

State of the Environment Tasmania  
 Chapters  
 Biodiversity  
 Firewood Collection and Usage

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## [Background](#)

## Background

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Tasmania is the greatest consumer of firewood in Australia. Tasmanian households burn about 610,000 air dry tonnes of firewood/year. When industrial firewood is included the total jumps to approximately 770,000 air dry tonnes of wood burnt/year.

## [Regional aspects](#)

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Of the Tasmanian households that use firewood it has been estimated that 40% collect their own mainly from private land and 60% buy their wood. Most of the wood bought is from small collectors or suppliers (62.5%). Woodyards provide 22.5% of the market with friends and relatives supplying the remaining 15%.

## [Management responses](#)

## [Discussion](#)

Prior to 2002, much of the commercial wood industry was unregulated; an approximate estimate was that 20–30% was regulated through the large commercial operators or ‘merchants’ ([Miller 2001](#)). This largely unregulated and fragmented harvesting activity faced a number of sustainability issues, including impacts of firewood collection on vegetation and wildlife.

## [Future directions](#)

Firewood harvesting however was brought under the control of the [Forest Practices Act 1985](#) in January 2002. The Act however, does not deal with matters related to the sale of firewood (weights, measures, dryness etc) or with air quality resulting from the burning of firewood. The regulations for firewood harvesting are also based on specific criteria. It is uncertain as to the effectiveness of these regulations because of the obvious difficulty in enforcement.

## [Related issues](#)

Firewood is a valuable source of **renewable energy**, if the source areas are managed appropriately. A sustainable firewood industry could be created in Tasmania if extraction and use were to be subject to best practice management whilst improving the viability of the commercial firewood gathering industry. Sustainability is also conditional on community acceptance of alternative forms of home heating and to improvements in domestic wood heater operation in order to reduce the release of particulates (i.e. wood fire smoke) to the atmosphere (especially in the case of Launceston).

## Implications

- In Tasmania firewood collection is heavily concentrated in dry sclerophyll forests and woodland ecosystems often from remnant patches of vegetation on private land. Of all forest types, dry forests have suffered the greatest disturbance and land clearance since European settlement. Firewood extraction is likely to place further pressure on the remaining dry forests, some of which are the most depleted and poorly reserved plant communities in Tasmania.
- Most wood collected by non-commercial collectors in Tasmania is fallen dead or standing dead wood, which are

often perceived as 'waste'. However, dead trees (especially those with hollows) and fallen timber are vital habitat for a diverse range of **vertebrate** fauna including reptiles (e.g. lizards), birds and mammals (e.g. bats, echidnas). Fallen timber is also extremely important habitat for invertebrates, mosses, lichen, fungi, liverworts and micro-organisms (such as bacteria, small fungi, algae).

- The extraction of firewood from native forests may also:
  - lead to the elimination of some types of habitat;
  - lead to further loss of vegetation cover in rural areas and exacerbate broad scale environmental problems such as dryland salinity;
  - lead to the introduction and spread of weeds and pathogens (e.g. [phytophthora root rot](#) (*Phytophthora cinnamomi*)) and;
  - involve the passage of heavy vehicles, which may compress the soil leading to soil structure decline.
- An unsustainable firewood resource has significant implications for the economic viability of the firewood industry. A viable commercial firewood industry subject to a mandatory code of practice for firewood collection is also more likely to aid ecological sustainability.

### Regional aspects

- The main firewood cutting regions in Tasmania are the east coast, central highlands and the Midlands region.
- Firewood collection is undertaken almost exclusively in dry sclerophyll forests and woodland ecosystems often from remnant patches of vegetation on private land.
- Firewood is an important decentralised or regionally accessible form of home heating fuel that is important for many regional communities. It is important for regions to ensure that this resource is managed sustainably.



## Indicators

### Energy Sources - at a glance

- [Continued in depth](#)
- Fuelwood is the third largest source of energy used in Australia after electricity and gas. Annual consumption is approximately one tonne per wood user per year. In 1990 solid fuel and woodheating appliances provided more than 20% of the nation's domestic [heating energy](#).
- In Tasmania wood is the main source of home heating. For example a survey conducted by [Aurora Energy \(2001\)](#) showed that firewood is the main home heating source in Tasmania with 50% of homes using wood as a primary heat source followed by electricity (44%), gas (4%) and oil (2%).

### Total Tonnage of Firewood Used (Domestic) - at a glance

- [Continued in depth](#)
- In 1999–00 Tasmania had the highest average consumption of firewood per household in Australia, consuming approximately 610,000 air-dry tonnes of firewood/year. Most of this wood is sourced from native forests. Although specific research on the impacts of firewood collection on native habitats is limited it is expected that firewood collection is causing significant ecological damage, especially in areas where habitats are already degraded.

### Total Tonnage of Fuelwood Used (Commercial/Industrial) - at a glance

- [Continued in depth](#)
- The total tonnage of fuelwood used in Tasmania in 2000–01 was 163,382 air dry tonnes. This amount only includes those industries reporting to the NPI.
- The NPI data does not indicate the origin of the wood. That is whether the fuel being burnt is from native forests or **plantations**. Thus from this data it is not possible to determine the likely impact of the use of fuelwood is having on native habitats.
- Since the NPI data was collected in 1998 the amount of fuelwood burnt in Tasmania has increased, although there is uncertainty about the information as the NPI data is collected for selected larger industrial premises only.
- Data captured by the NPI does not include wood burnt during logging operations. It only includes wood burnt during timber and wood product manufacturing. Accordingly, NPI data may show an increase in industrial use of wood where a redirection of waste wood from being

burnt on the forest floor to electricity generation occurs. Forestry Tasmania also notes that controlled burning in a high temperature power station should reduce particulate emissions and low temperature wastes such as dioxins. .

#### Household Sources of Firewood - at a glance

- [Continued in depth](#)
- Of the firewood using households in Tasmania approximately 60% buy firewood and 40% collect their own.
- Of the households that buy firewood the majority (62.5%) is bought from small collectors or suppliers (e.g. selling from the back of a truck). Less than a quarter (22.5%) is bought from firewood merchants with established premises.
- Of the households that collect their own firewood 82.2% is obtained from private land. Only a small proportion of the firewood (17.8%) is collected from State forests. As State forests are usually managed for wood production while the majority of native forests on private land are not, it is likely that the impact on biodiversity values would be greater on private land.
- The main tree species targeted by household collectors are eucalypts (i.e. gums) most of which are dead wood on the ground (58%) or standing dead wood (33%).

#### Merchant Sources of Firewood - at a glance

- [Continued in depth](#)
- [Driscoll et al. \(2000\)](#) have conducted the only study on the amount of wood sold by merchants in Tasmania. Of the small number of merchants they interviewed they calculated that merchants sold 5,400 air dry tonnes during the last year or season (1999–00) prior to their interview. However it should be noted that respondents found it difficult to estimate the quantity of firewood they sold and in some instances gave wide estimates.
- There was no data available on the specific areas where the retailers collect firewood or the specific plant species targeted.
- Separate studies suggest firewood collection is undertaken almost exclusively in dry sclerophyll forests and woodland ecosystems ([Kirkpatrick 2001](#)). The species favoured are peppermints (e.g. *Eucalyptus tenuiramis*, *E. amygdalina* E.

*pauciflora*), and she-oaks (*Allocasuarina* spp.).

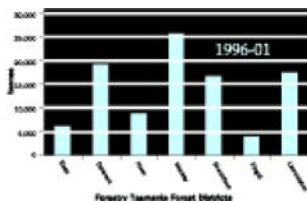
### Species and Ecological Communities Affected By Fire Wood Collection - at a glance

- [Continued in depth](#)
- Thirty-three species of birds, 15 species of reptiles and 22 species of mammals in Tasmania are likely to be threatened by firewood harvesting due to the loss of tree hollows or foraging habitat.
- The large dead hollow bearing trees and fallen timber are the two types of timber most targeted by wood cutters, which puts fauna dependent on these habitats at considerable risk. When a species' habitat is removed then eventually that species will be lost, either locally or regionally.
- It is unlikely that there will ever be a complete list for invertebrates in any major habitat, particularly in such a habitat as decaying wood. Thus it is difficult to know which **invertebrate** species are being negatively impacted by firewood collection. Instead invertebrate ecologists and taxonomists have stressed the need for habitat conservation rather than putting resources into particular species.
- The plant species favoured for firewood collection form part of some of the most depleted and poorly-reserved plant communities in Tasmania. Most notably inland silver peppermint (*Eucalyptus tenuiramis*) forest, inland black peppermint (*E. amygdalina*) forest, black peppermint forest on sandstone and cabbage gum (*E. pauciflora*) forest and woodland.

### Total Tonnage and District of Firewood Collection Permits Issued - at a glance



- [Continued in depth](#)
- The only State agency issuing firewood collection permits in Tasmania is Forestry Tasmania.
- Between 1996 and August 2001 Forestry Tasmania issued permits for the collection of 97,940 tonnes, which is an average of 19,588 tonnes per year.
- This represents only a small proportion of the total consumed. For example, it is estimated that Tasmanian households and industrial users consume about 770,000 air dry tonnes of firewood per year.



- Most firewood was extracted from the Mersey forest district (25,876 tonnes or 26%) followed by the Derwent district (19,074 tonnes or 19%). Both these districts contain the most densely populated regions in Tasmania, Hobart and Launceston.

### Management responses

- A national strategy for firewood collection and use in Australia has been developed ([ANZECC 2001](#)). The strategy aims to ensure firewood collection occurs on an ecologically sustainable basis and does not cause loss or degradation of remnant and woodland ecosystems or the habitat of **threatened species**. The strategy also aims to provide a national framework that each jurisdiction may draw upon to develop appropriate management strategies for their firewood industry. Each State, Territory and the Commonwealth will develop an action plan to implement the agreed national approach to firewood collection and use. The Australian and New Zealand Environment and Conservation Council ([ANZECC](#)) will monitor development and implementation of the action plans.
- As part of its commitment to addressing the impacts of firewood collection, the Commonwealth Government, through the Natural Heritage Trust's bushcare program, has sponsored firewood conferences in several parts of Australia. Tasmania held its first firewood conference in 2001 – titled *Firewood: a biodiversity consumer and human health issue* organised by the Tasmanian Conservation Trust. Proceedings from all conferences will be available from Peter McGlone and Alistair Graham of the Tasmanian Conservation Trust (Phone 03 6234 3552).
- Currently there are studies being undertaken in the **Warra** long term ecological research site investigating the relationship between log dwelling invertebrates and wood decaying fungi, and also a study examining the succession of invertebrate communities associated with decaying logs of various sizes ([Forestry Tasmania 2000](#)).
- The [Environment Protection and Biodiversity Conservation Act 1999](#) provides for the identification and listing of key threatening processes. These are processes that threaten or may threaten the survival, abundance or evolutionary development of a native species or ecological communities. In 2001 "continued net loss of hollow-bearing trees in native forests and woodlands due to firewood harvesting practices" was listed on the Act.
- In 2001 the State Government introduced a new penalty for cutting, damaging or otherwise destroying a tree on reserved land. Conviction under the section of the [National Parks and Wildlife Act 1970](#) can result in a 'fine not exceeding 500 penalty units (\$50,000) or imprisonment for a term not more than two years, or both'. These regulations relate equally to

live, dead or fallen trees. This new penalty is in addition to the existing penalties of up to \$2,000 for:

- taking a growing or standing plant in a reserve;
- interfering with, digging up, cutting up, collecting or removing any sand, gravel, clay, rock, mineral or any timber, firewood, humus or other natural substance;
- use of a chain saw in a reserve;
- possession of a chain saw in a reserve;
- it is not an offence to possess a chainsaw if it is in a vehicle moving on a road that does not terminate in reserved land.

These regulations apply to all areas reserved under the [National Parks and Wildlife Act](#) i.e. National Parks, Nature Reserves, State Reserves, Game Reserves, Conservation Areas, Nature Recreation Areas, Regional Reserves, Historic Sites, Private Nature Reserves and Private Sanctuaries.

- The Forest Practices Board under the Forest Practices Code regulates the timber removal from public (State Forest) and private property for operators. Prior to 2002, approval plans under the [Forest Practices Act 1985](#) were only required where:
  - large scale machinery (large tractors, skidders, excavators, cable loggers) was used;
  - harvesting (except firewood harvesting) involved more than 100 tonnes of wood from one property per annum;
  - wood was harvested from **vulnerable** land (e.g. steep, near water courses or contain species listed on the threatened species legislation).

From January 2002 all harvesting (including firewood) in excess of 100 tonnes per property per year must be subject to a certified Forest Practices Plan.

## Discussion

In Tasmania firewood is the main source of home heating. In 1999–00 Tasmania had the highest consumption rate of firewood per household in Australia, consuming 610,000 air dry tonnes of firewood each year. When industrial fuelwood is included the total jumps to 770,000 air dry tonnes of wood burnt per year.

Most of the wood is sourced from native forests. Although specific research on the impacts of firewood collection on native habitats is limited it is expected that firewood collection is causing significant ecological damage, especially in areas where habitats are already degraded.

Thirty-three species of birds, 15 species of reptiles and 22 mammal species are likely to be threatened by firewood harvesting due to the loss of tree hollows and/or foraging habitat. The large dead hollow bearing trees and fallen timber are the two timber types most targeted by wood cutters, which puts fauna dependent on these habitats at considerable risk. When a species' habitat is removed then eventually that species may become extinct either locally or regionally. It is difficult to know which invertebrate species are being negatively impacted by firewood collection. Instead invertebrate ecologists and taxonomists have stressed the need for habitat conservation rather than putting resources into particular species.

The plant species favoured for firewood collection form part of some of the most depleted and poorly reserved plant communities in Tasmania. Most notably inland peppermint (*Eucalyptus tenuiramis*) forest, inland black peppermint (*E. amygdalina*) forest, black peppermint forest on sandstone and cabbage gun (*E. pauciflora*) forest and woodland.

Of the Tasmanian households that use firewood it has been estimated that 40% collect their own mainly from private land and 60% buy their wood. Most of the wood that is bought is from small collectors or suppliers (e.g. selling from the back of a truck) (62.5%) or is from friends and relatives (15%). Less than a quarter (22.5%) is bought from firewood merchants with established premises.

Prior to 2002 much of the commercial industry was unregulated. The only State agency issuing firewood collection permits was Forestry Tasmania. Between 1996 and 2001 they issued permits for less than 3% of what was consumed.

#### Future directions

- A firewood certification scheme should be developed as this may help to promote a viable commercial firewood industry. A certification system would also provide some indication to the consumer about the product quality i.e. its source, level of dryness and weight etc.
- The harvesting of timber (including firewood) is covered by the *Forest Practices Code 2000* (small scale operators (less than 100 tonnes/property/year) are exempt from the code). The *Forest Practices Code* provides for the protection of environmental values within the forest. There is no industry or government code that deals with the environmental effects of firewood e.g. effects of wood smoke on air quality. The draft environment protection policy (air quality) and regulatory impact statement ([DPIWE 2001](#)) sets ambient pollution levels, but there is currently no regulatory framework covering fuel dryness, storage etc.
- Firewood management should be managed from 'forest to chimney'. Recent changes to the [Forest Practices Regulations](#) will improve the degree of environmental protection within the forest, but there are still gaps with the small scale operations that are exempt from the legislation.



An ongoing public information program is likely to be the only effective way to regulate this activity. There are also serious gaps in the regulation of firewood quality and storage/burning practices etc. A mixture of regulation and public education is needed to lessen the environmental impacts on air quality caused by the burning of green or wet wood and the inefficient design of wood heaters.

- There needs to be better monitoring and management of the firewood industry, in order to ensure its long-term sustainability and to reduce environmental impacts from wood harvesting activities. To ensure remnant vegetation is adequately conserved and sustainably managed, alternative sources of firewood need to be developed including existing public and private forest plantations, sawmill waste, forestry waste from native forest logging coupes and specifically established firewood plantations.
- A viable commercial firewood gathering industry meeting best practice standards is also in the best interests of the ecological sustainability of the firewood resource. In order to promote a viable commercial firewood industry, the development of cooperative management arrangements with the forest industry are encouraged. In particular, an increased allocation of the forest resource domestic firewood consumption with concessions granted to commercial firewood operators. This would ensure greater level of regulation under the *Forest Practices Code*.
- An education campaign needs to be developed highlighting the following concepts:
  - fuel wood harvesting is a contributor to the decline of our native vegetation;
  - popular misconceptions about the role of dead trees in natural **ecological processes** within forest and woodland ecosystems need to be countered; and
  - an education campaign will inform consumers of the current association between wood heaters and habitat destruction. Education strategies will also include information on the proper operation of wood fires (current information suggests poor operation roughly doubles emissions compared to correct operation). Increased consumer and retailer demand for reputable suppliers providing sustainably sourced mixed wood loads will be [encouraged](#).
- A sustainable firewood industry should be one which does not remove old growth and standing dead trees and fallen wood from the forests and woodlands, but instead, one that relies on re-growth and plantation-grown wood.
- Endorse the national approach to sustainable firewood collection, implement its recommendations and specifically target:

- research into the impact of firewood collection, particularly on woodland birds and invertebrate fauna; and
  - community awareness to encourage sustainable firewood collection practices, and purchase of firewood.
- Clause 21 of the Draft environment protection policy (air quality) ([DPIWE 2001](#)) states that in order to promote the sale of dry firewood (i.e. thus reducing smoke emissions) that a voluntary accreditation for firewood sellers should be published. However, it is recommended that this accreditation system should be mandatory rather than voluntary.

### Tasmania Together and the RMPS

Relevant Tasmania *Together* goals and standards for 'Biodiversity' are listed in the [linked file](#). The Tasmania *Together* Progress Board reported on progress toward targets for benchmarks set ([Tasmania Together Progress Board 2003](#)). Indicators, targets and baseline data are available in the latest Progress Report June 2003. Further information, including progress report updates, is available from [Tasmania Together](#).

Involvement of the community, and the fair and orderly use of resources are also fundamental principles of the **RMPS**. The [RMPS objectives](#) have been developed to advance the principles of **sustainable development**.

### Related issues

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<a href="#">Atmosphere</a>
<a href="#">Particulate Pollution</a>
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