How does remote area firefighting work?

Ian Brown, 30 January 2020

(I don't like the word 'firefighting' but since its part of the RAF and RAFT acronyms I'm bound to use it.)

Remote area firefighting (RAF) and RAF teams (RAFT) don't get much media attention but are a critical part of fire management, especially in large national parks and other remote bushland. 'Remote' means anywhere not readily accessible to firefighting trucks. Fires that start in such locations, often from lightning, are particularly challenging.

When helicopters became available, so did a way of tackling remote fires. In NSW, the National Parks and Wildlife Service pioneered these techniques in the 1970s.

Basically, firefighting crews with equipment fly into the bush by helicopter and tackle fires while they are small. The same methods can be used on parts of bigger fires. At both scales RAF work was critical in the 2019-2020 Blue Mountains and many other fires.

Natural sites can sometimes be used for landing helicopters, or for 'hover exits', but often the first task is to cut a helipad from the bush. It must be close to the fire but reasonably safe, and acts as a base of operations. In some jurisdictions (not NSW), firefighters can abseil from helicopters.

The main methods used by RAF teams are direct attack, indirect attack, 'dry' firefighting and aerial operations.

Direct attack is when firefighters directly attack the active fire front, using rake-hoes and other hand-tools to push the fire in on itself, separating ground fuel from the flames so they go out. This method can only be used when the flames and fire behaviour are low, and the fire area is small.

Indirect attack is the more usual method, but often a mix of indirect and direct is used. Indirect attack involves creating a bare-earth trail around the fire and some distance from it, by raking away the ground fuel. Then either the fire is allowed to approach the 'hand-tool line' and go out while crews watch for crossovers, or the bush between the line and the fire front is deliberately burnt out (in a backburn) when conditions are right.

Once the fire has burned to the containment lines and all active flame edges have been put out, mopping-up takes over. This is the process of extinguishing all burning embers and logs some distance in from the control line, and usually goes on for some days, depending on the fire size and conditions. 'Hot spots' are raked or broken up and allowed to cool, and hollow burning trees ('pipes' or 'smokers') are cut down and opened up. This is all 'dry' firefighting.

Aerial operations assist. Water-bombing is used to 'knock-down' the fire before a direct attack, or to cool down fronts that are posing a threat to control lines or to firefighters, and to damp down 'smokers'. Small to medium helicopters are usually used for accuracy, with big buckets slung beneath them. This tactic requires a water source close enough for efficient turnarounds, usually a big pool in a creek or river, a

reservoir or an agricultural dam. Sometimes a ‘buoywall’ (like a large inflatable pool) can be driven in close and filled by tanker.

Aerial observation, sometimes from a drone these days, is used to guide operations on the ground and report fire movements and safety issues. Other innovative methods may be used, like flying in a small tractor-dozer to form a control line, or laying down a retardant line by aircraft. Natural fire barriers like cliffs, rivers and rainforest gullies are often used to form part of the fire perimeter, especially in the Blue Mountains.

Ideally RAF operations continue over 24 hours with two shifts. Night conditions are milder, but night shifts are being used less often these days because of a shortage of RAF-trained people, safety concerns and other issues.

RAF methods can be very effective but are limited to smaller fires in mild to moderate conditions. Beyond that the task becomes too big or too hazardous. Bigger and more difficult fires can be tackled with more RAF crews and water-bombing aircraft.

RAF team members have to pass a fitness test every season, at several different levels. They need to be highly skilled and able to walk through rough country, work hard in the heat, camp out, and to escape if necessary. It’s a great way to gain an understanding of fire and fire suppression because of the intimate engagement with fire in the landscape and the need to constantly re-assess what’s happening.

Ian Brown used to be a remote area firefighter and commander with NPWS, but now watches from afar.