorax* 44 (12): 1047–8.

Bradley, Will. 1936. "Medical Practices of New England Aborigines." *Journal of the American Pharmaceutical Association* 25 (2): 138.

Brill, Steve, and Evelyn Dean. 1994. *Identifying and Harvesting Edible and Medicinal Plants in Wild (and Not So Wild) Places*. New York, NY: Hearst Books.

Brown, Deni. 1995. *Encyclopedia of Herbs and Their Uses*. London, UK: Dorling Kindersley.

"Buffalo Gourd," Natural Medicinal Herbs. https://www.naturalmedicinalherbs.net/herbs/c/cucurbita-foetidissima=buffalo-gourd.php.

Campbell, T. 1951. "Medicinal Plants of the Choctaw, Chickasaw, and Creek Indians in the Early Nineteenth Century." *Journal of the Washington Academy of Sciences*: 285–90.

Carr, L., and C. Westey. 1945. "Surviving Folktales and Herbal Lore among the Shinnecock Indians." *Journal of American Folklore* 58 (228): 113–23. https://www.jstor.org/stable/535500.

Castleman, Michael. 1995. *The Healing Herbs*. New York, NY: Bantam Books.

CBC News. 2012. "Cancer-killing Dandelion Tea Gets $157K Research Grant." https://www.cbc.ca/news/canada/windsor/cancer-killing-dandelion-tea-gets-157k-research-grant-1.1248382.

Chase, Brad. 2012. "Lobelia Gets Scientists' Attention As an Antimicrobial and Anti-convulsive for Epilepsy." *Natural News*. https://www.naturalnews.com/037763_lobelia_anti-convulsive_epilepsy.html#ixzz3nBCGt0p2.

Chevallier, Andrew. 1996. *Encyclopedia of Medicinal Plants*. Reader's Digest Association.

Chow, G., T. Johns, S. C. Miller. 2006. "Dietary Echinacea Purpurea During Murine Pregnancy: Effect on Maternal Hemopoiesis and Fetal Growth." *Biology Neonate* 89 (2): 133–38. https://pubmed.ncbi.nlm.nih.gov/16210848.

Chunxia, Chen, Zhang Peng, Pi Hulfang, Ruan Hanli, Hu Zehua, Wu Jizhou. 2011. "Extracts of *Arisaema rhizomatum* C.E.C. Fischer Attenuate Inflammatory Response on Collagen-induced Arthritis in BALB/c Mice." *Journal of Ethnopharmacology* 133 (2): 573–82. https://www.sciencedirect.com/science/article/pii/S0378874110007403.

Circosta et, al. 1994. "Cardiovascular Activity," part 2, *Journal of Ethnopharmocology* 72: 1532.

Color Atlas of Chinese Traditional Drugs. 1987. Beijing, China: National Institute for the Control of Pharmaceutical and Biological Products, Science Press.

Coville, Frederick. 1897. "Notes on the Plants Used by the Klamath Indians of Oregon." Contributions from the US National Herbarium: 87–110.

Duke, James. 1992. Dr. Duke's Phytochemical and Ethnobotanical Databases. https://phytochem.nal.usda.gov.

———. 1992. *Handbook of Biologically Active Phytochemicals and Their Activities*. Boca Raton, FL: CRC Press.

———. 2001. *Handbook of Edible Weeds*. Boca Raton, FL: CRC Press.

———. 2001. *Handbook of Medicinal Herbs*. Boca Raton, FL: CRC Press.

———. 1986. *Handbook of Northeastern Indian Medicinal Plants*. Frederick, MD: Quarterman Publications, 1986.

———. 1992. *Phytochemical Constituents of GRAS Herbs and Other Economic Plants*. Boca Raton, FL: CRC Press.

Elgharabawy, Rehab M., Ahmad H. Alhowail, Ashraf M. Emara, Maha A. Aldubayan, Amira S. Ahmed. 2021. "The Impact of Chicory (Cichoriumintybus L.) on Hemodynamic Functions and Oxidative Stress in Cardiac Toxicity Induced by Lead Oxide Nanoparticles in Male Rats." *Biomedicine & Pharmacotherapy* 137 (111324). https://www.sciencedirect.com/science/article/pii/S0753332221001098.

Ernst, E. and K. Schmidt. 2005. "Ukraine—a New Cancer Cure? A Systematic Review of Randomised Clinical Trials," *BMC Cancer* 5: 69. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1180428.

Fava, Maurizio, Jonathan Alpert, Andrew A. Nierenberg, David Mischoulon, Michael W. Otto, John Zajecka, Harald Murck, Jerrold F. Rosenbaum. 2005. "A Double-blind, Randomized Trial of St. John's Wort, Fluoxetine, and Placebo in Major Depressive Disorder." *Journal of Clinical Psychopharmocology* 25 (5): 441–47. https://pubmed.ncbi.nlm.nih.gov/16160619.

Fewkes, Walter. 1896. "A Contribution to Ethnobotany." *American Anthropologist* 9 (1): 14–21. https://www.jstor.org/stable/658267.

Fife, Bruce. 2004. *The Coconut Oil Miracle*. New York, NY: Avery, 2004.

Fitschen, Peter. J., Kristofer. R. Rolfhus, Michael. R. Winfrey, Brian K. Allen, Michelle Manzy, and Margaret. A. Maher. 2011. "Cardiovascular Effects of Consumption of Black versus English Walnuts," *Journal of Medicinal Food* 14 (9). https://www.liebertpub.com/doi/abs/10.1089/jmf.2010.0169.

Fletcher, Alice, and Francis Flesche. 1911. "The Omaha Tribe." *Smithsonian Institution Bureau of Ethnology Annual Report* 27.

Foster, Steven, and James A. Duke. 1990. *A Field Guide to Medicinal Plants: Eastern and Central North America*. Boston, MA: Houghton Mifflin.

Gilmore, Melvin. 1933. *Some Chippewa Uses of Plants*. Ann Arbor, MI: University of Michigan Press, 1933.

———. 1913. *A Study in the Ethnobotany of the Omaha Indians*. Nebraska State Historical Society Collections 17: 314–57.

———. *Uses of Plants by the Indians of the Missouri River Region*. 1991. Lincoln, NE: University of Nebraska Press.

Glassman A. H., L. S. Covey, F. Stetner, S. Rivelli. 2001. "Smoking Cessation and the Course of Major Depression: A Follow-up Study." *Lancet* 357 (9272): 1929–32. https://pubmed.ncbi.nlm.nih.gov/11425414.

Guivernau, M. N. Meza, P. Barja, O. Roman. 1994. "Clinical and Experimental Study on the Long-Term Effect of Dietary Gamma-Linolenic Acid on Plasma Lipids, Platelet Aggregation, Thromboxane Formation, and Prostacyclin Production." *Prostaglandins, Leukotrienes, and Essential Fatty Acids* 51 (5): 311–6. https://www.pubmed.ncbi.nlm.nih.gov/7846101.

Gulliver, W. P., and H. J. Donsky. 2005. "A Report on Three Recent Clinical Trials Using *Mahonia Aquifolium* 10% Topical Cream and a Review of the Worldwide Clinical Experience with *Mahonia Aquifolium* for the Treatment of Plaque Psoriasis." *American Journal of Therapeutics* 12 (5): 398–406. http://www.ncbi.nlm.nih.gov/pubmed/16148424.

Gunter, Erna. 1995. *Ethnobotany of Western Washington*. Seattle, WA: University of Washington Press.

Gupta, Ramesh. 2012. *Veterinary Toxicology: Basic and Clinical Principles*, second edition. Cambridge, MA: Academic Press.

Harrington, John. 1932. "Tobacco Among the Karuk Indians of California." *Smithsonian Institution Bureau of American Ethnology Bulletin* 91.

Herrick, James William. 1977. Native American Ethnobotany Database. http://naeb.brit.org/uses/species/2426.

Hart, Jeff. 1992. *Montana Native Plants and Early Peoples*. Helena, MT: Historical Society Press.

Huang, Cheng-Chih, Wei-Ting Lee, Sen-Tien Tsai, Chun-Yen Ou, Hung-I Lo, Tung-Yiu Wong, Sheen-Yie Fang. 2014. "Tea Consumption and Risk of Head and Neck Cancer. *PLOS One* 9 (5). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4010481.

Hsu, Hong-yen, ed. 1996. *Oriental Materia Medica: A Concise Guide*. Great Barrington, MA: Keats & Company Publishers; Oriental Healing Arts Institute.

Jain, R., A. Sharma, S. Gupta, I. P. Sarethy, and R. Gabrani. 2011. "*Solanum nigrum:* Current Perspectives on Therapeutic Properties," *Alternative Medicine Review* 16 (1): 78–85.

Jacobson, J. S., A. B. Troxel, J. Evans, L. Klaus, L. Vahdat, D. Kinne, K. M. Lo, A. Moore, P. J. Rosenman, E. L. Kaufman, A. I. Neugut, V. R. Grann. 2001. "Randomized Trial of Black Cohosh for the Treatment of Hot Flashes Among Women with a History of Breast Cancer." *Journal of Clinical Oncology* 19 (10): 2793–45.

Kapoor, L. D. *Handbook of Ayurvedic Medicinal Plants*. Boca Raton, FL: CRC Press, 2001.

Kern, W., P. H. List, L. Horhammer. 1969. *Hagers Handbuch der Pharmazeutischen Praxis*. New York, NY: Springer-Verlag Berlin Heidelberg.

Kowalczyk, Ewelina, and Krzysztof Kwiatek. 2018. "Pyrrolizidine Alkaloids in Honey: Determination with Liquid Chromatography-mass Spectrometry Method." *Journal of Veterinary Research* 62 (2): 173–81. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6200291.

Króliczewska, Bozena, and Wojciech Zawadzki. 2005. "The Influence of Skullcap Root Addition (Scutellaria baicalensis radix) on Calcium, Inorganic Phosphorus, Magnesium, and Iron Levels in Broiler Chicken Serum," Electronic Journal of Polish Agricultural Universities 8 (3); www.ejpau.media.pl/volume8/issue3/abs-22.html.

Kucera, M., J. Kálal, Z. Polsená. 2000. "Effects of Symphytumn Ointment on Muscular Symptoms and Functional Locomotor Disturbances." *Advanced Therapies* 17 (4): 204–10. https://pubmed.ncbi.nlm.nih.gov/11185060.

Kuhnlein, Harriet V., and Nancy J. Turner. 1991. *Traditional Plant Foods of Canadian Indigenous People*. Philadelphia, PA: Gordon and Breach.

Larison, James R., Gene E. Likens, John W. Fitzpatrick, J. G. Crock. 2000. "Cadmium Toxicity Among Wildlife in the Colorado Rocky Mountains." *Nature* 406: 181–83. https://www.nature.com/articles/35018068.

"Lemnagene Extols Duckweed Virtues for Biomanufacturing." 2004. OutsourcingPharma. https://www.outsourcing-pharma.com/Article/2004/10/26/Lemnagene-extols-duckweed-virtues-for-biomanufacturing.

Linsenmeyer, T. A., B. Harrison, A. Oakley, S. Kirshblum, J. A. Stock, and S. R. Millis. 2004. "Evaluation of Cranberry Supplement for the Reduction of Urinary Tract Infections: A Prospective, Double-blinded, Placebo-controlled Crossover Study," *Journal of Spinal Cord Medicine* 27(1): 29–34.

Ma, Xiaoqiang, Changheng Tan, Dayuan Zhu, David R. Gang, Peigen Xiao. 2007. "Huperzine A from Huperzia species—An Ethnopharmacological Review." *Journal of Ethnopharmacology* 113 (1): 15–34. https://www.sciencedirect.com/science/article/abs/pii/S0378874107002784?via%3Dihub.

Manna, Krishnendu, Zareen S. Khan, Moumita Saha, Snehasis Mishra, Nilesh Gaikwad, Jatindra Nath Bhakta, Kaushik Banerjee, and Krishna Das Saha. 2023. "Manjari Medika Grape Seed Extract Protects Methotrexate-Induced Hepatic Inflammation: Involvement of NF-κB/NLRP3 and Nrf2/HO-1 Signaling System." *Journal of Inflammation Research* 16: 467–92. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9922067.

Mansel, R. E., B. J. Harrison, J. Melhuish, W. Sheridan, J. K. Pye, G. Pritchard, P. R. Maddox, D. J. Webster, L. E. Hughes. 1990. "A Randomized Trial of Dietary Intervention with Essential Fatty Acids in Patients with Categorized Cysts." *Annals of the New York Academy of Sciences* 586: 288–94. https://pubmed.ncbi.nlm.nih.gov/2192634.

Mandelbaum, David. "The Plains Cree." *Anthropological Papers of the American Museum of Natural History* 37 (1940): 202–03.

"Medical Marijuana." Mercy.net. https://www.mercy.net/content/dam/mercy/en/pdf/springfield-tdo/medical-marijuana.pdf.

Ménard D., N. N. Andrianina, Z. Ramiandrasoa, A. Randriamanantena, N. Rasoarilalao, M. Jahevitra, A. Ratsimbasoa, L. Tuseo, A. Raveloson. 2007. "Randomized Clinical Trial of Artemisinin versus Non-Artemisinin Combination Therapy for Uncomplicated Falciparum Malaria in Madagascar." *Malaria Journal* 6 (65). https://pubmed.ncbi.nlm.nih.gov/17519010.

Meuninck, Jim. *Basic Essentials Edible Wild Plants*, Falcon, 2006.

———. *Basic Illustrated Edible Wild Plants and Useful Herbs.* Lanham, MD: Falcon, 2006.

———. 2007. *Herbal Odyssey* (CD). Jim Meuninck on Facebook.

Meuninck, Jim, James Balch, Ed Smith et al. 2007. *Natural Health with Medicinal Herbs and Healing Foods* (DVD). Jim Meuninck's YouTube.

Meuninck, Jim, and Theresa Barnes. 2005. *Little Medicine: The Wisdom to Avoid Big Medicine* (DVD). Jim Meuninck's YouTube.

Meuninck, Jim, Patsy Clark, and Theresa Barnes. 2007. *Native American Medicine* (DVD). Jim Meuninck's YouTube.

Meuninck, Jim, Candace Corson, and Nancy Behnke Strasser. 2007. *Diet for Natural Health: One Diet for Disease Prevention and Weight Control* (DVD); available from author, and YouTube 1999 (video), 2007 (DVD).

Meuninck, Jim, and James Duke. 2007. *Edible Wild Plants* (DVD). Jim Meuninck's YouTube.

———. 2007. *Trees, Shrubs, Nuts and Berries* (DVD). Jim Meuninck's YouTube.

Meuninck, Jim, and Philip Sinclair. 2007. *Cooking with Edible Flowers and Culinary Herbs* (DVD); available from author.

Mittal, Deepak Kumar and Deepmala Joshi. 2011. "Effect of *Polygonum Bistorta* and Tannic Acid on Hepatic Morphological Analysis in CCl 4 Intoxicated Rats," *International Journal of Research in Pharmaceutical and Biomedical Sciences* 3 (2): 93–95. https://www.researchgate.net/publication/233869535_Effect_of_Polygonum_bistorta_and_Tannic_Acid_on_Hepatic_Morphological_Analysis_in_CCl_4_Intoxicated_Rats.

Mount Sinai. 2023. "Arnica." https://www.mountsinai.org/health-library/herb/arnica.

Moerman, Daniel. *Native American Ethnobotany*. Portland, OR: Timber Press, 1998.

Morin, Charles M., Uwe Koetter, Célyne Bastien, J Catesby Ware, Virgil Wooten. 2005. "Valerian-hops Combination and Diphenhydramine for Treating Insomnia: A Randomized Placebo-controlled Clinical Trial." *Sleep* 23 (11): 1465–71. https://pubmed.ncbi.nlm.nih.gov/16335333.

Moore, Michael. 1993. *Medicinal Plants of the Pacific West*. Santa Fe, NM: Red Crane Books.

———. 2003. *Medicinal Plants of the Mountain West*. Museum of New Mexico Press.

Naegele, Thomas A. 1996. *Edible and Medicinal Plants of the Great Lakes Region*. Wilderness Adventure Books.

Nestel, Pomeroy, Kay et al. 1999. "Isoflavones from Red Clover Improves Systemic Arterial Compliance but Not Plasma Lipids in Menopausal Women." *Journal of Clinical Endocrinological Metabolism* 84 (3): 895–98.

National Institutes of Health (NIH) Dietary Supplement Fact Sheets: A collection of scientific and documented medicinal herbs online at ods.od.nih.gov/factsheets/list-all.

National Cancer Institute (NIH). "Clinical Trials Using Psilocybine." https://www.cancer.gov/research/participate/clinical-trials/intervention/psilocybine.

NIH/Duke University. 2010. Saint-John's-wort in treating major depression see: https://nccih.nih.gov/news/2002/stjohnswort/q-and-a.htm.

Osmers, Ruediger, Michael Friede, Eckehard Liske, Joerg Schnitker, Johannes Freudenstein, Hans-Heinrich Henneicke-von Zepelin. 2005. "Efficacy and Safety of Isopropanolic Black Cohosh Extract for Climacteric Symptoms." *Obstetrics and Gynecology* 105 (5 Pt. 1): 1074–82.

Palmer, Arthur. 1975. "Shuswap Indian Ethnobotany." *Syesis* 8: 29–51.

Papamandjaris, A., D. MacDougall, and P. Jones. 1998. "Medium Chain Fatty Acid Metabolism and Energy Expenditure: Obesity Treatment Implications." *Life Sciences* 62: 1, 203–21.

PDR for Herbal Medicines, fourth edition. 2005. New York, NY: Thomson Reuters.

Pojar, Jim, and Andy MacKinnon. 1994. *Plants of Coastal British Columbia*. Vancouver, BC: Lone Pine.

Radhamani, T. R., L. Sudarshana, and R. Krishnan. 1995. "Defence and Carnivory: Dual Roles of Bracts in *Passiflora foetida*," *Journal of Biosciences* 20: 657–64.

Raus, Karel, Dr.; Stephan Pleschka (Prof), Peter Klein, MSc, Roland Schoop, MSc, Peter Fisher. 2015. "Echinaforce Hot Drink versus Oseltamivir in Influenza: A Randomized, Double-blind, Double dummy, Ulticenter, Non-inferiority Clinical Trial." *Current Therapeutic Research*.

"Recent Research on Medical Marijuana." 2015. NORML.org.

Reid, Daniel. 1987. *Chinese Herbal Medicine*. Boulder, CO: Shambhala.

Schell, Tom. 2019. "Wild Yam; Can It Benefit YOUR Horse? Nouvelleresearch.com. https://nouvelleresearch.com/index.php/articles/16856-wild-yam-can-it-benefit-yourhorse.

Schwartz, Stephanie. 2005. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3210003

Singh, Ompal, Zakia Khanam, Neelam Misra, Manoj Kumar Srivastava. 2011. "Chamomile (Matricaria Chamomilla L.): An Overview." *Pharmacognosy Reviews* 5 (9): 82–95. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3210003.

Shayan, Arezoo, Seyedeh Zahra Masoumi, Farideh Kazemi, Mansoureh Refaee, Maryam Ahmadi, Hadis Sourinezhad, Minoo Hamoun. 2022. "Effect of Evening Primrose Vaginal Capsule on Cervix Preparation and Duration of First Stage of Labor in Nulliparous Women Referred to Fatemieh Hospital in Hamadan, Iran: A Single-blind Randomized Controlled Trial." *Current Drug Research Reviews* 14 (3): 247–53. https://pubmed.ncbi.nlm.nih.gov/35440333.

Sleigh, A. E., K. S. Kuehl, and D. L. Elliot. 2012 "Efficacy of Tart Cherry Juice to Reduce Inflammation Among Patients with Osteoarthritis," *Journal of Food Studies* 1 (1). https://www.macrothink.org/journal/index.php/jfs/article/download/1927/1790

Smith, Harlan. 1929. "Materia Medica of the Bella Coola and Neighbouring Tribes of British Columbia," *National Museum of Canada Bulletin* 56: 47–68.

Sreenivasa, K., N. Vinay, and R. Mohan. 2012. "Phytochemical Analysis, Antibacterial and Antioxidant Activity of Leaf Extract of *Datura Stramonium*," *International Journal of Science Research* 1 (2): 83–86; https://www.academia.edu/5782838.

Stewart, Charles. 1988. *Wildflowers of the Olympics and Cascades*. Nature Education Enterprises.

Thom, Erling. 2004. "Randomized Study of the Efficacy and Safety of Oral Elderberry Extract in the Treatment of Influenza A and B Virus Infections," *Journal of International Medical Research*. Also presented at the 15th Annual Conference on Antiviral Research in 2002. See also "Elderberry Fights Flu Symptoms," WebMD. December 23, 2003. https://www.webmd.com/cold-and-flu/news/20031222/elderberry-fights-flu-symptoms

Thomas, Richard. 2015. *The Essiac Report: Canada's Remarkable Unknown Cancer Remedy.* Long Beach, CA: Immunocorp.

Thorup, Anne Cathrine, Max Norman Lambert, Henriette Strøm Kahr, Mette Bjerre, Per Bendix Jeppesen. 2015. "Intake of Novel Red Clover Supplementation for 12 Weeks Improves Bone Status in Healthy Menopausal Women." *Evidence Based Complement Alternate Medicine*. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4523657.

Tsao, Rong, R. Yang, J. C. Young. 2003. "Antioxidant Isoflavones in Osage Orange, Maclura Pomifera (Raf.) Schneid," *Journal of Agricultural and Food Chemistry* 51 (22): 6,445–51. https://www.researchgate.net/publication/9050833_Antioxidant_Isoflavones_in_Osage_Orange_Maclura_pomifera_%28Raf.%29_Schneid.

Tull, Delena. 1999. *Edible and Useful Plants of Texas and the Southwest*. Austin, TX: University of Texas Press.

Tywkiwdbi. "The Etymology of Foxglove." New York, NY: Oxford University Press. https://www.tywkiwdbi.blogspot.com/2010/11/etymology-of-foxglove.html.

University of Maryland Medical Center. 2020. "Complementary and Alternative Medicine (CAM) Resources." https://guides.hshsl.umaryland.edu/cam.

University of Newcastle Upon Tyne. 2005. "Carrot Component Reduces Cancer Risk," *ScienceDaily*. https://www.sciencedaily.com/releases/2005/02/050212184702.htm.

University of Rhode Island. 2010. "Pure Maple Syrup Contains Medicinally Beneficial Compounds, Pharmacy Researcher Finds." *Science News*.

University of Warwick. 2015. "Stinging Nettle Chemical Improves Cancer Drug," *ScienceDaily*. https://www.sciencedaily.com/releases/2015/03/150320091309.htm.

Van de Weijeer, Barentsen. 2002. "Isoflavones from Red Clover (Promensil) Significantly Reduce Menopausal Hot Flush Symptoms Compared with Placebo," *Maturitas* 42 (3): 187–93.

Vestal, Paul. 1952. *Ethnobotany of the Ramah Navaho*. Papers of the Peabody Museum of American Archaeology and Ethnology 40 (4).

Vestal, Paul, and Richard Schultes. 1939. *The Economic Botany of the Kiowa Indians*. Botanical Museum, Cambridge. New York, NY: AMS Press.

Vogel, Virgil. 1970. *American Indian Medicine*. Norman, OK: University of Oklahoma Press.

Walker, Ann. 2006. "Hypotensive Effects of Hawthorn for Patients with Diabetes Taking Prescription Drugs: A Randomised Controlled Trial." *British Journal of General Practice*. https://www.bjgp.org/content/56/527/437.short.

WebMD. "American White Water Lily—Uses, Side Effects, and More." https://www.webmd.com/vitamins/ai/ingredientmono-279/american-white-water-lily.

Whitney, Stephen. 1985. *Western Forests*. National Audubon Society Nature Guides. New York, NY: Knopf.

Wieler, Kate, Navindra Seeram, and Amanda Missimer. 2021. Maple Foods Beyond Syrup: Maple Sap Water, an Emerging Functional Beverage. https://web.uri.edu/maple/maple-foods-beyond-syrup-maple-sap-water-an-emerging-functional-beverage-webinar.

Widy-Tyskiewicz, Ewa, and Rajmund Schminda. 1997. "A Randomized Double-Blind Study of Sedative Effects of Phytotherapeutic Containing Valerian, Hops, Balm and Motherwort versus Placebo." *Herba Polonica* 43 (2): 154–58.

Wuttke, W. D. Seidlová-Wuttke, C. Gorcow. 2003. "The Cimicifuga Preparation BNO 1055 vs. Conjugated Estrogens in a Double-Blind Placebo-Controlled Study: Effects on Menopause Symptoms and Bone Markers." *Maturitas* 44 (1): S67–77.

Yang G. L., D. Feng, Y. T. Liu, S. M. Lv, M. M. Zheng, A. J. Tan. 2021. "Research Progress of a Potential Bioreactor: Duckweed." *Biomolecules* 11 (1): 93. www.ncbi.nlm.nih.gov/pmc/articles/PMC7828363.

Yanovsky, Elias. 1936. *Food Plants of the North American Indians*. USDA Publication 237.

Yuill, Cheryl, and Justine A. Lee. 2011. "Grape and Raisin Toxicity in Dogs." Kingsbrook Animal Hospital. https://kingsbrookvet.com/pdf/Grape%20and%20Raisin%20Toxicity%20in%20Dogs.pdf.

Zicari, D. et al. 1998. "Diabetic Retinopathy Treated with Arnica 5 CH Microdoses." *Investigative Ophthalmology & Visual Science* 39: 118.

Zhou, Guohong, Liying Tang, Xidan Zhou, Tina Wang, Zhenzhen Kou, Zhuju Wang. 2014. "A Review on Phytochemistry and Pharmacological Activities of the Processed Lateral Root of *Aconitum carmichaelii Debeaux*," *Journal of Ethnopharmacology* 160. https://www.researchgate.net/publication/269188763_A_review_on_phytochemistry_and_pharmacological_activities_of_the_processed_lateral_root_of_Aconitum_carmichaelii_Debeaux.

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About the Author

Jim Meuninck is a biologist and counselor who, for more than 30 years, has studied the use of wild plants as food and medicine in North America, Europe, Central America, Japan, and China. Jim specializes in ethnobotanical media. He lives on the shores of Eagle Lake, in Edwardsburg, Michigan. Join Jim on Facebook, see his movies on YouTube, and see all his books at Jim Meuninck Amazon.