

Douglas-fir Ecosystem

Information Sheet

Environmental Protection and Stewardship

What is a Douglas-fir ecosystem?

A Douglas-fir ecosystem is characterized by the iconic Douglas-fir evergreen. These towering trees have deeply grooved, thick bark which protects them from forest fires and insects. Without disturbance, Douglas-fir trees can live for 750 to 1,000 years. They are a keystone species, meaning that they are essential to the complex associations between the many species of trees, shrubs, grasses, ferns, flowering plants, mosses, lichens, fungi, and animals that live in these forests. If the dense Douglas-fir canopy is removed, the entire ecosystem can become unbalanced.

Where are Douglas-fir forests?

Douglas-fir forests flourish in the unique climate of southeastern Vancouver Island, where surrounding mountains intercept much of the rain and create a "rainshadow". Douglas-fir forests typically lie between the drier Garry oak woodland and wetter Western red cedar forest.

Once prevalent throughout the capital region, much of the original Douglas-fir forests have been lost. One of the best places to see a remnant old-growth Douglas-fir forest is on the grounds of Royal Roads University in Colwood. Some Douglas-fir trees at this site are over 800 years old. Thetis Lake Regional Park, Goldstream Provincial Park, Gowlland Tod Provincial Park and East Sooke Regional Park are also home to older second growth Douglas-fir forests.

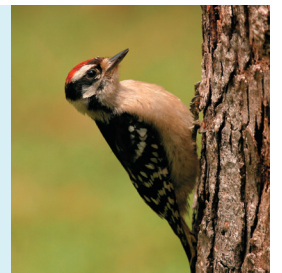


Importance of Douglas-fir forests.

Douglas-fir forests are home to a broad diversity of plants, animals, and fungi. Beyond their important role in sustaining biodiversity, they provide many essential environmental services, such as:

- Mitigating climate change;
- Improving air quality;
- Absorbing and filtering stormwater runoff;
- Binding and regenerating soil to prevent erosion;
- Providing natural areas for research, recreation, and spiritual activities.

Douglas-fir forests have the highest average bird counts of any forest type in North America.



Douglas-fir forests support biodiversity.

In addition to Douglas-fir trees, you can find:

- Shrubs like salal, Oregon grape, vanilla leaf, and ferns.
- Mosses like Oregon beaked and electrified cat's tail.
- Large mammals such as black-tailed deer, black bear and cougar.
- Small mammals such as red squirrels, who nest in tree cavities and harvest Douglas-fir cones, and bats, who roost under Douglas-fir bark.
- Birds, including woodpeckers, wrens, Steller's jay, raven, brown creeper, and varied thrush — all of which eat conifer seeds or wood-boring insects. Owls, swallows and chickadees which nest in tree cavities, and bald eagles who rely on trees to support their nests.
- Amphibians, including the western toad, Pacific tree frog, western red-backed and northwestern salamanders.
- Hundreds to thousands of species of insects that can be found in the forest canopy down to the soil.

Threats to Douglas-fir forests.

Douglas-fir forests on Southern Vancouver Island are imperiled ecosystems. Today, very few older Douglas-fir forest ecosystems remain in the capital region, and those that do are highly fragmented. They exist as isolated islands among a landscape altered by human development.

It is predicted that climate change will have a significant impact on Douglas-fir ecosystems due to increased summer temperatures and drought.

Human Impacts

Since Douglas-fir forests occur in regions favoured by people, they were some of the first forests logged and cleared for urban and agricultural development.

Humans also altered natural forest succession by suppressing forest fires. Historically, low-intensity forest fires occurred in Douglas-fir forests every 100-300 years. The thick bark of mature Douglas-fir trees protected them from fires while the fires controlled the growth of young, competing trees. Periodic fires would also reduce build-up of woody-debris on the forest floor, preventing higher intensity, more destructive fires. As people, unfamiliar with the natural processes of Douglas-fir forests, settled in the area, they began to suppress forest fires, changing the ecosystem.

Invasive Species

Invasive species represent a major threat to Douglas-fir forests. Plants and animals that have been accidentally or intentionally introduced from distant areas can upset the natural balance of the ecosystem. Invasive plants like English ivy, Scotch broom and Himalayan blackberry spread quickly and flourish in disturbed areas. Introduced species often out compete native species for food, growing sites and habitat.



Invasive English ivy



Invasive scotch broom



We all have a role to play in protecting the environment.

There are simple ways that you can help Douglas-fir forests.

1. Learn about Douglas-fir ecosystems and how to recognize them.
2. When visiting Douglas-fir forests:
 - Stay on designated paths or trails
 - Be mindful of fragile understory plants
 - Do not damage tree bark or branches
 - Keep pets under control
 - Pack out any waste
3. Take Action.
 - If you live next to a Douglas-fir forest, maintain a buffer between the forest and manicured areas
 - Remove invasive species from your yard
 - Garden with native plants to support local biodiversity
 - Volunteer with groups that pull invasive species in parks and natural areas

Visit crd.bc.ca/biodiversity for more resources.