Other Names: *Chamerion angustifolium*, rosebay willow herb, Canadian willow herb, ḥačtac (Northern Lushootseed), acxac (Southern Lushootseed), Haas (Haida), Pamiuqtuq (Inupiaq)

Identifying Fireweed: The most distinctive thing about fireweed is its dark pink colored flowers, which grow in a spike shape on tall stalks. Flowers have four petals and a distinctive four-part stigma that is fused together at the end and shoots out of the center of the flower like an arrow. Flowers bloom low on the stem first and work their way up toward the top. Purplish-red stems grow up to seven feet tall and are covered with willow leaf-like leaves that are dark green above and silvery below. Fireweed seed pods are long and very narrow. They spit split open to release hundreds of seeds, each with a white feathery tuft that easily flies in the wind. The fruit of the fireweed can contain as many as 500 seeds, and a single plant can produce as many as 80,000 seeds per year!

Where it Grows: Fireweed occurs throughout the US, except in the southeastern states and Texas. It is found in all of the Canadian provinces and up into southern Greenland. You will find fireweed in sunny locations from low elevations to alpine meadows. It prefers a wet start followed by good sun exposure. Fireweed can be found along roadsides, forest edges, clear-cuts, and in open fields throughout the Pacific Northwest.

Season: Fireweed offers gifts in every stage of its growth. Young edible shoots can be harvested in April and May, flower petals in late spring to early summer, and leaves when they are still vibrant green in late spring and summer. For cordage, harvest stems in late summer to early fall.

How to Harvest: Early shoots between two and six inches tall with leaves pointing upward, can be easily pinched off. As plants age they become very fibrous and unpleasant to eat. Harvest fireweed leaves by holding the stem just below the flowers with one hand. Pinch the stem with the other thumb and index finger, pushing down the length of the stem, while gathering the leaves that are green and vibrant looking. Flower buds and open flowers are edible and make a colorful addition to salads. Snap off at the base of flower. Be sure to leave
some of the flowers so insects can enjoy the flower pollen and nectar. It is important to harvest fireweed and other plants away from roadsides, agricultural areas that might be sprayed, or industrial sites as they can absorb harmful pollutants.

**Eating Fireweed:** Fireweed shoots are a nutritious spring food containing Vitamins A and C, flavonoids, and beta-carotene. Try lightly sautéing or steaming them like asparagus so they still have a little crunch to them. Add them to omelets, or use them raw in salads. You can feel a little mucilage in them – a slippery substance that makes your mouth feel smooth. Once the shoots become a little older, you may want to peel the fibrous outer skin off. Try pinching young leaves off and eating them like spinach. Larger stalks can be split and the inner pith scraped out and eaten as a sweet treat. This is also high in mucilage and has been used as a thickener for soups and other dishes.

**Fireweed Medicine:** The delicate but bold fireweed has been embraced by many cultural groups. Northwest Native People from Alaska down through the west coast use fireweed for food and medicine. The late Skokomish elder Bruce Miller recommended fireweed tea for sore throats and lung congestion. Like rose, fireweed’s leaves and roots contain tannins. These bitter tasting compounds are a defense mechanism against pathogens, herbivores, and hostile environmental conditions. Tannins also act as a simple astringent, meaning they tighten and tone inflamed tissue. While this sounds simple, it is really quite profound. Say you get burned. Your skin becomes red and inflamed. Even if you cool the burn off, the puffiness persists and can become painful. An astringent will tighten the puffiness and help remove excess fluid, allowing nutrients to enter and waste products to be removed. Fireweed’s gentle medicine helps soothe diarrhea, gut irritation, prostate inflammation, mouth soreness, and swollen gums. The mucilage in fireweed is useful for asthma, coughs, and intestinal spasms. **Note:** Fireweed tea may have a very mild laxative effect so children should limit it to one cup.

**Traditional Technologies:** Seeds can be used as a fire-starter and as a cotton-like stuffing. They are so abundant on stalks that you can easily harvest a large amount from a small stand of plants. The stalks of fireweed can be used to make strong cordage that was traditionally used for rope.

**Note to Educators:** From afar, fireweed (left) and foxglove (right) can look much alike. Make sure your students have the right plant. Foxglove plants contain toxic cardiac glycosides and ingestion of any parts of the plant can result in severe poisoning!
**Ecological Relationships:** The most prominent plant visible after a forest fire in the Pacific Northwest is almost always fireweed. Fireweed helps stabilize soil and reduces erosion while burn areas regenerate.

One year after the volcanic eruption of Mt. St. Helens in Washington State, 81% of the seedlings present on the mountainside were fireweed! Fireweed helps to restore land that has been disturbed so other species can return and rebuild a thriving ecosystem.

**Additional Resources**

*The Boreal Herbal* by Beverly Gray  
Fireweed (*Chamerion angustifolium*) By Edna Vizgirdas  
[https://www.nps.gov/romo/learn/nature/wildflower_structure.htm](https://www.nps.gov/romo/learn/nature/wildflower_structure.htm)  
*Discovering Wild Plants* by Janice Schofield Eaton  

**References**

http://dhss.alaska.gov/dpa/Documents/dpa/programs/nutri/wic/pdfs/Sheet-Fireweed.pdf

**Photos:** Elise Krohn except foxglove page 1: 47000047 © Mark Eastment | Dreamstime.com, Mt. St. Helens from USGS
Overview: Students learn about fireweed’s role in healing disturbed landscapes and explore fireweed’s seasonal gifts through one of the included hands-on activities including eating fireweed shoots, making fireweed jelly, or making fireweed tea.

Student Wondering: How do I identify fireweed, and how can I use it for food and medicine? What does fireweed signal about seasonal changes?

Learning Objectives

<table>
<thead>
<tr>
<th>Understandings</th>
<th>Knowledge and Skills</th>
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<tr>
<td>Student will understand that…</td>
<td>Student will be able to…</td>
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<tr>
<td>• fireweed is used for food and medicine.</td>
<td>• safely handle, prepare, and preserve fireweed as food.</td>
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<tr>
<td>• fireweed helps revitalize ecosystems after a fire or other disturbance.</td>
<td>• build plant observation skills, learn botanical terms, learn about the lifecycle of fireweed</td>
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<td></td>
<td>• harvest and dry fireweed.</td>
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<td>• make fireweed tea.</td>
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NGS Standards: Performance Expectations

- MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
- HS-LS2-6. Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.
- 3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

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<tr>
<th>Scientific and Engineering Practices</th>
<th>Disciplinary Core Ideas</th>
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<tr>
<td>• Engaging in Argument from Evidence</td>
<td>• LS2.C: Ecosystem Dynamics, Functioning, and Resilience</td>
<td>• Stability and Change</td>
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<td>• Developing and Using Models</td>
<td>• LS1.B: Growth and Development of Organisms</td>
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Vocabulary: ecological succession, forest succession, cultural ecosystems, spike, perennial, infusion
**Background Knowledge:** Fireweed is often one of the first species to grow in open areas after a disturbance like a forest fire, landslide, or clear-cut. Fireweed grows and flowers as long as there is open space and plenty of light. It was one of the first plants to appear after the eruption of Mt. St. Helens in 1980. Known as “rosebay willowherb” in Great Britain, fireweed quickly spread across burned ground after the bombing of London in World War II, bringing color to an otherwise grim landscape. Fireweed spreads by seed and through spreading root systems called rhizomes. By dispersing in this manner, the root systems help stabilize the soil and reduce erosion while the burn area regenerates.

As trees and brush grow larger, fireweed plants die out, but the seeds remain viable in the soil seed bank for many years. When a new fire or other disturbance occurs that opens up the ground to light again and the seeds germinate. The fruit of the fireweed can contain as many as 500 seeds and a single plant can produce as many as 80,000 seeds per year.

**Materials**

*Introduction:* A stalk of fireweed, preferably including one that’s more mature and the fruit or pods have split revealing the seeds or “fluff.” Choose one of the following activities:

- **Fireweed Shoot Activity:** Freshly picked shoots for students to sample. You can eat them raw or very lightly saute them.
- **Fireweed Jelly Activity:** Fresh or dried fireweed petals, a colander, gloves, scissors, ingredients for the recipe you choose, cooking vessels, plates or bowls, and utensils for serving.
- **Fireweed Tea Activity:** A portable burner, a pot, stirring spoons, herbs for making tea, a strainer, cups, and honey or a low glycemic index sweetener like stevia. Sample of fireweed stalk with leaves for identification. If available, provide a bag of fireweed tea for students to take home.

*Preparation:* Review the **Fireweed Overview.** Choose knowledge that is appropriate for the grade level. There are two possible activities included in this lesson. Start with the introduction about the ecological role of fireweed and then choose one or two hands-on activities based on the season and fireweed availability. Many youth enjoy the challenge of gathering fireweed and may enjoy a harvest trip where they can learn how to identify and gather it. If a field trip is not possible, you can harvest fireweed yourself and bring it to class. The petals will last for just a couple of days in the refrigerator but can be dried and then made into jelly.

**LESSON: FIREWEED THE RESTORER**

<table>
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<th>INTRODUCTION</th>
<th>20 MINUTES</th>
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Begin by showing students a sample of the fresh fireweed plant or a picture. **Ask:** Raise your hand if you recognize this plant? **Do you know its name?** **How many of you have encountered fireweed?** **Where have you seen it?** Give students a chance to respond.

**Share:** You can find fireweed in burned areas, open woodlands, on hillsides, and on stream banks. Fireweed seeds are able to survive and quickly repopulate after a disturbance. Eventually other species of plants become established and replace the fireweed.
**Ask:** Can you name a few examples of disturbances to land? Give students a chance to respond. Examples include forest fires, volcanic eruptions, floods, clear-cuts, or bulldozing.

**Share:** Disturbances can be both natural and human caused, and contribute to what we call ecological succession. One kind of ecological succession is forest succession—the natural change in plant species over time that leads toward a stable forest. In Western Washington a stable, or “climax” forest is made of shade-loving hemlock, Sitka spruce, western red cedar, and other plants. Fire, storms, and flooding are natural disturbances that may occur in forests over time. While some people often think of naturally occurring fire as destructive, ground fires improve soil by transforming leaf litter into mineral ash, thus increasing soil fertility. Cooler fires may also remove dead and diseased trees, keeping parasites and insect pests in check. Fireweed, huckleberries, Douglas fir, lodgepole pine, and many other plants need sunlight to grow and thrive after fires. The plants that grow in early succession create a habitat where many species of plants and animals can thrive. These areas will eventually be replaced by evergreen trees until the next disturbance. And the cycle continues.

Even though fires or volcanic eruptions can completely change a tree-rich landscape, fire can also be a useful and intentional tool in maintaining and tending ecosystems that are cultural important for food, medicine, and other materials. Indigenous societies of the Northwest Coast have used burning and other techniques to manage cultural ecosystems in the mountains (huckleberry meadows) and Puget Sound lowlands (camas prairies). Fire can enhance plant abundance in the region, particularly camas bulb and berry production. Cranberry bogs and other wet prairies were also regularly burned.

**Pass out samples of fireweed. Ask:** What do you notice? What are some ways we can identify fireweed? Give students a chance to take a close look and respond. Fill in missing information. For example, the flowers grow in a spike shape, have four petals, and resemble the flowers of other evening primrose plant relatives. The leaves have a strong central vein and meet along the margin of the leaf.

**Fireweed as a Restorative Food and Medicine**

**Share:** Fireweed not only heals the land after a disturbance, but can heal our bodies, as well. The spring shoots and flowers are edible and contain many nutrients that help to strengthen our bodies and soothe tissues. The leaves and flowers are used as tea to reduce inflammation and promote balanced digestion. Tannins in fireweed act as an astringent, meaning they tighten puffy tissues. Fireweed leaf tea is tonic to the digestive system—creating a healthy environment where beneficial digestive bacteria can flourish, nutrients can flow into the body, and waste products can easily move out. It has antifungal properties and helps to normalize the flora of the gut. Research shows that our guts are an important part of immune function and other aspects of our health. If our guts are functioning poorly due to imbalanced flora, inflammation, improper food absorption, or food moving through at the wrong speed, many things can go awry. Think of fireweed as a soothing friend to the constant work of digestion.
Fireweed is also used on the skin to reduce inflammation and heal tissue. It is astringent (tightens puffy tissue after burns), antioxidant (prevents damage from free radicals), and antibacterial—making it ideal for acne and other skin problems. The herb is used in skin products including toners and creams.

**Harvesting Fireweed Throughout the Seasons**

**Share**: Fireweed is a great example of a plant that can be harvested throughout the seasons. Fireweed is a perennial meaning that it lives for several years. The leaves and stalks die back each winter, leaving only the living roots. In very early spring, its reddish, asparagus-like shoots emerge. These are high in Vitamins A and C. When they reach just a couple of inches, and are still bendable, they can be harvested and steamed, cooked, or eaten raw in salads.

**Ask**: *Have you ever harvested fireweed shoots, leaves, or flowers? Can you explain how?* Give students a chance to respond.

**Share**: The very young shoots of fireweed can be eaten straight or lightly cooked when they are about 4–8 inches tall. They have a mild taste and a texture like asparagus. Once the plants get taller and young leaves develop on the stalk, they can be used to make tea. As the stalks grow, the leaves become bigger. You can harvest and dry the deep green and fully developed leaves in late spring through summer. The best time of day to gather plants is in the morning after the dew has dried. This is usually when their medicine is most potent. Afternoon is fine too, if that is the only time you have. If you are planning to dry plant plants for tea, do not harvest on a rainy day. Chances are, they will mold.

**Ask**: *How do we know how much fireweed we can harvest? What safety consideration do we need to consider when harvesting?* Give students a chance to respond. If you have talked about harvest protocols and safety previously this is a good opportunity for review.

**HANDS-ON ACTIVITY**

Choose one of the following activities. Involve students in the process as much as possible.

**Eating Spring Fireweed Shoots**

Fireweed shoots are a nutritious spring food containing Vitamin C, flavonoids, and beta-carotene. They can be eaten fresh or lightly cooked. Try lightly sautéing or steaming them like asparagus so they still have a little crunch to them and add to omelets or raw in salads. You can taste a little mucilage in them—a slippery substance that makes your mouth feel smooth. Once the shoots become a little older you may want to peel the fibrous outer skin off. Try pinching young leaves off and eating them like spinach. Larger stalks can be split and the inner pith scraped out and eaten as a sweet treat. This pith is also high in mucilage and has been used as a thickener for soups and other dishes.  
[https://ediblealaska.ediblecommunities.com/recipes/fireweed-pickles](https://ediblealaska.ediblecommunities.com/recipes/fireweed-pickles)
**Making Fireweed Jelly**

Fireweed flowers can be eaten fresh or made into delicious, bright pink jelly. You will need 2 cups of hard-packed, fresh fireweed flowers. Make sure to leave some of the flowers on the plants for insects to enjoy.

Recipe for Kim's Fireweed Jelly (from Kim Aspelund)

- 4 cups fireweed juice*
- ¼ cup lemon juice
- ½ to 1 cup honey or ¾ cup to 2 cup organic sugar
- 4 tsp. Pomona’s Universal Pectin
- 4 tsp. calcium water (in Pamona’s Pectin)
- Plenty of goodness and love

First make fireweed juice by adding 2 cups of hard-packed fresh fireweed petals to 2 ½ cups boiling water. Let stand until cool. Refrigerate overnight to bring out the color. Strain through a jelly bag or cheesecloth.

To make jelly: Measure prepared juice into a pan with lemon juice. Measure sugar or room temperature honey into a separate bowl. Thoroughly mix the proper amount of pectin powder into sugar or honey. Bring fruit juices to a full boil. Add pectin-sweetener. Stir vigorously 1-2 minutes to dissolve pectin while mixture returns to a full boil. Refrigerate or prepare for canning. Want to spice it up? [https://pureandsimplevegan.com/recipe/fireweed-jalapeno-jelly/](https://pureandsimplevegan.com/recipe/fireweed-jalapeno-jelly/)

**Make Fireweed Tea**

Harvest fireweed leaves by holding the stem just below the flowers with one hand. Pinch the stem with the other thumb and index finger, pushing down the length of the stem, while gathering the leaves that are green and vibrant looking. Dry them in baskets or paper bags. You can also cut whole fireweed stalks, bundle them with rubber bands, and hang them to dry. Have students participate in as much of the harvesting and processing as possible.

OPTIONAL: Watch the video Store Outside Your Door: Fireweed Tea (Haas) Making Fireweed Tea - [https://www.youtube.com/watch?v=pCdyuxb5olo](https://www.youtube.com/watch?v=pCdyuxb5olo)

**Share:** Tea making is an ancient art that is practiced all over the world. It is practiced and performed as a ceremony in many countries like Japan, China, and India. Salish elders teach that the intention we put into harvesting herbs, making tea, and serving it becomes part of the medicine. Tea making is an opportunity to hold healing thoughts as we make medicine for ourselves and our loved ones. Many types of tea are drunk for health, energy, and enjoyment but water is an essential ingredient.

Have students wash and dry their hands. Pass out dried whole leaves and ask students to crush them up into bowls.

**Ask:** Can you think of any other wild plants that can be made into tea? Examples might include mint, rose, fir tips, berry leaves, horsetail, dandelion, and other plants that people use for medicine, nutrition and enjoyment.
Share: Many Northwest plants can be made into delicious and healthy teas. You do not need fancy tools or expensive ingredients to make tea—just clean water, good quality plants that you have harvested or purchased, and a pot. The aerial parts of plants (leaves, flowers, soft fruits, and aromatic seeds and roots) are usually made into an infusion, which means they are soaked in hot or room temperature water. Gently crush the dried herb between your fingers if it is not already cut or crumbled. Fresh plant parts are usually chopped before infusing to open up the plant cell walls and promote extraction.

Proper Proportions of Herb & Water: When preparing teas, feel free to experiment and choose the proportion of herb to water that suits your taste. A general ratio is:

- 1 teaspoon to 1 tablespoon per cup of water
- 1 ounce of dried herb per 1 quart of water

To make a hot infusion of fireweed, you are going to use 1 tablespoon of herb per cup of water. You can place the herbs in a teapot, quart-sized canning jar, or pot and then cover with boiling water. Stir the herbs. Place a tight fitting lid on the container.

Ask: Why do you think we need a lid? Covering the pot keeps aromatic compounds like mint oils in our tea. Tell students that you are going to let the tea steep for 10–20 minutes and then pour it through a strainer. Mineral-rich herbs such as fireweed, horsetail, and red clover are best when steeped several hours to overnight.

Once the tea has steeped, strain it and pass out samples. Fireweed tea may have a very mild laxative effect so young children should limit it to one cup. If you have extra, brewed teas can be preserved for three days in the refrigerator. Fireweed leaves are fermented in Russia to make a delicious mild-tasting tea that has a similar taste to oolong tea. It is called Ivan chai.

TYING IT TOGETHER

5–10 MINUTES

Ask: What do you like about our tea? Or not? What do you notice as you drink it? What do you remember about the medicine of fireweed? How is it medicine for the land? Finish by filling in missing information.

If you have extra small sample bags of the tea, send each student home with directions. Ask them to make it with their family and share what they learned about fireweed. Follow up with students several days later and have them share stories about their experiences.

DIGGING DEEPER

Have students make a claim about how fireweed utilizes a disturbance to establish a new population. In their claim, students include the idea that changes to physical or biological components of an ecosystem can affect the populations living there.

Try preparing Russian fermented fireweed leaf tea, also known as Ivan Chai, and comparing the taste of that to the freshly made or dried fireweed leaves. Learn more at https://www.youtube.com/watch?v=bdLe1Cgtf8k