



## F O S S I L W O O D

Also known as PETRIFIED WOOD

First draft

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A fossil is a rock containing the preserved evidence of once living animals or plants. Fossils are found in sedimentary rocks (e.g. limestone, chalk and sandstone) as the fossil forms when the plant or animal is buried in sediment (usually under water). Its soft parts rot away but any longer lasting hard parts will gradually be mineralised and turn to stone.

### How did fossil / petrified wood form?

Don't forget - most fallen trees rot away completely, leaving no trace of their presence BUT petrification of the trunk could occur when the tree fell over in old age (or was wind blown or washed down into a river bed during seasonal floods - or was even pushed over by a dinosaur!). If the trunk became completely covered in sediment, excluding oxygen and was in an area where mineral rich water was flowing through the sediment, mineralization would gradually have taken place. Deposits of minerals (usually silicon dioxide / agate) would replace the organic lignin and cellulose in the plant cells, forming solid fossil wood. Some petrified wood formed in areas smothered in volcanic ash, e.g. the Petrified Forest on the island of Lesbos, Greece.

### What produces the range of colours found in fossil wood?

If minerals are dissolved in the water flowing around the trunks, their characteristic colours may appear in the fossil wood, for example:

COLOURS	MINERAL
Grey, white	Silica
Black	Manganese oxides
Pink, orange	Manganese
Red, yellow, brown	Iron oxides
Green, blue	Copper, chromium, cobalt

### Can the tree's growth rings be seen?

Some fossil wood specimens show areas of preserved annual growth rings in horizontal cross sections of the trunk. These recorded the growth of the tree, each ring representing the annual increase in the tree's girth. Trees that grew in areas of the world with big seasonal differences, i.e. a winter and a summer, show these more clearly than those growing in tropical regions where growth can take place all year. Often details of the bark are beautifully preserved.

Ros Mason July 2006

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### **Which species of trees have been found?**

Many! Conifers (and broadleaved species which evolved later) have been found in various sites around the world and have given valuable evidence of climates of the past - for example, much of the fossil wood found in Arizona is from the Araucariaceae family (the monkey puzzle family). This family is now extinct in the wild in the northern hemisphere but flourished there when the climate was considerably warmer and wetter than experienced today.

### **How old is fossil wood?**

The oldest specimens found are thought to date back 250 - 200 million years ago to late Triassic times. Far younger samples have also been discovered, such as the Lesbos find which is thought to be only 20 - 15 million years old.

### **What sized pieces have been found?**

Probably the largest specimens have come from the Santa Cruz area of southern Argentina with trunks measuring up to 30m (100') long and 3m (10') in diameter. That petrified forest has been, understandably, classified as a National Monument! The Petrified Forest of Lesbos covers an area of over 150 square kilometres and even includes large upright trunks with root systems still in place.

### **How hard is fossil wood?**

Fossil wood is graded as 7 on the Mohs scale (the same as quartz due to its silica content).

### **Crystals fossil wood**

Crystals has been obtaining its supplies of very varied and fascinating specimens from Madagascar for many years. We aim to stock both large slices with particularly fine colouring and detail as well as smaller pieces showing lovely bark textures. For many years, Crystals sourced fossil wood from Australia. The prospector and land owner benefitted equally and it was practice to fill in a trunk being worked on below the surface to prevent other prospectors finding it. Surprisingly, fossil wood makes extremely attractive spheres and some other worked products. Fossil wood sometimes occupies the borderlands between rocks and crystals, especially when slices include exquisite areas of individual crystals.

### **Unusual fossil wood facts!**

\*\* In the Petrified Forest National Park in NE Arizona, you can find an Agate House and Agate Bridge - both built of petrified wood.

\*\* 'The Petrified Forest' was a 1936 gangster thriller film, starring Bette Davis, which used a petrified forest as an 'unusual setting'!

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