

Carboniferous Fact File

Ferns

The Carboniferous is often called the Age of Ferns as there were just so many of them. They appeared in great diversity – some of them even seem to have developed seeds, independently of the later ‘flowering plants’.

From ferns to flowers?

Ferns have a reproductive style you are probably familiar with by now – they alternated their generations, with a sporophyte plant casting spores into the wind that land and grow into a tiny gametophyte. This would then produce male and female cells, bring them together and an embryonic sporophyte would rise up to start the cycle again.

However, ferns managed to put their own spin on this process – or at least on the structures involved in this process. Instead of having sporangia carried at the tip of their branches, as in the horsetails, or having to grow special leaves into cone-shaped structures like the tree ferns and cycads, the ferns decided to make do with what they had. They began to carry their sporangia on each of their leaves, grouped together in patches on the underside. You can still see this today if you look at bracken; the rusty spots under the leaf are modified sporangia, busily making and dropping spores. This may not sound like a big deal, but it may be a clue as to how flowers evolved. Some ferns even seem to have evolved seed-like structures that were carried on their leaves! This slight adaptation allows ferns to concentrate their energy in growing leaves without having to grow special structures to reproduce as well – a big saving when having to compete with other, larger plants around you.

Despite this, and their other advanced features (such as a vascular system, rhizomes capable of taking up water and leaves to absorb light), the ferns began to decline as a group towards the end of the Carboniferous, and their great diversity was diminished. Many of the forms known from fossils are no longer found today, although the fern family still manages to be found almost everywhere in the world and continues to do well.