

LET'S LEARN ABOUT



# Fire friends: Beings that flourish after flame

## What to expect from this educational packet

In this printable packet, you will learn about many different beings that rely on or thrive in ecosystems with fire. These incredible plants and animals represent the resilience of nature. With this package you will:

- Learn about fire-dependent species and their unique gifts
- Explore Indigenous cultural connections to fire ecosystems
- Access resources and activities to strengthen vocabulary and understanding
- Reflect on what you've learned with scientific inquiry prompts and discussion questions

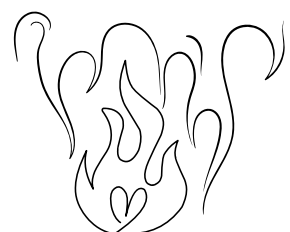
## Introduction

Fire is often seen as something 'bad', but it plays an important role in keeping ecosystems healthy. In British Columbia, when we think about fire, we often think of *crown fires* — those large, intense fires that burn through vast areas of land. But this isn't the only kind of fire. Before the colonization of Turtle Island (North America), periodic low-intensity fires were common and helped maintain the landscape. These were known as *ground fires*, which were intentionally set to help revitalize the land by clearing out dead organic material and making space for new life to thrive. Fires can help open seeds and create fertile soil for new plants to grow. First Nations across Turtle Island have long used ground fires, also called cultural burning or prescribed burning, as a way to manage the land sustainably.

The intense wildfires we've experienced in B.C. recently are a result of fire suppression across the landscape and the creation of monoculture tree stands. Without the natural cycle of fire, we've seen an increase in *ladder fuels* — like shrubs, low-hanging dead branches, and fallen trees — that build up on the forest floor and help fires spread from the ground to the tops of trees. Bringing back low-intensity fires is an important part of building healthy ecosystems. Many plants and animals are specially adapted to fire and can quickly sprout back. This worksheet will explore some of the plants and animals that rely on fire to thrive.

## What do you you know about fire and fire-adapted species?

Write down some facts you know about these species, and come back at the end of the worksheet to see what you can add!



# Meet the fire friends



## Fire moss

Moss is known to be a resilient pioneer for species after disturbance. Able to grow on rocks, trees, and undernourished soils, moss is an incredible being! Fire moss is no different. Fire moss is most known for growing after fires, but it also grows after many different disturbances or in low nutrient soils.



## Fireweed

Fireweed grows throughout North America and is aptly named due to its ability to sprout back after wildfires. This plant is known for its beautiful pink and purple flowers! It grows quickly from both a seed and from underground rhizomes. This is another example of a resilient plant, that sprouts in response to fire.



## Lodgepole Pine

Lodgepole Pines grow throughout British Columbia and have serotinous cones. These cones are covered in a wax-like substance that requires heat to release the seeds. When fire goes across a landscape, it melts the wax to release the pine seeds and creates new spaces in the forest understory for them to grow!



## Camas

Camas grows natively in Garry Oak ecosystems and is known as Kwetlal in Lekwungen. This plant is often recognized for its beautiful purple flowers and its potato-like tubers that grow beneath the soil. Less known is the use of fire across the landscape to nurture camas, as many Coast Salish Nations would farm these plants in large open fields. Fire helps remove competing shrubs, dry grasses and young trees from the meadow, which allows camas to thrive.



## Lynx and Snowshoe Hare

Small burned areas provide viable habitat for both snowshoe hares and Canada lynx. Snowshoe hares can be found in forests regenerating after a burn as these areas are filled with tasty, young plants. As more hares move into these areas, their predator the lynx will follow. The snowshoe hare is a keystone species. This means that population changes help indicate the health of the surrounding ecosystem. Lynx populations change in response to snowshoe hare populations because they are the lynx's main food source.



## Beavers

Beavers are one of the most important beings to help prevent out-of-control wildfires! Beavers build dams which increase the groundwater that is stored in forest and wetland areas. This keeps surrounding plants wet and prevent wildfires from burning large landscapes. After all you can't start a campfire with soggy sticks.



# Activities

## Fire & Forest Nature Walk Activity

Why else is fire important for forest health? We encourage you to go on a fire and forest nature walk. If you are in a fire-prone area, try to find the following indicators of a post-fire, healthy forest.

### Things to look for: Signs of a healthy, fire-influenced forest



#### **Fire creates space in the forest**

Look for canopy openings! These can also be caused from windthrow and trees falling through the forest. See if you can find any new plants in the forest growing in the understory. Are there any shrubs, fungi, or flowers growing that would need sun that is created through canopy openings?



#### **Fire scars**

Fire scars are physical evidence of fire damage on a tree, often appearing as black, charcoal burn marks. However, our pro-tip is that some of these black marks are fungi and not charcoal burns. If you rub your hand against the tree and black marks come off on your hand that's how you know it is a fire scar! Occasionally, you might also find trees with unique forms or indents that have healed over past fire scars.



#### **Many understory species**

In areas that have periodic fires, there is an abundance of sunlight. Space in the canopy allows many new understory species to suddenly pop up! This directly contributes to an increase in biodiversity in our forest landscapes.



#### **Aspen or birch trees**

In a regenerating forest, aspen and birch trees are some of the first to return. They can re-establish themselves quite quickly by producing many seeds and spreading their roots far and wide!

# Checklist for fire forest walk

This checklist encourages you to be observant as you walk around your neighbouring forest area. Try to find and write in some species or signs of a healthy fire-influenced forest that are not mentioned below!

☐ **Fire Scars**

☐ **Forest Openings**

☐ **Many Types of Understory Plants** (list in space below)

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☐ **Camas**

☐ **Lodgepole Pine**

☐ **Fireweed**

☐ **Fire Moss**

☐ **Aspen or Birch Trees**

☐ **Evidence of Beavers**

☐ **Biodiversity:** Many different plants and animals in an area

☐ **Charcoal:** The remnants of a fire, black to the touch and can be used for artwork (see next activity)

# Charcoal Art Activity

Charcoal is black carbon that is made by exposing wood to excessive heat, or in our case fire. It is a wonderful material useful for grilling, filtering water, and even cleaning your teeth!

Today we are going to be using charcoal to make art. All you will need is:

- Charcoal: Easily bought from your nearest art supply store
- A piece of paper: We recommend textured paper
- A material found outside. (A leaf, a flower, etc.)
- And some creativity!



Using the charcoal, draw a picture on the piece of paper. We encourage you to draw a forest landscape with a fire. How does changing the pressure you put on the paper change the result? Can you add in other parts of the landscape, like animals and other plants?

Try this extension activity:

1. Go outside and find a leaf, flower, or other material lying on the ground (make sure to not pick anything!)
2. Put your piece of paper tightly over the material you have gathered.
3. Using the charcoal, lightly draw over the material. You should start to see an impression come onto the paper.

# Discussion questions

**Write down your thoughts and reflections to the questions below.**

- What messages do you receive about forests and fire? How can we take better care of the forests?
- We are all connected. How are you connected to fire-resilient beings and their habitats?
- How are you connected to other animals and plants in your community?
- How can we learn from these fire-resilient beings? In what ways can we show dedication, creativity and persistence in our daily lives?
- Plants and animals in this packet bloom in the face of adverse conditions. In what ways can we take note of these beings?
- What is a belief or worldview that is dissolving in you to make room for a caring future?

## Keep learning with us!

We want to express our sincere gratitude to all those who helped breathe life into this work.

To explore our resource list and additional learning materials, we invite you to visit [sierraclub.bc.ca/fire-friends-resource](https://sierraclub.bc.ca/fire-friends-resource)

