

Big Leaf Maple (*Acer macrophyllum*)



What Characteristics help the maple?

- Grow fast and big so steal the light, nutrients and water from surrounding plants.
- Huge leaves capture sunlight and a big canopy helps to maximize the amount of sunlight captured.
- The maple produces lots of seeds which spread throughout the forest via the wind because of their propeller shape.



- Can live in salty environments.
- Strong trunk to help stay up in windy weather
- Can live in wet and dry environments.
- Leaves provide lots of nutrients for the surrounding soil.
- Deciduous – shed leaves in fall to save energy for the tree.

Douglas Fir *Pseudotsuga menziesii*



What Characteristics help the douglas fir?

- Big Canopy to catch the sun when we get some.
- Big trees block out the other plants, over 250ft tall.
- Long living 500-1000years.
- Cones- great way of spreading seeds.
- Grow fast so steal light, nutrients, water from surrounding plants
- Can live in salty environments.
- Strong trunk to help stay up in windy weather
- Single needles (leaves)- save water from evaporating away from the plant.
- Thick bark saves tree from fire.
- Shallow root system allows trees to grow in shallow soil.
- Shallow roots catch the nutrients.
- Can survive wet or dry conditions.
- Needles are hard to digest for animals so it doesn't get eaten.
- Seedlings tolerate shade so allow it to grow amongst other huge trees
- Lower limbs die off when they are in the shade of the other trees- doesn't waste vital energy keeping them alive

Himalayan blackberry and evergreen blackberry

Rubus armeniacus (syn. *Rubus discolor*) and *Rubus laciniatus*



What Characteristics help the blackberry?

- Small so needs fewer nutrients.
- Grows fast, blocking the other plants below it stealing the light.
- Thorns stop animals from eating it.
- Dies back in winter conserves energy during the winter
- Can reproduce by producing roots from the stem which grow into the ground (doesn't have to wait for a seed).
- Thin vines that can grow towards the light and climb.
- Seeds can stay viable in the soil for several years.
- Tasty berries so animals eat them and spread the seeds far and wide

Sword Fern *Polystichum munitum*



What Characteristics help the sword fern?

- Epiphytes- air plants do not always need soil to grow. Grow in small crevices in trees.
- They do not have to reach water from the soil; they can absorb water from the air around them.
- Almost entirely disease free so there are not many viruses, bacteria or fungi that can kill them.
- Small so do not need many nutrients, water or space.
- Do not need to produce flowers or seeds, they produce thousands of spores which grow into heart shaped plants. These heart shaped plants when the conditions are right can produce a new rhizome, which grows into a fern.
- The advantage of having a rhizome is that it will only produce leaves and roots when the conditions are right. Until then it can stay in the soil and wait.
- Fronds die back in the winter and the rhizomes sprout in the spring, this saves energy over the winter.
- Evergreen so can photosynthesize all year round if the conditions are right.
- Fronds can grow up to 6ft long to catch the light.

Moss



What Characteristics help the moss?

- Epiphytes- air plants do not always need soil to grow.
- Can grow in small crevices in trees.
- Like the wet weather.
- Grow everywhere, on trees, rocks, in water.
- Don't harm the plant that they are living on.
- Do need moisture to survive but can take water from the air.
- Produce spores, thousands of them. More efficient than producing flowers.
- Absorb nutrients easily from water flowing over them. Absorb it fast.
- Can survive extremes of temperature.
- Small so need less nutrients and space.
- Like the winter, need low temperatures, low light and wet conditions.
- Summer they become dormant, drying out.