FOREST FOCUS
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New Minister Appointed

Following a re-allocation of portfolios in State Cabinet, the Hon. David Wordsworth was appointed Minister for Forests and Lands. He was previously Minister for Transport.

Mr. Wordsworth was elected Member of the Legislative Council seat of South Province in 1971, and subsequently represented Western Australia in an Australian Inter-Parliamentary Delegation invited to Britain to confer with Members of Parliament at Westminster on trade, defence and other matters.

He has alway maintained a strong interest in civic affairs and economic factors concerning primary producers. He has had printed a booklet on the devaluation of the Australian dollar and its effects on farming and exports.

DIEBACK HYGIENE . . . first steps

There can be plenty of debate about forest disease risk areas being known as Quarantine. The word is probably misused in this context, but it has been misused to good effect.

Forest disease risk areas were proclaimed for a number of reasons:

- To give time for the symptoms of dieback to become visible . . . a process that can take up to three years to occur.
- To gain a pause in the spread of the fungus in areas of low infection by machinery and activity, so that methods for operating in the forest without fungal spread could be devised.
- To allow more time for promising laboratory research findings to be tested under field conditions.
- To "buy" time for the evolution of photographic techniques for detection of the disease in its early stages and in small pockets of infection.

Control of vehicle movement for a period of three or more years was the first step. The results of this exercise are encouraging, and although they are partly due to energetic implementation of access controls, the greatest achievement has resulted from tremendous public co-operation.

Success rate

On the 14th of January, 1976, the results of a year's planning fitted into place. Detailed mapping, planning, discussion with forest users, preliminary job descriptions and sites for warning signs had been prepared, and within 48 hours the entire northern Forest Disease Risk Area was established on the ground. A similar programme was executed for the second or southern area and was expedited in similar vein in February 1978.

The creation of verbal and physical constraints to forest entry is one thing . . . the success of this action is another.

Necessary access to quarantined areas is controlled by an entry permit, but non-permit or illegal penetration required special treatment. Control of illegal entry is achieved by a combination of ground patrol, continuing publicity, and aerial reconnaissance. Although it is not possible to exclude all unwanted vehicles from the risk area, data collated from patrol of key areas and a comparison with pre-quarantine visitor rates showed that a success rate of up to 90 per cent was achieved. Of course there have been exceptions, and the philosophy of enforcement by education and persuasion has been gradually hardened toward illegal entry of a persistent nature. Nevertheless, the department is gratified with the ready acceptance of quarantine and its constraints, by the vast majority of forest users.

WHAT DID THE TIME BUY?

Jarrah dieback research

Studies of the suppressive effect of native leguminous species on *Phytophthora cinnamomi* have been the major area of research. In two field studies, significant suppression of sporulation under understories of *Bossiaea aquifolium* and *Acacia pulchella* was recorded; this was the first field demonstration of this

▲ *Utility entering the fungicide dip.* (Les Harman)

effect. Parallel laboratory and greenhouse studies have continued in an attempt to isolate the factors responsible for the suppression. (See page 7.)

Hygiene techniques

There is abundant proof that the use of machines in dieback affected forest will assist the fungus to spread into unaffected areas. There is also a direct relationship between size of machine, type of traction, season of the year, and the risk of new infection. Heavy, tracked machines in winter are the worst combination, while light, rubber-tyred machines in summer pose the least risks. These facts, coupled with research findings by Mr. Frank Batini and others, have influenced the direction of research into hygienic methods of bush operations.

Operational studies are in various stages of completion with respect to washing down of vehicles, the practical, social and economic problems of summer stockpiling of forest produce, evolution of hard surfaced, disease free roads and the definition of the connection between climate and fungus sporulation.

It has been found that firewood, posts and S.E.C. poles can be cut and prepared in winter and extracted in the dry months of the year, while the smaller sawmills at least, can effectively stockpile sawlogs in summer on a scale which allows for no winter cutting. Further refinements will be called for, and the larger mills still have to overcome practical problems, especially related to space at mill landings.

It has been shown that use of a high pressure water jet to remove soil particles from vehicles is a simple and effective precaution against the spreading by vehicles of infected material. A few simple precautions are needed with respect to planned drainage into a fungicide tank or an already diseased stream. There are

▲ *Wash-down station at the Department's Dwellingup Division Headquarters.*
(Les Harman)

fixed washdown stations at all relevant Forests Department headquarters, and temporary washdown locations have been selected for important field sites.

Trials with a fungicide dip in a concrete basin or ford are continuing, and the technique appears to have potential for light vehicles with relatively small mud deposits on tyres and suspension.

Road maintenance and classification

The problems of summer stockpiling will not be easy to overcome, but it may be possible to extend the "safe" logging period by careful classification of roads into "safe" and "unsafe" categories, and by the accurate pegging of affected and unaffected borders or boundaries according to a standard colour coding.

Small hardwood posts are erected at the perimeter of infections, painted yellow on the side facing into dieback and green on the side facing into healthy forest.

Routine grading and other road maintenance or repair work must not move from one type into the other without making sure that infected soil is clear of the vehicle.

"Eye Spy"

(colour dieback film)

It has been mentioned that the time lapse from new infection with *Phytophthora cinnamomi* until the first plant symptoms are seen can be up to three years, and that the Forest Disease Risk Areas were proclaimed in order to allow existing but undetected infections to emerge. During the period of quarantine, a new technique using 70 mm colour aerial

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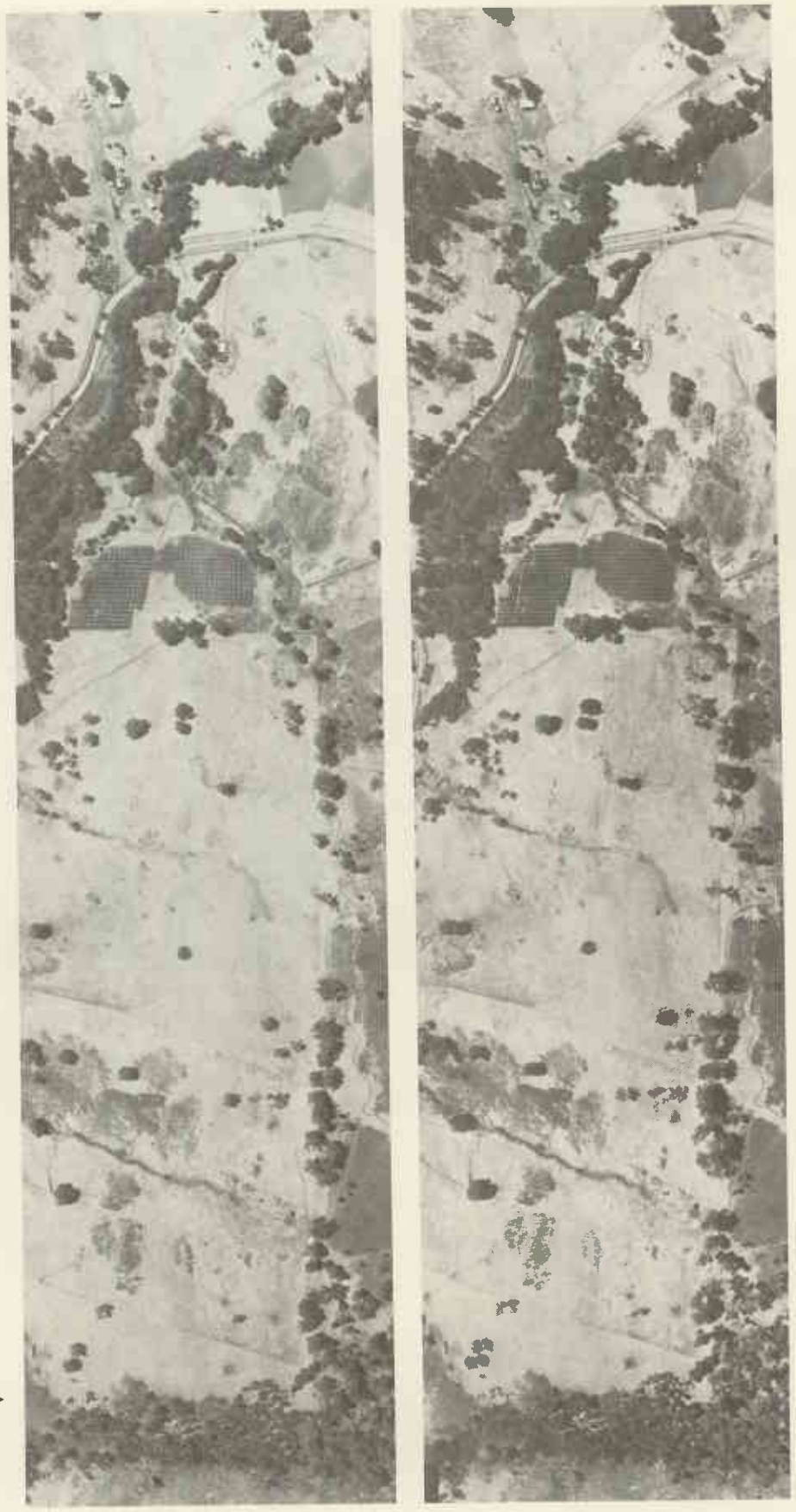
photography has been evolved which extends the scope of aerial detection of the disease.

The photography requires special techniques as does the interpretation of the photographs obtained:

- A 70 mm colour film in a Vinten camera is exposed at a height of 500 metres above the ground.
- Only days of complete high cloud cover can give the desired shadow free detail required.
- Plotting of flight lines requires a highly sophisticated aerial navigation method involving a computer built into the small aircraft used.
- A wide net has been needed to locate people who can effectively interpret the great detail revealed by these photographs.
- Photography will identify "spot infections" (individual blackboys, banksia trees, etc.) only in the absence of shadows and in good lighting conditions. The presence of shadows or burning within the previous three years drastically reduces their value.

Stereoscopy is the method used to obtain a three-dimensional image from a pair of photographs. In real life two eyes enable perception of distance or depth of a scene because each eye sees a slightly different view. In the use of aerial photographs, an adjacent pair—a stereo pair—of photographs is viewed simultaneously with both eyes. Where the pictures overlap an image of the third or vertical dimension is produced.



This photographic pair should be viewed by holding a piece of cardboard vertically along the join line and looking with one eye either side of the card. Most people can see in stereo but some practice may be needed to get the most out of these. ▶