TAKE THE EUCALYPT OUT OF INCENDIARY DEBATE
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THE surge in severe bushfires over the past decade has prompted much agonised soul-searching. Last year's Victoria fires led to demands to reassess a number of established practices: the leave or stay-and-defend policy; the question of controlled burning and fuel-load reduction; and the green environmental policies that have encouraged and even mandated the planting of eucalypts in rural and semi-rural areas.

But if we really want to reduce the fire threat, perhaps we need to ask some even more basic questions. Is the eucalypt the right tree for rural dwellings, the urban fringe and semi-settled areas? Should we be planting more of them when climatic modelling predicts decreasing rainfall and more days of extreme weather conditions like those that whipped up infernos such as the Canberra firestorm of 2003 and the Kinglake-Marysville disaster? Should we consider planting less inflammable and more fire-resistant species instead?

Eucalypts are fire-adapted, lethally so, as they are full of volatile oils that vaporise in not-so-extreme heat and explode like a bomb. On top of that they drop masses of dry bark, leaves and twigs that burn just as furiously - hot enough to melt brass taps at several metres.

One lesson of history (1851, 1939, 1983) we seem to be taking a long time to learn is that a mature eucalypt forest is a gigantic bonfire waiting for a dry spell, a north wind and a spark. The downside of eucalypts' capacity to survive fire (or as with mountain ash their dependence on it to germinate seed) is that they also promote fires.

A few years after the Canberra firestorm we took a walk in the Blue Range, an area just west of the city and in the heart of the pine forest that supplied the fuel for the blaze of January 18, 2003. The terrain had been cleared, but the site of the former Sherwood homestead was easy to find because the trees that surrounded it were alive and green. The settlers had planted oaks and elms, and although their windward side had been scorched by the flames, they were still healthy and vigorous. The area within their perimeter was untouched: a little oasis that had been protected from the blaze by a barrier of green leaves.

It was a similar picture at Callignee, South Gippsland, where homesteads protected by oaks or elms survived February's fires. In contrast, many dwellings surrounded by bare lawns had been damaged or burnt by flying embers, while those near gums or pines had nearly all been destroyed.

Eucalypts have been implicated in the increasing incidence and severity of wildfires in Spain, where they have been extensively planted in reafforestation projects and to provide pulp for paper production. Spanish authorities point out that the native holm oak (Quercus ilex) is fire-resistant.

There are many northern hemisphere and some Australian trees that would have an equally fire-retardant effect, such as liquidambars, plane trees and poplars. Among hundreds of species of oaks, particularly those from the Mediterranean and arid regions of North America, there are several that tolerate hot, dry conditions and would thrive in many parts of southern and inland Australia. The three plantations of cork oaks on the western edge of Canberra not only survived the firestorm, but checked its advance; the stand on the northwest corner of Curtin slowed the fire and protected the homes behind, not one of which was damaged. Further up the hill, where eucalypts took over, several houses were burnt.

The ACT Department of Municipal Services notes that, unlike gum trees,"Cork oak is essentially fire resistant and the foliage results in a relatively non-flammable, low-level ground fuel".

As well as oaks, there are many trees originating in dry areas of the Middle East and southern Asia that would do the job - quinces, pistachios, pears and apricots, for example, and the ubiquitous peppercorn tree, once an inevitable feature of every rural homestead. Suitable native species include the kurrajong and several varieties of wattle and casuarina.

Non-eucalypts offer other advantages. A plantation of wet-leaf trees is more effective as a firebreak than a strip of cleared or burnt ground, since their foliage blocks flying embers. During the Canberra fire large manchurian pears in Morehead Street, Curtin, stopped flaming embers from reaching several houses.

Unlike eucalypts, whose roots release acids that limit the growth of rival plants, and whose dead leaves lie around until consumed in the next fire, leaf litter from deciduous trees rots down into compost and enriches the soil.

They also moderate air temperature and increase humidity through transpiration, keeping the ground cooler and less fire-prone, and they do not desiccate soils to the same degree as thirsty gums. As the early settlers complained, gum trees are so heat-adapted they turn the edges of their leaves to the sun and give very little shade.

Non-eucalypts may also offer advantages in terms of increased net carbon absorption. When calculating the effectiveness of a eucalypt plantation as a carbon sink, it is necessary to compare the quantity of carbon it absorbs during its years of growth with the quantity it releases when it burns - as,inevitably, it eventually will.

We don't want to give the impression that we are advocating anything like the program of the 19th-century acclimatisation societies, which sought the wholesale replacement of native ecosystems with English trees, shrubs and fauna - though it should be that recognised Aboriginal "fire-stick farming" radically transformed the botanical profile of the continent, assisting fire-loving species to become dominant. It would be absurd to clear stretches of mountain forest and replant it with oaks.

All we are suggesting is that tree-planting programs, particularly on the urban fringe and in areas where there is substantial settlement in gum forests and woodlands, consideration be given to varying the species mix by the addition of non-eucalypt varieties known for their fire-resistant properties.

Local governments should particularly encourage the planting of such species on the edge of towns and around dwellings. A belt of oaks or pistachios instead of eucalypts could mean the difference between life and death in the climatic conditions that lie ahead.

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