



Timber plantations - a fire risk?

The range of good reasons for investing in timber plantations is being increasingly recognised by communities and investors alike (e.g. timber and fibre production, carbon credits, salinity credits, biodiversity, farm diversification and environmental restoration).

Strong growth in plantation investment in NSW is expected during the next 20 years. This plantation expansion will occur on cleared agricultural land, and will occur in some areas where plantation forestry has not been a traditional land use.

Some community members in districts where plantations are expanding may be concerned that plantation expansion brings with it increased bush fire risk. Fortunately, the opposite is most often true.

In well-planned and well-managed plantations, the overall effect on fire risk in the surrounding district will be reduced.

Fires burning in forest spread far more slowly than grass or crop fires (plantation forest fires generally spread at one tenth the speed of grass fires under the same conditions) resulting in less area being burnt out.

In largely cleared agricultural landscapes, the introduction of plantations breaks up potentially large contiguous areas of fire vulnerable crops and pastures, which could otherwise carry fast moving fires, that can burn vast areas in relatively short periods of time.



Hazard reduction burn. Photo courtesy of State Forests NSW.

It is generally true that forest fires are more difficult to control than grass fires. However, plantation management techniques such as intensive fuel management (grazing, pruning, thinning and hazard reduction burning), and the natural habit of pine plantations to form compacted fuel beds, combined with the provision of good access (fire trails and breaks) and fire fighting resources for early detection and suppression mitigate against this difficulty.

For example, in the Hume pine plantation region (Tumut, Batlow and Tumbarumba) which covers nearly 90 000 hectares of plantation, State Forests has the following resources: a network of five fire spotting towers, 8000 kilometres of roads and firebreaks throughout the plantations, 12 large fire tankers, 30 small fire tankers (slip-ons), three large dozers and three D3 dozers.

In addition, State Forests has aerial surveillance and fire bombing capacity as required.

This equipment, which is operated by highly trained and experienced fire crews can be backed up by resources from other State Forests' areas when the need arises, and is additional to local bush fire brigade resources.

This high level of resourcing and preparedness provides for immediate and sustained responses to any fires starting in and around plantations.

The result of the additional fire protection capacity that comes with plantation development is that very few of the many fires that start each summer ever reach damaging proportions. Hence, communities are often better protected from bush fire risk in plantation districts than in similar agricultural areas where plantations are absent.

Fire risk of pine

Contrary to popular opinion pines don't explode. Indeed, pines have:

1. A uniform and compacted fuel bed on the forest floor - this does not burn as strongly as grassland fuels.
2. Most pines have no lower branches - pruning of lower branches breaks the continuity of fuel from the ground to the crown.
3. Low hazard bark - pine trees are much less prone to throw wind-borne bark firebrands ahead of fire fronts causing spot fires than most eucalypt species. Pine bark spotting distances are generally short, being no more than about 200 metres even on very bad fire days. Compare this with some eucalypts, which may spot several kilometres in the same conditions.
4. Higher humidity and lower temperatures in the plantation. In pine plantations with a closed canopy, this can reduce fire behaviour under moderate fire conditions, making fires easier to control.
5. Lower wind velocity (speed) - within plantations wind speed is reduced relative to in the open (normally one quarter to one seventh of the wind speed in the open). This has a most beneficial effect in slowing fire spread in grasslands, which are exposed to the full force of the wind.

FIRE PREVENTION AND PREPAREDNESS

State Forests' fire prevention principle is simple: prior preparation and planning minimise the impacts of bushfires.

Good fire risk management is a combination of fire prevention and preparedness before fires start, and well-coordinated and effective fire suppression once fires have started.



Preparedness

State Forests puts more than two thirds of its fire risk management effort and expenditure into fire prevention and preparedness.

This means going into each bushfire season with strategically located hazard reduced areas, a well maintained network of roads and firebreaks in the plantations, a team of well trained fire spotters ready to man the extensive fire tower network, a well maintained radio communication network, up-to-date and tested fire suppression plans in place, and a team of highly trained fire crews and managers ready to operate the fleet of modern and well maintained fire suppression resources when the fires start.

Additionally, all harvesting crews and other contractors must meet minimum levels of preparedness, namely:

- ▶ machinery fitted with appropriate fire extinguishers
- ▶ have a mobile fire unit on site with two trained operators
- ▶ maintain radio contact with base (State Forests allow industry access to their network).
- ▶ Silvicultural contractors must be trained to Level 1 firefighters.

Prevention

During the fire season all operations in plantations are regulated to reduce fire risk. Precautions include requirements for:

- ▶ machinery design and its condition (exhausts, fuel,

electrical, cleanliness)

- ▶ re-fuelling and fuel storage
- ▶ smoking and use of fire
- ▶ welding.

Furthermore all phases of harvesting, haulage and other operations, must operate only at approved locations and are subject to work restrictions depending on the fire danger rating and type of fire equipment present. For example, clearfall operations where curing occurs more quickly, are usually the first to be suspended.

State Forests' efforts in the area of fire prevention and high levels of preparedness mean that most fires that do occur are contained while remaining small and causing minimal damage.

FIREFIGHTING APPROACH

State Forests' fire suppression principle is simple: The bigger the fire gets the harder and more costly it is to put out. Early detection and a quick response are vital.

Fuel management

Much of State Forests' fire management is based on reducing fuel such as sticks, leaves, grass and dead wood in the forests using mild 'hazard reduction burns'. Wildfires starting in or entering these fuel-reduced areas can be more easily controlled, without compromising safety or causing significant damage.