FLORA

TREES WITH SUNSTROKE?

Avril Baxter and Peter White

Saturday 3 February and it was hot. By midday, temperatures had soared to the mid 40s, relative humidity (RH) levels had plummeted and a searing northerly wind was scorching the landscape. Most people had retreated into an air-conditioned building or had found some other refuge from the intense conditions. However, some of nature's other creatures were not so fortunate. Birds died, and a few days later the canopies of many trees changed to a pale brown colour.

This browning of trees was reported from Coorow through to Wagin and across to Lake Grace. From valley flats to hilltops, species such as York gum, red morrell, salmon gum and wandoo felt the intense conditions. In some cases only part of the tree was affected, but mostly it was the entire crown. In some areas there were more salmon gum affected, in others it was the red morrell and the wandoo. One tree could be affected and its neighbour not; saplings through to large trees appeared to suffer equally.

The high temperature, and low relative humidity were records for many localities; but it was the unusual combination of these factors, exacerbated by the hot strong winds, that resulted in the desiccation of leaves and hence browning of the canopy of trees.

Whilst conditions were similar across much of the wheatbelt, this browning did not appear to affect trees in the eastern wheatbelt, even though the same species, ie salmon gum and red morrell, were present.

For example, York had many affected trees and 47.4°C with 9% RH, whilst in Hyden, which experienced the highest temperature ever recorded in the south of WA (48.6°C and 11% RH), trees did not appear to be affected.

This browning of the canopy has recently been reported in the newspapers and is reflected by the concern expressed by wheatbelt residents. However, this event is not without its parallels; a similar event happened in the southern wheatbelt in 1991 when temperatures reached 46°C. That year browning trees were reported from Albany to Lake King. Many were species such as *Pinus radiata*, *Eucalyptus globulus* and other trees planted outside their range, but a significant amount were of well established native trees in bushland.

Affected sites were visited in February 1991 and photographic monitoring points established. One year later, the areas were revisited and rephotographed (see photos below). The crown recovery was almost complete in that time. It was significant to note that the crown had been replenished from the growing tips and not from epicormic shoots along the stems.

Leaves have already started to fall from the currently affected trees, but from the above evidence, we do not think we should wórry that they have "died". If a tree is dying, the process probably began before this event. Nor is the defoliation related to disease.

The full extent of this defoliation event is not known and we would like your help in mapping the area. If you noted a browning of the canopy shortly after 3 Fèbruary please contact us with information on the location, species of trees affected and, if possible, your local weather observations on that day.

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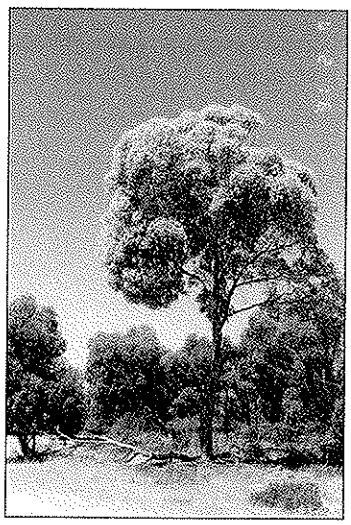
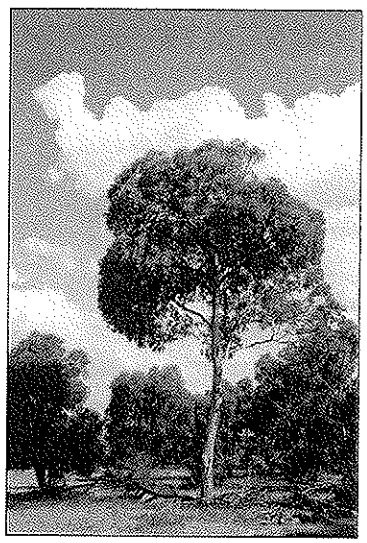
(Weather conditions taken from the Australian Government Bureau of Meteorology website.)



Eucalyptus wandoo affected by heat stress, Tambellup. Feb 1991.



The same tree with new leaves on a year later. Photos: Peter White.