

GROWING XERIC FERNS



Most ferns require a relatively humid environment in comparison to many seed-producing plants. To some extent this is because fern reproduction requires a damp surface for fertilisation to take place during the gametophyte stage. Xerophytic, or 'xeric', ferns are an exception to this. Xeric ferns are adapted to living and reproducing in drier environments. Many come from dry areas such as deserts or rocky places, at high altitudes. They may also grow as wall ferns in the gaps between stones or bricks. To obtain water, these ferns often have very large root-runs to make maximum use of any rain that falls. In rocky environments, these roots can also absorb the morning dew that condenses on surrounding rocks. The specific conditions xeric ferns require can make them tricky to cultivate. However, they can be very attractive and worth the effort.

One of the features of many xeric ferns is that they are covered in hair-like scales that give them a woolly grey appearance. This woolly coat traps a humid microenvironment around the frond and also protects the frond from too much sunlight. Others produce a waterproof waxy coat or powdery farina to help

conserve moisture. In addition, the pinnules of the frond are often tiny and curled in on themselves to protect the stomata on the underside of the frond. Stomata are the breathing 'holes' of the frond and exchange carbon dioxide and oxygen with the atmosphere, during photosynthesis and respiration. As there is a risk of losing water from the frond during these processes, these protective adaptations help the frond to remain



Myriopteris tomentosa, the dense hairs protecting the underside of the frond.



Pityrogramma austroamericana, yellow waxy farina protecting the underside of the frond

hydrated. Some ferns have a special biochemical process, known as CAM photosynthesis, that allows them to photosynthesise during daylight but to only open the stomata for gas exchange at night, when it is cooler. Many epiphytic ferns, including several *Pyrrhosia* species, have this ability.



Myriopteris windhamii, the pinnules have curved edges to protect the stomata.

Where to grow xeric ferns

Some xeric ferns make good houseplants as they can tolerate the drier atmosphere. They can be kept on a bright windowsill and will be happy in higher light-levels than most ferns, even tolerating some direct sunshine. Others make good garden plants and will withstand winter cold so long as they are protected from rain. Cold wet weather can cause rot in the crown of the plant and may prove fatal. If grown in the

garden, they must have good drainage and not sit in water. In the winter, a cloche or sheet of glass suspended over the plants will help keep the crowns dry.

How to grow xeric ferns

Many xeric ferns are apomitic, meaning the sporophyte develops from the gametophyte asexually. This means they often grow very quickly from spores and many young sporelings can be produced. The tricky part is potting-up these sporelings into a substrate that suits them without them first getting too wet and rotting off.

Xeric ferns need plenty of damp, but not wet, substrate. A xeric mix has a high proportion of grit to ensure free drainage. Proportions of 3:1:1, grit, compost and loam normally works well. What works for you, will depend on your own environmental conditions and watering regime. Large pots should be used, and tall pots will keep the crown drier than flat pans. Terracotta pots rather than plastic are recommended to prevent root-rot. Watering is best achieved by standing the pot in a tray of water and allowing this to soak up into the substrate until the surface just begins to feel damp. The pot should then be taken out of the tray and allowed to drain freely.

Another cultivation method is to 'double pot' these ferns. The ferns are first planted into a terracotta pot as described above. Then the whole pot is placed in a plastic pot several sizes larger and the gap between the two pots is filled with horticultural sand. Rather than watering the substrate in the smaller pot, the sand is kept damp and the water wicks through the terracotta pot into the substrate the fern is planted in. This theoretically maintains a more consistent supply of water and keeps the

temperature of the roots cooler. Botanic gardens often use this method, for alpine plants, on a larger scale by sinking terracotta pots into beds of sand that are kept damp.

High light-levels and good air circulation should be provided or the attractive grey, woolly foliage will become lanky and green. Many of these ferns can actually do well in full sun.

Problems

Despite having a protective coat, xeric ferns can be subject to infestation by aphids. These are usually on the underside of the frond and are best dealt with by a powder insecticide, such as pyrethrin, rather than liquid sprays. Liquid sprays usually contain wetting agents that can damage the frond. When

using a powder insecticide, it can easily get trapped in fine hairs or scales, that coat the fronds and can look unsightly. Excess powder can be washed off 24 hours later using a rainwater spray.

Whilst most problems arise from overwatering or the crown getting too wet, underwatering can also be a problem, especially if the plant is in a pot that is too small for its large root-run. Although many of these ferns have the remarkable ability to rehydrate and resurrect over a few days after a period of drought, it is best to avoid this happening by keeping watering regimes regular. Drought will stress the plant unnecessarily. Also, some ferns in this group do not have this resurrection ability and will not recover once they have become dry.

Xeric fern names

Many xeric ferns are sold with very variable common names, usually reflecting their appearance (for example, woolly) or their origin (for example, cliff). Their formal names were often in the genera *Cheilanthes* and *Pellaea*. However, taxonomic revisions have moved many into the genus *Myriopteris*. In the horticultural trade, they are likely to still be available under their previous names. Two popular xeric ferns which are widely available and which have undergone name changes are *Myriopteris tomentosa*, formally *Cheilanthes lanosa* (Woolly Lip Fern) and the other is *Cheilanthes viridis*, formally *Pellaea viridis* (Green Cliff Brake). A third, *Pellaea rotundifolia* (Button Fern) is also well worth seeking out to add to your collection.

Hardier xeric ferns



Woolly Lip Fern
Myriopteris tomentosa



Button Fern
Pellaea rotundifolia



Rustyback Fern
Asplenium ceterach

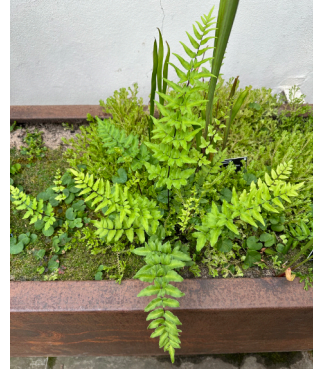
Xeric ferns that require frost-free conditions



Scaly Lip Fern
Cosentinia vellea



Cloak Fern
Paragymnopteris marantae



Green Cliffbrake
Cheilanthes viridis

Xeric ferns with some resurrection ability



Mexican Polypody
Pleopeltis guttata



Silver Cloak Fern
Aleuritopteris argentea



Resurrection Plant
Selaginella lepidophylla

The Exotic Fern Group is a community for enthusiasts of tropical, subtropical and indoor ferns. We bring together individuals who share a passion for these unique plants, offering opportunities to connect, learn and grow together. Members enjoy regular newsletters, social visits to private fern collections and online presentations. We also organise trips to larger public fern collections. Members can also benefit from access to fern and spore swap schemes, to expand and develop their own collections.

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