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Fire suppressants and retardants

Background

Firefighting chemicals (suppressants and retardants) are used in many parts of the world to assist with fire suppression.

Fire retardants are long-term products that are most commonly released from airplanes in long lines. Fire retardants contain fertiliser salts, which act to slow the rate of fire spread by cooling and coating fuels, depleting the fire of oxygen and slowing the rate of fuel combustion through a chemical reaction. Retardants often contain a dye, which makes them appear red. This is so the treated area can be located after application. Fire retardants will not stop a high-intensity fire in its tracks but can assist firefighters on the ground by slowing fires of lower intensity, reinforcing fire breaks, or protecting high-value assets.

The most common fire suppressant is foam. Foam suppressants used on bushfires contain surfactants, similar to dishwashing liquid. Surfactant is added to the water used to fight fires at a concentration of 0.1 to 1.0 per cent by volume. Foam cools the fire by creating a barrier between the fuel and fire and also enhances the effectiveness of water by reducing the surface tension, which enhances the ability of the water to wet fuels.

Rules for applying firefighting chemicals across Tasmania have been developed into a decision-support tool based on a review of known and likely environmental impacts of different retardants and suppressants, largely from the northern hemisphere.

For example, the review highlighted the need to avoid using firefighting chemicals around waterways. The aim is to use these products in situations that maximise bushfire suppression while causing the least amount of environmental impact, understanding that in many cases the impact of using fire suppression chemicals may be lower than the impact of unsuppressed fire on the TWWHA.

Challenges

Despite some understanding of the likely environmental impact of fire retardants and suppressants on the environment there is still much that is not well understood. The Parks and Wildlife Service has projects underway to improve knowledge in this area, however this will take time.

The appropriate retardant coverage levels required to be effective in Tasmanian vegetation is not known. The option of not using retardants may avoid any environmental risk, however, the use of retardants and suppressants may be a critical factor in being able to protect significant fire-sensitive assets.

The dropping of retardant from an airplane is a very dangerous operation for the air crew. Consequently, the ultimate decision for the position of the retardant drop will be determined by the pilot and based on an assessment of safety.

Aircraft capable of large retardant drops are limited in availability and therefore prioritised for life and property protection. This means that they are not readily available for natural values protection and cannot be relied upon.

The way forward

The benefits and consequences of fire suppressant and retardant use in Tasmania are not fully known and will continue to be assessed.

The Parks and Wildlife Service will continue to undertake or support research into the ecological impacts of suppressants and retardants and how they can be applied at appropriate coverage levels for Tasmanian vegetation types.

It seems apparent that fire suppressants and retardants have limited use in stopping the forward movement of a high-intensity fire but in combination with other tactics can be useful in reinforcing a fire break or protecting an asset. The Parks and Wildlife Service will continue to investigate using suppressants and retardants for these purposes.

OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

07 Use of aircraft

11 Organic (peat soil) fires