



HOW LOVELY ARE THY BRANCHES?

Wood scientist **Dan Ridley-Ellis** says fitness as a Christmas tree is now a significant species survival advantage



The timber industry is dependent on a small number of commercial species, yet according to GlobalTreeSearch there are more than 60,000 tree species across the world. It is hard to exactly define 'native', and indeed hard to define 'tree', but even within the relatively tiny number of species considered natural in the British Isles, we currently use only a fraction as a source of materials.

With climate change, and rising risks of pests and diseases, we need to find a new balance between what the public want from forests, what we use for timber, and what is best for the future resilience of the forests themselves.

Wood science and technology plays a key role here, which is why we have spent a lot of time researching the properties of home-grown species, both native and introduced, to assess suitability as future commercial timber, and how timber quality can be improved through forest management.

Trees grow wood without a thought to what we do with it, so understanding what influences wood properties requires imagining what life is like for a tree. The first mistake is to think that plants are simple; you really need to open your eyes to the great diversity of form, and to wonder why things are the way they are. The plant world has many wonders hidden in plain sight, indeed even on display. "Why do some leaves go red?" is one such mystery I recommend you dig further into than the simple stock answer you heard at school.

We are soon entering the season of the great conifer migration, in which trees fill the streets; often seen in the early morning gathering around overflowing bins for warmth. This is only half a joke since we are now, in a very real sense, the most useful seed dispersal animals for these trees. It would be a stretch to claim this is co-evolution, but there is no doubt that fitness as a Christmas tree is now a significant species survival advantage, and surely one of most successful for reaching new territories.

And so "what conifer species are best for Christmas trees?" is a common question this time of year, but what about the question "what conifer species are the worst?" Conifers are the tradition because of the symbolism of being green even in winter, but – again, despite what most of us learned at school – not all conifers are evergreen. Larches (*Larix spp*) are the most familiar examples of deciduous conifers in the cooler parts of the temperate northern hemisphere and are well-known timber species. Other examples are the golden larch (*Pseudolarix amabilis*), bald cypress and pond cypress (*Taxodium distichum*

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Et ascendens), Chinese swamp cypress (*Glyptostrobus pensilis*), and dawn redwood (*Metasequoia glyptostroboides*). These particular conifers seem to be adapted to very heavy snow, bogs and swamps, or avoiding the effects of winter drought, in ways that out compete the usual evergreen strategy.

There are also evergreen contenders for worst Christmas tree. Close to home we have the yew (*Taxus baccata*). Despite the imprudence of bringing toxic foliage and bark into the house it has historically been used as Christmas decorations. There is also the "stinking yew" (*Torreya taxifolia*), with needles that exude a fetid odour. This tree also has the distinct disadvantage of being critically endangered in the wild, due mostly to fungal blight, but not helped by an extremely restricted geographical range on the Florida-Georgia border. This is thought to be because it now lacks its seed dispersal partner – likely a large, long-extinct tortoise. Little more can be said about this, but we can be confident that large, extinct tortoises don't celebrate Christmas.

So if you have a real tree this year you can think of yourself as doing it a favour. Let there be trees on earth, and goodwill to all. ■

Below: "what conifer species are best for Christmas trees?" is a common question this time of year



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