4. PRACTICAL FIREFIGHTING

Practical training is intended to acquaint new firefighters with the essentials of fire behaviour and suppression techniques, and to give the students a chance to practice firefighting under controlled conditions before being faced with a wildfire.

Plate 5. Firefighting training; to 'touch the fire' is essential.

Forest Types and Fire Suppression Techniques

It is essential to develop a fire suppression strategy that is based on the reality of conditions in the field and which can be put into action through existing organizations. Only when this basic strategy is in place can more advanced methods of fire suppression be adopted according to their cost effectiveness and the values-at-risk.

Upland forest: Fire spread is normally not rapid, but access is limited and is ultimately by foot. Thus relatively light hand tools need to be used and water is applied only with backpack pumps. Fire rakes and fire beaters are most suited to the fuel types and are used to make a direct attack at the tail and flanks of a fire. Steep slopes make the head of the fire difficult to control and back burning from a fireline in front of the fire is necessary. For this, McLeod tools (a combination hoe and rake), brush hooks, and drip-torches are required. Pulaski axes (a combination chopping and trenching tool) are needed for mop-up.

Lowland forest: Fire spread is often more rapid than in upland forest, but difficulties are lessened by easier access and flat terrain. Fire suppression strategies, tactics and tools are similar.

Peat swamp forest: Access is by waterway. Most of the fires originate along the borders of these channels in mixed alang-alang *(Imperata cylindrica)* and sparse gelam (*Melaleuca cajuputi* ssp. *leucodendron*) woodland. In an extreme drought these channel-associated fires spread and threaten the denser patches of forest and must be controlled before they enter or turn into ground fires.

Handtools have to be transportable by boat and finally by hand. They are similar to those utilised in the other forest types. High pressure portable pumps with hoses and fittings can be used to fight fires close to waterways. A number of peat swamp concession forests have limited access by a light, moveable railway system used to extract logs. Otherwise access to the interior is by foot, and is difficult. Direct attack may not be feasible and the fire has to be contained by constructing a fire break around the perimeter. This perimeter attack is made with hand tools (fire shovels, brush hooks, Pulaski axes, mechanical shrub cutters) and chain saws.

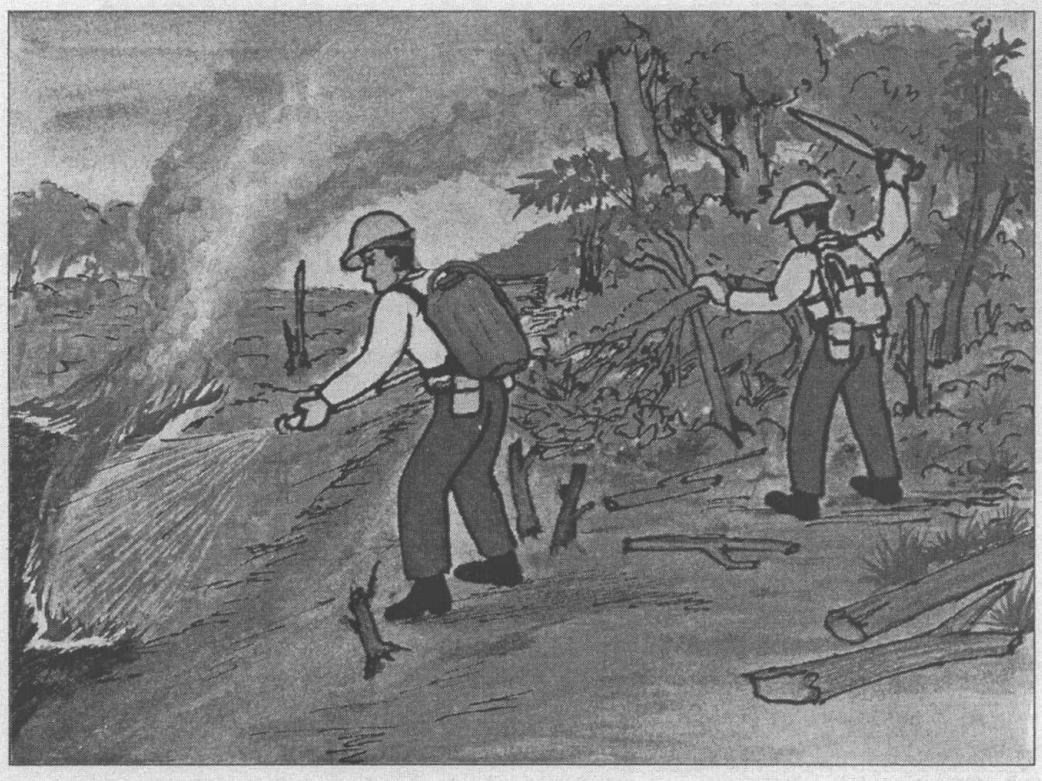

Figure 8. Backpack pumps and machetes used in combination for fire suppression.

Building the Fireline

A *fireline* built with shovels, fire rakes and axes is the most common way to fight vegetation fires throughout the world. Grass, shrubs, and trees are removed from in front of a fire to starve it of fuel.

The fireline is most easily dug by groups working together in line, each man swinging his tool just a few times before moving on. In this way, a completed fireline is started by the first person in the crew and finished by the last, with each in between doing a small share of the work. The last person must ensure that the line is of good quality and tell the others to improve it if it is not.

The fireline is dug down to bare earth and wide enough with no roots or branches crossing it to give the fire a way to escape. As a guide, the fireline should be at least as wide as the vegetation alongside is tall. For example, if the grass and shrubs are 1.5 m in height, the fireline needs to be over 1.5 m wide.

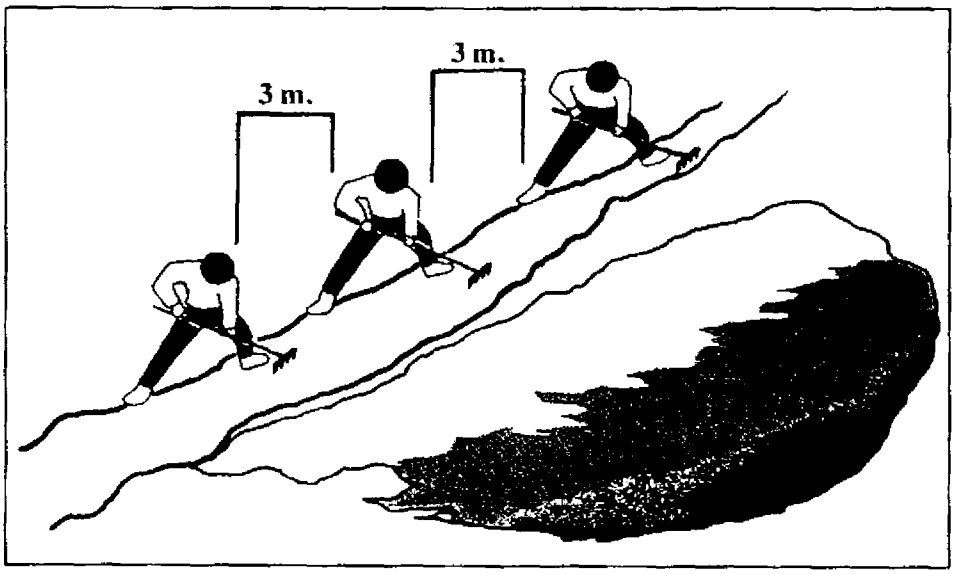

Figure 9. Use of fire rake and safety tool spacing to build the fireline.

Head and Anchor Points

Typical free-burning fires have an uneven width with the main spread moving with the wind or up-slope (Figure 6). The most rapidly moving portion is called the *head* of the fire; the adjoining portions of the perimeter the *flanks*, and; the slowest moving portion is known as the *tail*.

The crew selects an *anchor point* to begin digging the fireline. The anchor point is a safe place at the tail of the fire; trails, roads, patches of bare earth or where the fire is