

Characteristics of old-growth coastal temperate forests in British Columbia.

1. A forest in a **late stage of ecological succession**.
2. **Some veteran trees** i.e., over 250 years in age. This figure was arrived at by halving the average maximum life span of the dominant tree species and is a figure that only applies to our coastal temperate forests. It is the official figure for old-growth used by the Ministry of Forests, B.C.
3. **Trees of uneven age** (also described as mixed age, varied age or multi-aged). This characteristic is due to varied regeneration patterns in turn related to small-scale disturbance.
4. **Canopy gaps** resulting from the falling of individual trees due to senescence, disease, low intensity fires and wind. Essential in creating and maintaining mixed-age stands and for understory development.
5. **Pit & mound forest floor topography** caused by decomposition of veteran fallen trees and depressions left by upturned root-balls caused by tree throw. While this feature is present in a second-growth forest it is on a smaller scale with the root-balls still identifiable as root balls. The feature is more pronounced in an old-growth forest because the trees are larger and the root-balls have lost their identity as root-balls looking more like mounds.
6. **Coarse woody debris (CWD)** of varied decay classes on the forest floor resulting from collapse of senescent, diseased or fire and wind damaged trees. Important for faunal habitat and as nurseries for seedlings. Also essential for replenishment of nutrients back to the soil.
7. **Snags (wildlife trees)**: Standing dead trees resulting from senescence, disease, wind or fire. Important to many bird and mammal species as a food source (e.g. beetle larvae and carpenter ants) and as habitat (e.g. nest holes, bat chimneys, dens).
8. **Multi-layered (deep) canopy**, a result of varied age of trees. A factor in enhancing faunal biodiversity in the canopy and maintaining high humidity and thus water retention in the canopy.
9. **Intact soils** i.e. well-developed soil profiles and fungal nets. "Fungal nets" refers to the importance of networks of fungal mycelia connected to plant roots for exchanging water and nutrients in a mutually beneficial relationship. These types of fungi are referred to as mycorrhizal.
10. In comparison to second-growth or early seral forests, a **high biodiversity** of species, particularly with regard to fungi (both mycorrhizal and decomposing fungal species), soil micro-organisms and canopy biota.
11. Old-growth **indicator species**: Species only found in old-growth forests which are there by virtue of specialized requirements e.g. Northern Spotted Owl, Marbled Murrelet and fir club-moss (*Lycopodium selago*).
12. **Threatened & endangered species** such as the Northern Spotted Owl and Marbled Murrelet i.e. species that by the nature of their specialized biology can only survive in old-growth forests.
13. Presence of **rare species** (particularly fungi, lichens and bryophytes) that are present because of the absence of catastrophic events over a long time interval. In other words old-growth forests act as refugia for rare species.

14. **Human disturbance is minimal** or absent.
15. **A long natural rotation for catastrophic or stand-replacing disturbance.** Our coastal temperate forests have experienced stand replacement due to major fire every 750-1000 years (Dr. Lori Daniels). Dr. Ken Lertzman has said that the Cypress Provincial Park old-growth stands that he referred to as “snow forests” had not had major disturbance for 1500-2000 years and possibly not for over 4000 years.
16. **Big tree density:** Eight big trees/acre that are older than 300 years and more than a metre diameter at breast height (DBH).
17. **Ecosystem stability:** In a healthy old-growth forest growth should equal mortality i.e. input equals output. However, in practice no forest is untouched by the influence of humans e.g. acid rain, ground-level ozone, & other pollutants, exotic diseases, climate change, and unnaturally high (or low) populations of some native species (deer, spotted owl etc.)

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