



Sustainable firewood use and supply

CSIRO researchers are improving the information base on the use of firewood and its impact on ecological sustainability.

Two research reports have addressed important knowledge gaps:

- Impact and use of firewood in Australia in 2000
- Sustainable firewood supply in the Murray-Darling Basin in 2004.



A national approach to sustainability

To address the issue of sustainable firewood harvesting in Australia, a Firewood Taskforce was formed in 2000, with State and Australian Government representatives, and the endorsement of the Australian and New Zealand Environment and Conservation Council.

The Taskforce developed a National Approach to Firewood Collection and Use in Australia, which aims to ensure that firewood collection is not a major contributor to loss or degradation of remnant and woodland ecosystems, or the habitats of threatened species.

With funding from the Australian Government Department of Environment and Heritage, CSIRO completed two projects on firewood.

Impact and use of firewood in Australia

Don Driscoll, George Milkovits and David Freudenberger

In 2000 CSIRO delivered a report on the impact and use of firewood in Australia. The key findings of the report are:

Australian households burn between 4.5 to 5.5 million tonnes of firewood per year. With the addition of firewood for industrial use, this figure rises to between 6 – 7 million tonnes.

The most commonly burned tree species are River Red Gum (*Eucalyptus camaldulensis*), Jarrah (*Eucalyptus marginata*), Red Box (*Eucalyptus polyanthemos*), Yellow Box (*Eucalyptus melliodora*) and Ironbark (*Eucalyptus sideroxylon*).

It is estimated that 84% of firewood for household use is collected from private lands and that only 9.5% of firewood is collected from State Forests. The remaining firewood was classified as coming from either crown land, such as Travelling Stock Reserves and roadside reserves, or other unknown sources.

An important finding was that approximately half of the household firewood was collected by residents rather than purchased and this firewood was primarily fallen timber gathered on private land. The remaining households who purchase timber do so from small suppliers and friends. Established wood merchants only account for around a quarter of these purchased firewood loads.

Inland forests and woodlands in lower rainfall zones (ie in areas such as the Murray-Darling Basin), were seen to be most threatened by firewood collection. This is because the most heavily utilised firewood species originate from the MDB, they have slow growth rates due to generally low net primary productivity and have been extensively cleared.

The full report is available on the Department's website at

<http://www.deh.gov.au/land/publications/firewood-impacts/index.html> .



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Sustainable firewood supply in the Murray-Darling Basin

David Freudenberger, Margaret Cawsey, Jacqui Stol and Phil West

In 2004, CSIRO was engaged by the Australian Government Department of Environment and Heritage to look at criteria for sustainable firewood harvesting and its potential ecological impact in the Murray-Darling Basin (MDB).

In consultation with a broad range of stakeholders, three harvesting scenarios were developed and analysed for their capacity to meet the current demand for firewood of 2.25 million tonnes per year from the MDB:

- *Dead-wood:* Continued reliance on firewood harvested from standing and fallen dead timber from native forests on privately held land;
- *Green-wood:* Firewood harvests of live trees thinned from existing stands of native forests and woodlands on privately held land;
- *Plantations:* Firewood harvests from plantations of native hardwoods on privately held, currently unforested land.

The key findings of the report are:

The heavily-cleared areas of the MDB, where only forest fragments remain, are particularly at risk of loss of biodiversity and landscape function if harvest of dead-wood continues within them.

The supply of firewood which could be obtained from the harvest of live trees from mallee and non-mallee forests is about equal to the current demand. The stands of non-mallee forests most appropriate to a green-wood harvesting approach are also the stands most likely to benefit ecologically from harvesting.

Small ground-dwelling mammals occur at low density in these forests, reflecting the lack of structural complexity and low nutrient status of these sites. The ecological sustainability of the forests would be best served by the exclusion of wood harvesting from riparian areas which provide the best habitats for these animals.

Approximately 200,000 hectares of plantation, grown on a 10 year rotation, would have to be established in the MDB to meet the present demand for firewood from the MDB. However,

plantation forestry is unlikely to be economical where plantations are established principally for firewood production.

Firewood from plantation sources would gradually supplement the levels of firewood available from the harvesting of live trees in MDB to a level which would easily meet the future demand.



There is considerable opportunity to sustainably obtain firewood from the privately-owned forests in the MDB through the harvest of live trees, by-products from plantation forestry and limited continued collection of coarse woody debris.

Four times the existing annual demand for firewood from the MDB could be met from intensively harvesting coarse woody debris from only 3 million of the available 12 million hectares of non-mallee forests.

Alternatively, a larger area of these forests could be harvested less intensively, ensuring the retention of sufficient coarse woody debris to maintain biodiversity and landscape function.

The full report is available on CSIRO's website at <http://www.cse.csiro.au/research/firewood>

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