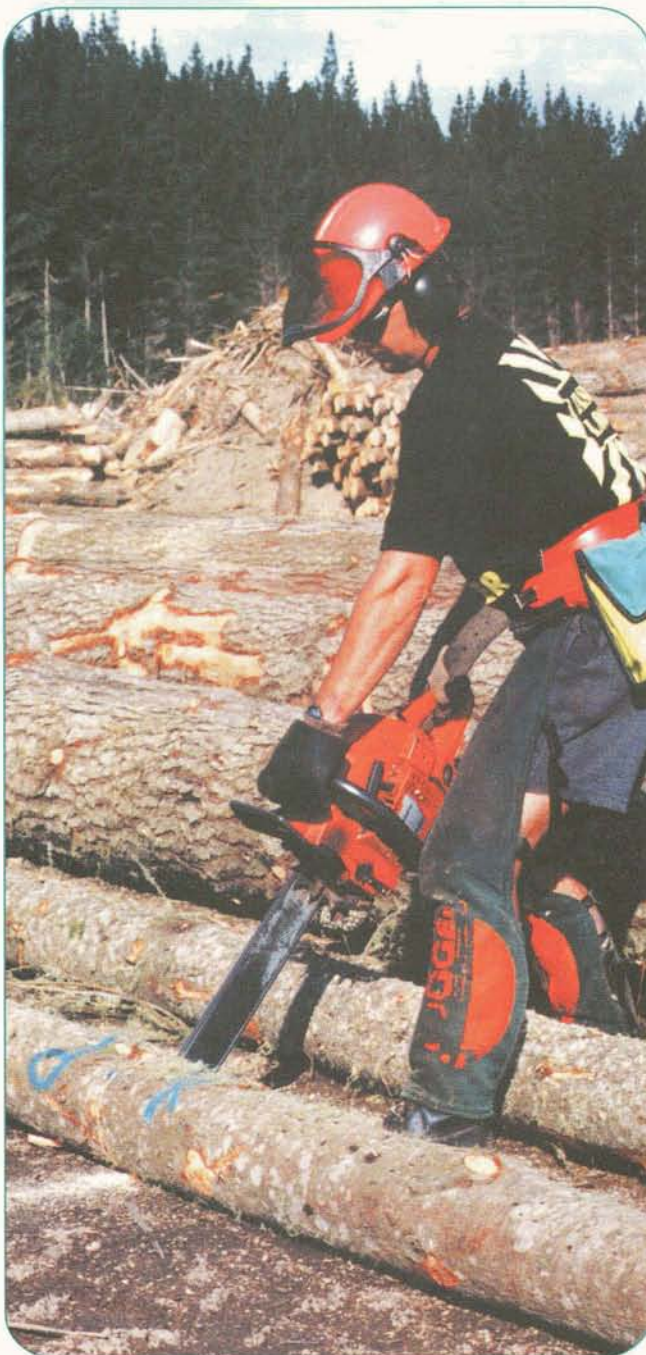


FOREST WORKERS AND THE SUN: Forestry's Burning Problem

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Summary

A changing climate means forest workers now face another hazard when working in the bush - that of melanoma. Constant exposure to the sun places forest workers in the high risk group for skin cancer, commonly called melanoma. An awareness of the dangers associated with sunlight and sunburn will allow forest workers to take preventative action to reduce the likelihood of developing a melanoma.

This report offers advice on steps to help protect against melanoma.

Pointers for Protection

- Use a combination of sunscreen, clothing and sunglasses to protect against the sun.
- Take every opportunity to move out of the sun, especially between 11am and 4pm when UV is most intense, and especially when working in highly exposed areas like the skid.
- Apply sunscreen 15 to 20 minutes before sun exposure to let it dry on the skin.
- Reapply hourly if sweating a lot.

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Introduction

Forest work is often carried out in a range of unfavourable climatic conditions which can affect the working capacity and health of workers (ILO, 1992). The nature of the job results in workers being constantly exposed to the sun, and this is a factor which is associated with a higher level of risk from cancer (McDowell, 1995). An estimated 20, 000 people have skin cancers each year, but because these are on the skin they are easily detected and treated. Melanoma is the least common skin cancer but the most serious. In 1997, 200 New Zealanders died from melanoma (CSNZ, 1998). In 1975, nearly 4000 Americans died from skin melanoma (McDowell, 1995). By 1994, this figure had

risen to almost 7000. Melanoma is a serious new risk for forest workers to be aware of since they work outdoors and are constantly exposed to sun's burning rays.

Why is New Zealand a High Risk Country?

Because New Zealand is in the Southern Hemisphere it lies closer to the sun, and therefore receives more UV radiation. Ozone in the atmosphere acts like a giant sunscreen to reduce the intensity of the burning UVA, UVB and UVC rays of the sun. However, a 10% reduction in ozone protection over New Zealand and our pollution free air means an increase in the amount of harmful UV radiation reaching the earth. This means there is a higher risk of sunburn, melanoma and eye diseases (cataracts).

- In 1998, New Zealand had one of the highest rates of melanoma in the world
- New Zealand has the highest death rate from melanoma in the world (CSNZ, 1998)

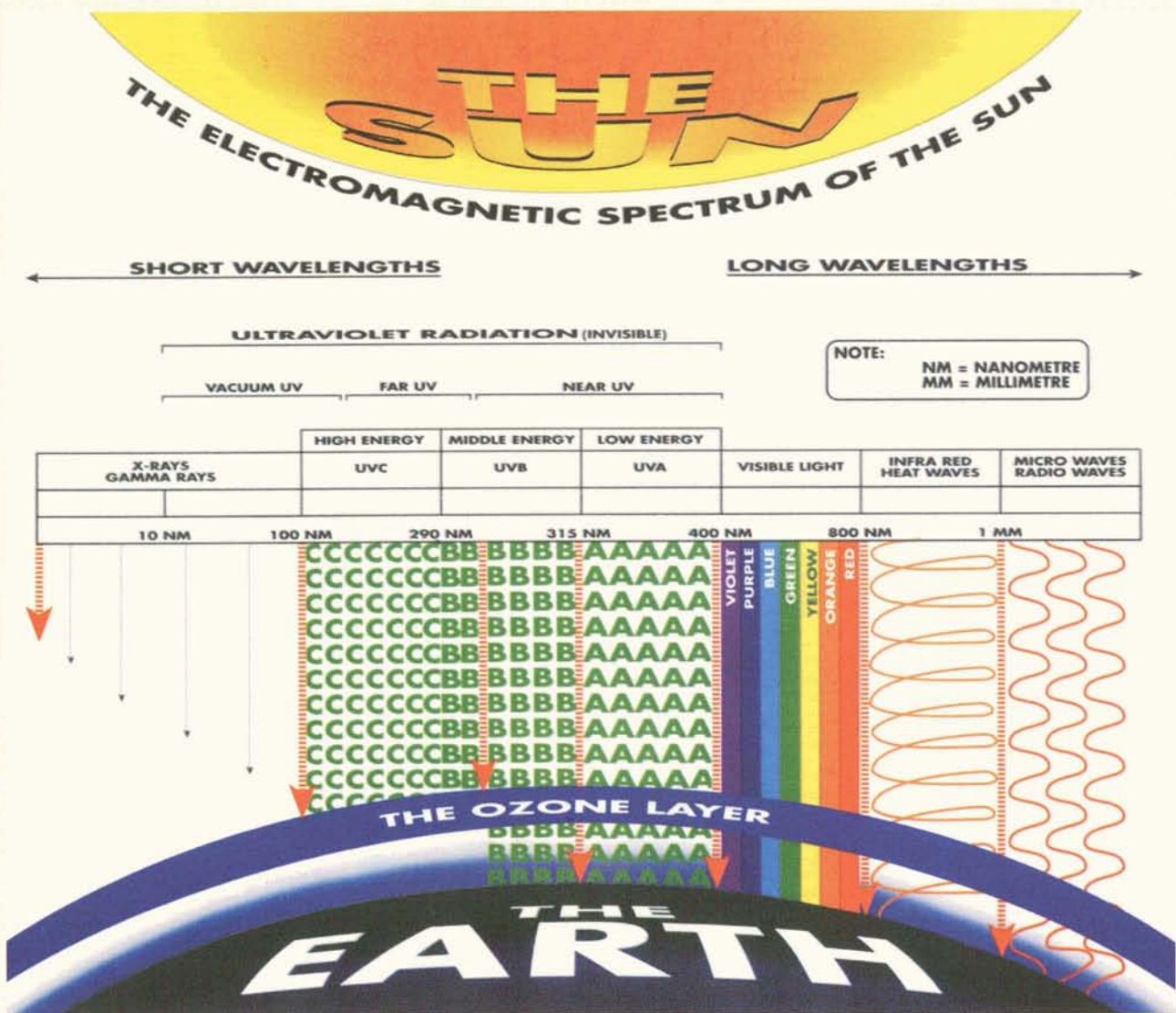


Figure 1-Ultraviolet radiation from the sun

Ultraviolet Radiation (UV)

The energy of the sun is radiated in waves of energy, only some of which reach the earth. The deadliest rays, gamma rays, x-rays, UVC and UVB rays are either absorbed in space or in the ozone layer, but some UVB and most of the UVA radiation reaches the earth's surface. Sunburn is caused by the UVB rays, which stimulate the skin to produce melanin as a means of protection against further burning - what we know as a tan. However, the UVA rays damage the skin, causing wrinkling, sagging, premature ageing and cancer. UV radiation can also cause eye damage, with symptoms manifesting as painful, watery eyes, difficulty looking at bright lights, and eye swelling.

While permanent eye damage is unlikely to result from short-term exposure, cataracts and cornea damage can result if the eyes are exposed for extended periods.

About Melanoma

Melanoma is a serious form of skin cancer which can spread rapidly and kill if left untreated. It can develop on any part of the body, even on places which haven't been sunburned. Those most likely to get melanoma are people who are exposed to a lot of sun, are fair skinned, have a large number of unusual moles or freckles, or have had painful blistering sunburn. Sunspots (Solar Keratoses) are a warning sign that you are prone to skin cancer (Figure 2). Melanoma can occur among Maori, Pacific Island and Asian people, but it is uncommon.



*Figure 2 - Are you prone to skin cancer?
Cancer Society of New Zealand*

Spotting a Melanoma

There are several types of skin cancer, the most dangerous being melanoma (Figure 3). Melanoma can appear suddenly as a new mole, or can develop slowly in or near an existing mole. Early detection means more chance of cure. The following ABCD approach (Guerry, 1996) is a useful guide to help identify your moles in the first stages of melanoma.



Melanoma



Squamous Cell Carcinoma



Basal Cell Carcinoma

Figure 3 - Types of skin cancer. Cancer Society of New Zealand

The ABCD's of Melanoma

A = Asymmetry

Melanomas are usually irregularly shaped (asymmetrical). Non-cancerous moles are usually round (symmetrical).

B = Border

Melanomas often have uneven borders with ragged edges. Non-cancerous moles have smooth, even borders.

C = Colour

Melanomas often contain many different shades of brown or black. Non-cancerous moles are usually one shade of brown.

D = Diameter

Melanomas often have a diameters bigger than 6mm ($\frac{1}{4}$ inch). Non-cancerous moles are usually smaller than 6mm.

Preventing Melanoma

It is especially important to protect yourself when working in highly exposed areas such as on a skid. Clothing provides a natural protection for the skin, and wrap around sunglasses will filter out harmful rays, protecting the eyes from damage. Screens and hats are also effective tools to use to protect against the damaging rays of the sun. It is important to have some form of shaded area or cover available (Figure 4), to allow people to move out of the sun whenever possible. Using these tools reduce your exposure to the sun, will reduce the likelihood of melanoma.

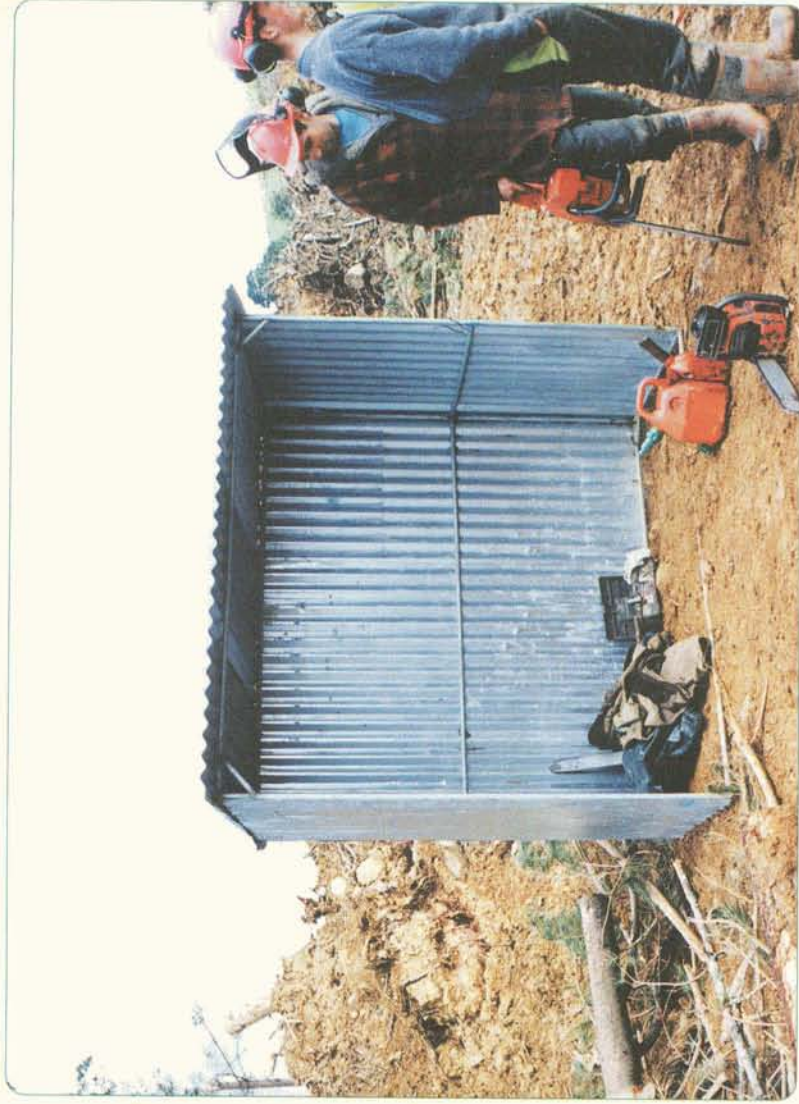


Figure 4 - Provision of shade for forest workers to escape the sun

About Sunglasses

Too much sunlight can damage your eyes and the sensitive skin around them, so sunglasses should be used to protect your eyes from the sun and lower the risk of cataracts. Sunglasses should have large lenses and close-fitting frames which wrap around the eyes (Figure 5). This will prevent up to 35% of the UV radiation entering around the edge of the frames, which has been found with ordinary spectacle frames.

Look for sunglasses which conform to a standard which states 100% UV protection on the label, as this shows they have been tested and meet the required standard for protection.

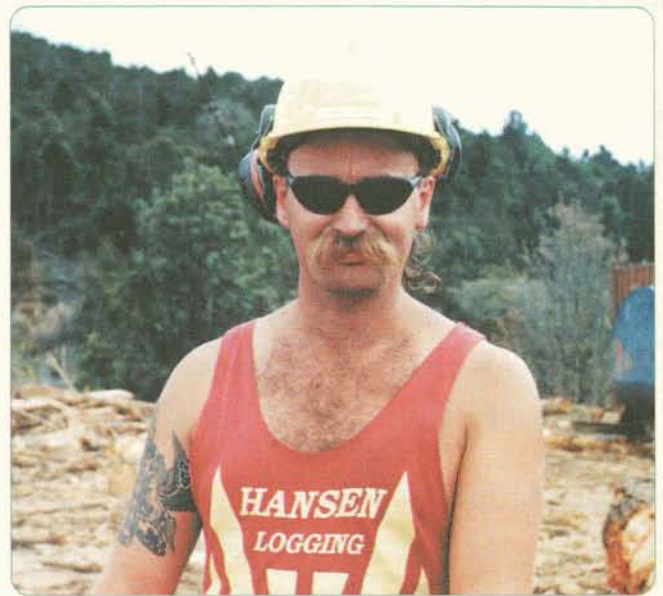


Figure 5 - Choose sunglasses with large lenses which wrap around your eyes

About Sunscreen

No sunscreen can block out all UV radiation. You can still burn even when a sunscreen is worn, as UV accumulates and can damage the skin. Therefore, sunscreen should be used with other forms of sun protection such as a hat and sunglasses. A broad spectrum sunscreen with a sun-protection factor (SPF) of 15 or more should form part of your work kit (Figure 6). Sunscreens with lower SPF numbers won't give enough sun protection. If you use an SPF 30+ sunscreen rather than a SPF 15+, you halve the risk of sunburn for the same length of time in the sun. Lips and the tops of the ears are particularly vulnerable to getting burned, so they should also be covered with SPF 15+ sunscreen or lip balm.

The most important point with sunscreen is to apply it 15 to 20 minutes BEFORE sun exposure. This allows it to dry and be absorbed into the skin. Spread it on to exposed skin thickly and evenly, as there is less protection when applied thinly. If sunscreen is applied immediately before physical activity, sweating will reduce the effectiveness, so reapply sunscreen every hour or more if you are sweating a lot. Sunscreen will not guarantee that you won't get melanoma later in life, but the risk will be lower if you use sunscreen and regularly wear a hat, cover up with clothing and stay in the shade between 11am and 4pm.

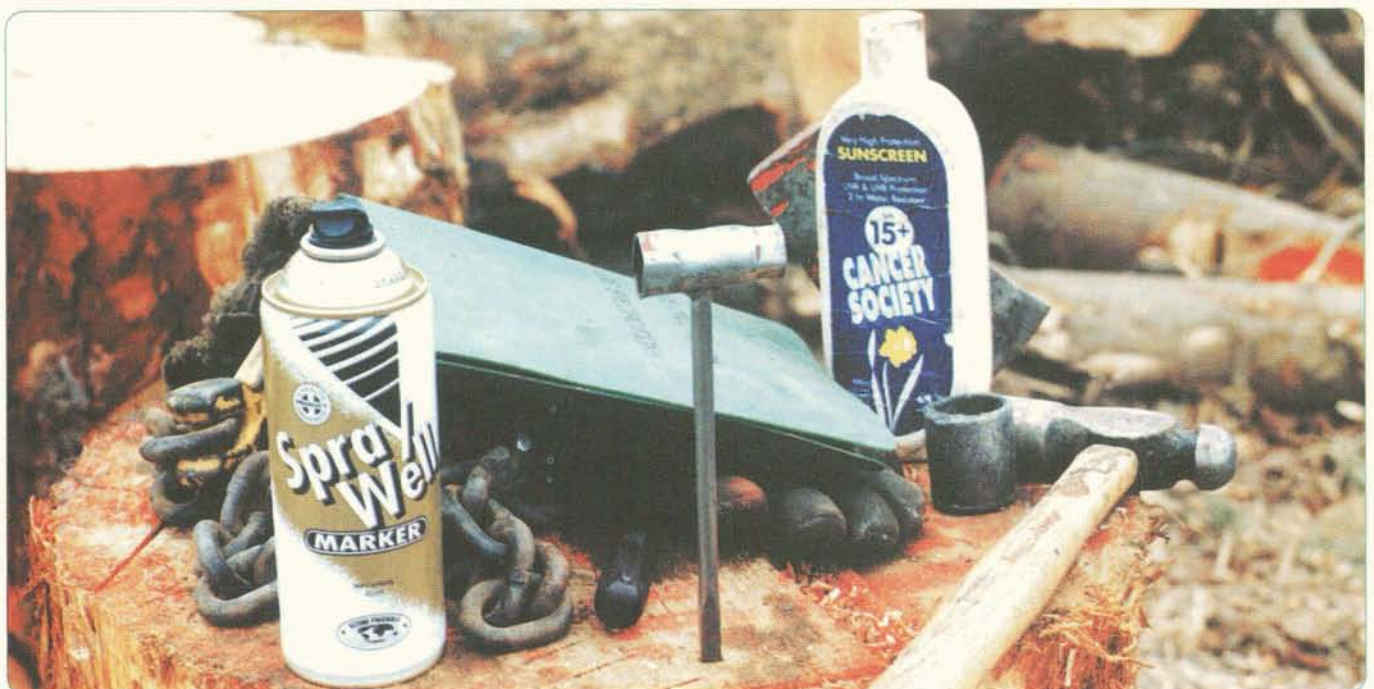
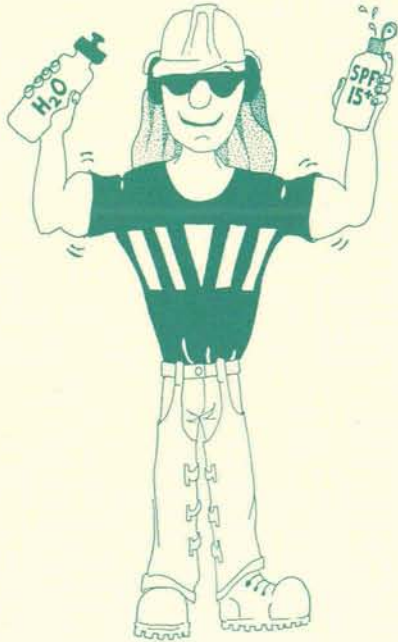


Figure 6 - Sunscreen - A necessary part of your kit

Conclusion

Melanoma is a serious new risk for forest workers, who face long periods of exposure to the sun. Past research shows New Zealand has one of the highest rates of melanoma in the world, and the highest rate of death caused by melanoma (Keenan, 1998). An awareness of how to prevent melanoma will provide the forest workforce with the tools to effectively manage exposure to the sun, and will reduce the likelihood of melanoma occurring.



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