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Editor: R. J. Underwood

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88 King George Street,
SOUTH PERTH. 6151

The Editor,
"Forest Notes",
PEMBERTON

Boronia and Spring and Autumn Burning

Sir,

I was interested to read Phil Shedley's letter in September issue of "Forest Notes".

I hope it will be shown, in time, that spring burning can result in boronia seed germination, so as to fit in with departmental controlled burning policy.

I don't see why not, because there must be millions of boronia seeds per acre, accumulated where the plants grow.

Mr. Shedley states that 6"–9" high boronia plants in May 1970, resulted from a spring burn 3½ years previously, i.e., 6th October 1966.

The size of the plants suggest they would be one year or less old.

It seems from this, and at least one of these areas, which I investigated in the course of my boronia survey last year, that some boronia areas may not germinate for one or more years after burning.

I am specially intrigued by the thought of this possibility, andalso that such seeds, evidently can lay in wet swamps for perhaps many years and remain viable.

Yours etc,

John Thomson.

N. R. M.

by

A. Kesners

N.R.M. is short for "Nick's Ranchhouse Mixture". It is not a fancy cocktail you would obtain in a cocktail bar. N.R.M. is a cocktail concocted by Somerville Forest Ranger Nick Bukelis.

It is a preservative paint anybody can mix in a few minutes, and it is cheap, effective, lasting and pleasing to the eye. Nick first tried it at Somerville and now it is used extensively in the Wanneroo Divison to improve the appearance of old sheds and buildings in the public eye, as well as a preservative treatment on new wooden structures.

The recipe is passed on for the benefit of other divisions with our recommendation. It is recommended for application on fences, huts, wash-houses, garages, sheds, gantries, etc. It is good on old weathered timber as well as new timber, on rough sawn boards and on dressed timber. Although it fades, it foes not flake off, hence no scraping down is needed before the next coat. On present experience, one coat is expected to last at least 3 - 4 years. No training or particular skill is required – anyone can slap it on.

Here is the recipe.

Mix 3 quarts of creosote, 1 quart of raw linseed oil and about 1 lb. of ferric red oxide to produce a rustic red. For green use 1 lb. of chromic oxide, and for brown use ½ lb. each of ferric and chromic oxides. To prepare the paint, first mix the pigment into the raw linseed oil, stirring into a smooth mix. Then slowly pour into the creosote while stirring. The quantity of one pound of oxide can be regarded as a guide only. By increasing or decreasing this quantity different colour shades can be obtained. A recent article in a local newspaper giving tips to handymen, recommends this mixture with double the quantity of the pigment, i.e. 2 lbs. of oxide to one gallon of creosote – linseed oil. Nick Bukelis, on the other hand, originally recommended only ½ lb. of oxide to one gallon. It is largely a question of individual taste. The shade of the mixture will also depend on the grade of creosote used, i.e. the tar content in it. The lighter coloured creosote gives better results than the darker one.

When ordering ferric or chromic oxide (obtainable from H.B. Selby & Co. Pty. Ltd.), it is important to nominate "commercial grade". This is the cheapest available and costs 15 cents a lb. for ferric red and 90 cents a lb. for chromic green. Other grades (AR, LR & BP) are more pure and cost up to $4 per lb.

The total cost of N.R.M. per gallon will vary from $1.04 where red oxide is used and creosote purchased in 44 gallon drums to $2.04 for a green mixture with creosote bought in 4 gallon drums. A commercial product available ready mixed and containing basically the same ingredients costs $8.80.

Good mixing with N.R.M. !

EXTENSION SERVICES

by

F. Batini and J. Cameron.

Introduction

Until May of this year, most of the requests for advice received by Head Office from members of the public were dealt with by Mr. W.H. Eastman. At that time, it was decided to transfer this service to Como and to keep a detailed record of the number and type of enquiry received. The results over the period from late May to late October 1970 (105 working days) will be discussed.

Results

During the five months, 127 separate enquiries were received and dealt with. Of these, 46 percent were received by telephone, 42 percent by letter and the remaining 12 percent paid personal calls to the Como Research Centre. The ratio of city to country enquiry was approximately 2 : 1.

These requests involved 138 species of plants, of which 41 percent were indigenous eucalypts, 18 percent were exotic conifers, 17 percent were indigenous species other than eucalypts and the remaining 24 percent was split evenly between exotic eucalypts and all other species.

The nature of the requests indicated a marked predominance on the various aspects of tree planting (34 percent) followed closely by pathological (23 percent) and entomological (7 percent) services. Eight percent of the enquiries involved the identification of tree species and 5 percent dealt with wood and its properties. All other facets accounted for the remaining 23 percent.

The bulk of the answers were provided by either the staff at the Como Research Centre or by the O.I.C. Hamel Nursery.

Discussion

As anticipated, the enquiries covered a multiformity of aspects. One man wanted the Department to sponsor his friend from overseas to advise us on the finer aspects of tree planting, another was prepared to sue a manufacturer of prefabricated homes due to the presence of borers in the wall studs, a number of agitated female gardeners had to be consoled over the loss of their prized trees to P. cinnamomi or Armillaria root rot.

The laziest enquirier asked for the Head Office telephone number, the oddest wished us to identify a piece of wood which had been carbon dated as being 620 ± 90 years old, the biggest requested advice on a shelterbelt over a mile in length and involving approximately 2000 trees and shrubs.

On the basis of these five months, a yearly average of 300 to 320 enquiries could be expected. To these would need to be added the requests for literature and other enquiries dealt with by the registration branch at Head Office. This total is far below the 3353 requests dealt with by the

Head Office of the Victorian Forests Commission during 1968-69, but this figure could provide an indication of the potential expansion in this field with increasing population, and the establishment of private plantations.

The bulk of the requests fell into two well defined groups. Perth residents generally requested advice on either tree planting or tree disorders. In the latter case, some of the trees required inspection, collection of samples and laboratory testing before adequate answers could be provided. Country residents requested advice on tree planting of indigenous eucalypts for shelter and aesthetic purposes or of exotic conifers for commercial purposes. The "Catalogue of Trees for growing under West Australian conditions" proved to be a valuable publication and a number of copies were distributed.

A service such as this is time consuming and can be expensive. It does however provide its "lighter" moments and is an important way of keeping forests and forestry before the public's eye. As such, its real value is intangible and may not really be known until the Department has the need for public support on topical, and perhaps controversial, issues.

Forestry

by

D. Watson.

What wonderful achievements are with us today.

The pin point landing of men on the moon, and right on time.

Controls from thousands of miles away and on another planet, too.

Computers today give answers and results very quickly, providing the material is fed in correctly.

Men control great industrial machine units from remote control stations.

Communications have been improved to a wonderful degree.

Remember the Tokyo Olympic Games with the greatest set up of computer controls flashing in results with breathtaking accuracy.

Yes, someone is needed to press the button or flick a little lever.

What wonders these complex units are today.

What makes me wonder is why we still have to pull sections of cords and use crank handles (often positioned badly) to start our power pumpers.

It seems to me that where some benefit to the average man is concerned nothing is done to improve these now almost obsolete machines.

Oh yes, we should be able to press a button and the water flows.

Soil and Topographic Factors Influencing The Growth of Pinus Radiata

by

G. W. Heberle.

Introduction

A number of randomly located 0.1 acre plots were established in 500 acres of 35 years old Pinus radiata in the Pierce's Creek Plantation of the Australian Capital Territory.

Pierce's Creek is a plantation of 6,000 acres, 16 miles W.S.W. of Canberra, in the foothills of the Great Dividing Range. The area in which this study took place is not dissimilar to some of the Pinus radiata areas of Western Australia in that rainfall is 35", granite is the main country rock, the topography undulating and soils vary from suitable to unsuitable for Pinus radiata. The main dissimilarities are the higher altitude (2,300 – 2,600') and colder winter.

Methods

In each plot, soil samples were collected, soil descriptions compiled and topographical and mensurational information recorded. The soil samples were later analysed for various chemical and physical properties.

The plots were grouped by 5 foot site index classes (e.g. site index class 55 includes plot site indices 52.5' to 57.4'). Site index being actual or predicted average height of the 30 tallest trees per acre at age 20. Correlations between site index class and various soil and topographic properties were then tested by computer.

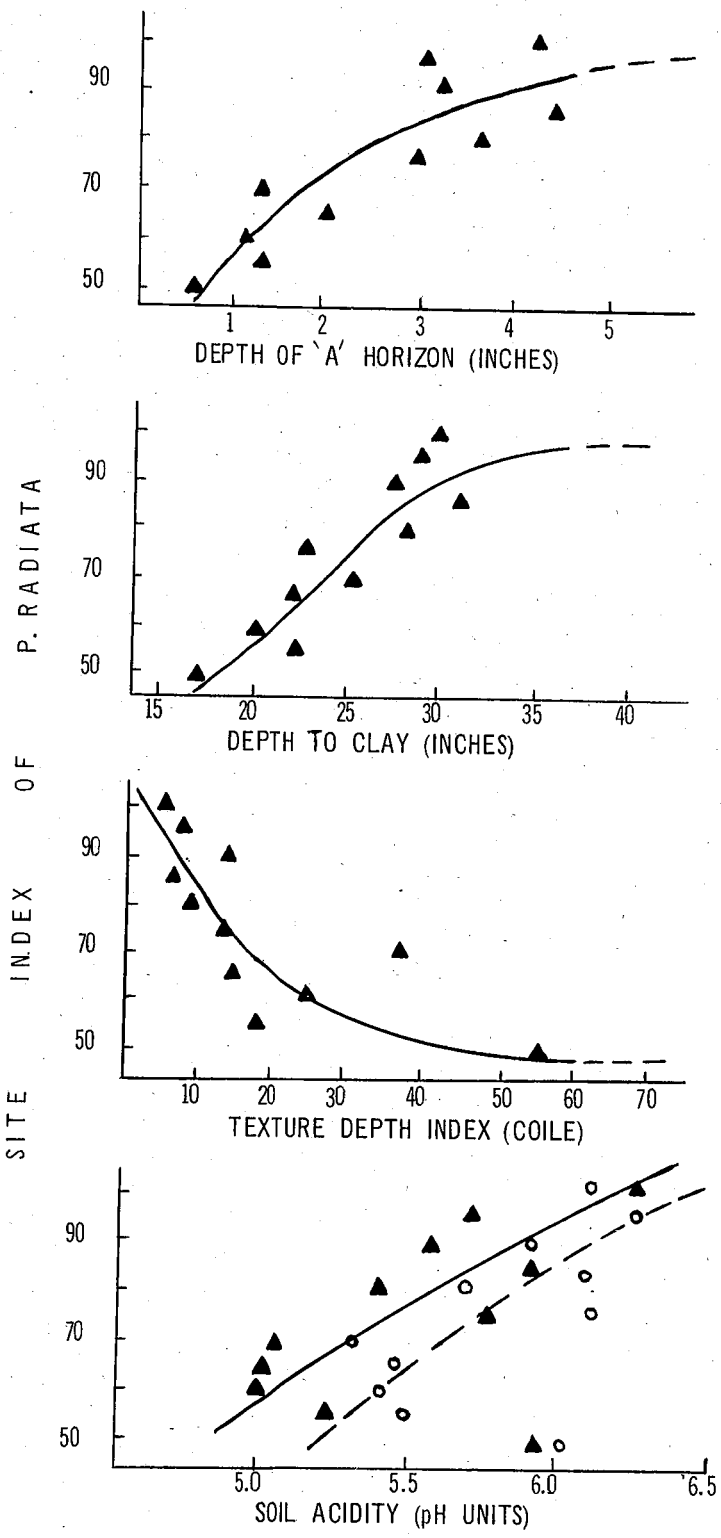
Results

Some of the results are presented graphically in figures 1, 2 and 3. Note that these results apply to a small area of Pinus radiata in the Eastern States and may not be applicable elsewhere.

Conclusion

In areas where climate is suitable for growth, variation in site index (an indicator of site productivity) is correlated with soil and topographic properties reflecting the available supplies of water, nutrients and air.

FIGURE 1. SOIL PROPERTIES AND P. RADIATA SITE INDEX



TEXTURE DEPTH INDEX =
% SILT + CLAY B HORIZON ÷
DEPTH A HORIZON (INCHES)

○ = 2 - 4" DEPTH
▲ = 10 - 12" DEPTH

FIGURE 2. SOIL PROPERTIES AND P. RADIATA SITE INDEX

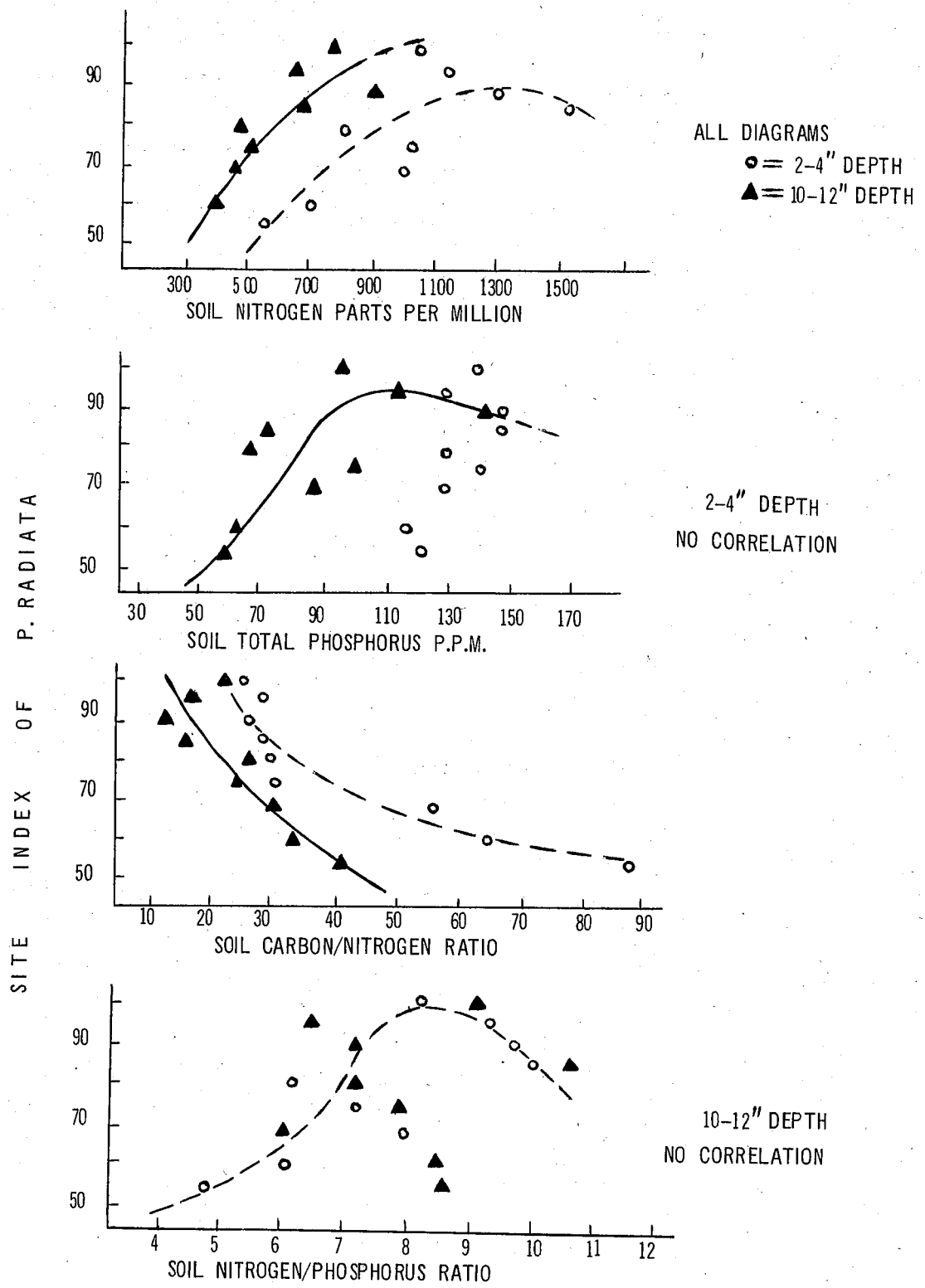
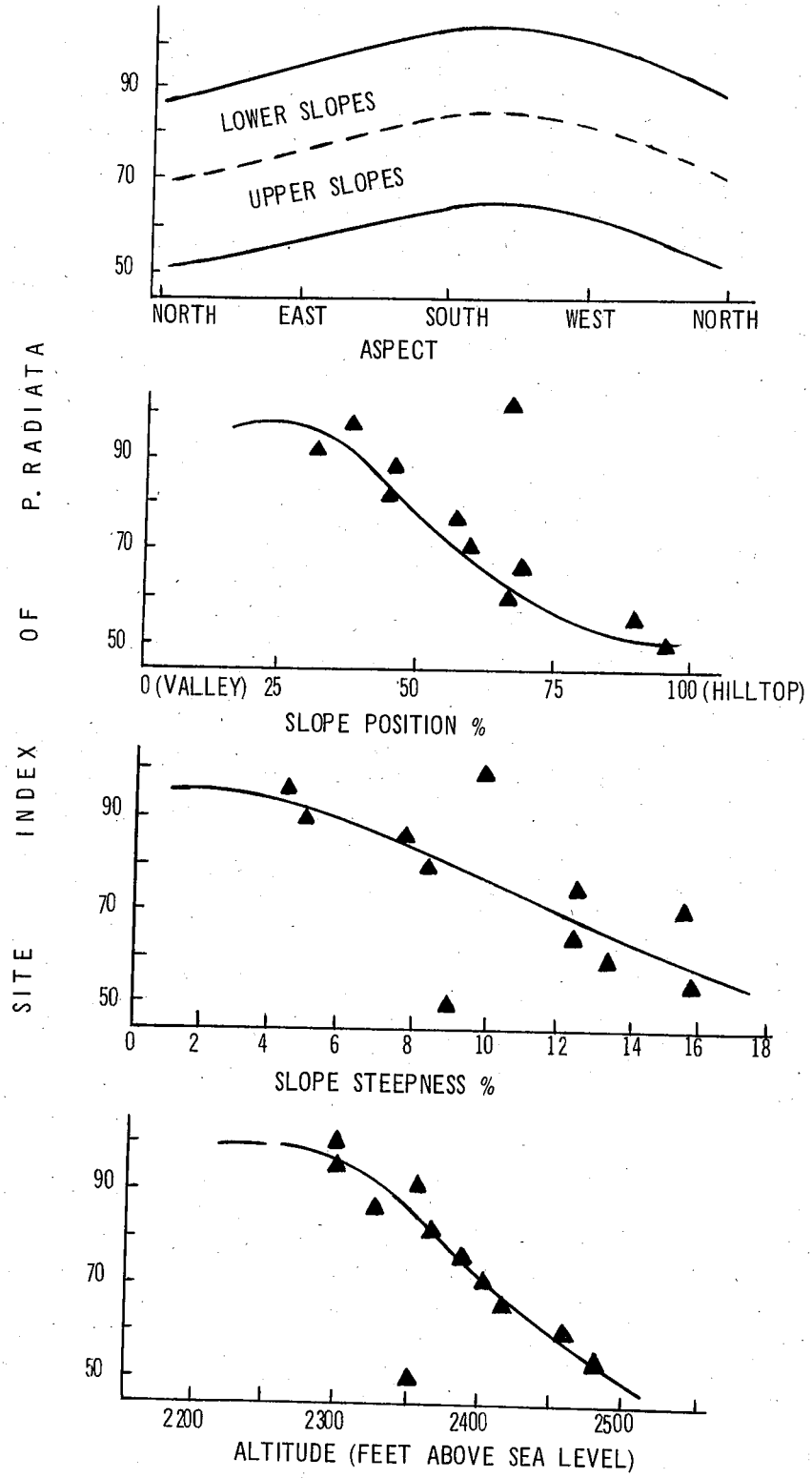


FIGURE 3. TOPOGRAPHY AND P. RADIATA SITE INDEX



Notes on the Brown Boronia (Boronia megastigma)

by

P. Christensen.

Boronia is one of the species of wildflower which it is intended to study as part of the Department's research programme on Fire Ecology. In order to familiarize ourselves with this species, and to see something of the range of its habitat, a limited survey of boronia localities was undertaken during the flowering period in August.

The excellent report compiled by J.A. Thomson was used as a guide, and indeed most of the areas visited, we should not have located without it.

Thirty six localities were inspected in the vicinity of the areas indicated below:–

Area	No. of areas inspected
Wheatley	11
Yornup	7
Nannup	3
Margaret River	2
Mt. Barker	2
Denmark	2
Shannon River	1
Quinninup	8
	36

Notes on vegetation and soils were made, and pH samples were collected at each locality.

All boronia areas inspected were wet situations within Jarrah forest country, mostly along the edges of Paperbark flats or close to creeks.

Blackboys, (Xanthorrhoea preissii) were present in over 90% of the areas, Sharkstooth (Acacia decipiens) in over 70%, and Paperbark and Swamp Banksia (B. littoralis) in approximately 50% of the areas. Other species, Hakea varia Ti-tree, and the rush Lepidosperma leptostachyum were present in approximately 30% of the areas. Bullich (Euc. megacarpa) Acacia cyanophylla, Bottle-brushes of various species and Dasypogon Hookeri were also found in association with Boronia megastigma.

Boronia megastigma more often than not occurred in shady situations, but was frequently found in the open also. Soils were often clayey or overlying clay, and ranged form white, grey or yellow sandy soils, through to yellow, brown and even red clay loams. The most common type appeared to be a grey sandy soil. At the time of inspection all soils were saturated and most were entirely under water.

The pH samples showed that the soils on which B. megastigma grows are not acid, as is commonly believed, but are very close to being neutral. The mean pH of soils in the 36 localities was 6.5 (95% confidence limit = 0.5). However, waterlogged soils are commonly close to neutral

and have some sulphides present. As such soils dry out, the sulphides are oxidized to sulphates and the pH may fall. In view of this all samples were air dried and the pH of the air dry soil recorded. The mean pH was 6.4, 95% (confidence limit 0.5). It is a measure of the consistency of this small difference of 0.1 between the wet and the air dry soils that it almost proved significant at the 0.05 level!

This unexpected high pH of B. megastigma soils and the very narrow confidence limit, giving a range of only pH 6.00 – 7.00, (wet soil), may explain why this species is not found in many of the situations where one would expect it to grow. The extensive area of flats in the Shannon area for example might appear to be a suitable habitat, but these flats are mostly acid peaty soils with low pH's.

Such narrow confidences limits on pH makes B. megastigma a very good pH indicator species. There are also indications that other Boronia species may occur over equally limited pH range. The Red or Kalgan boronia (B. heterophylla) occurs in a soil of pH 6.1 in a flat on Northumberland Rd. A pink Boronia, (B. languinosa) common in open flats grows on soils with a pH of 5.5. However, since only a few samples were taken from areas where these last two species occurred, it is not known whether their range is equally limited.

Phytophthora cinnamomi in Eastern Australia

by

F. Batini.

The writer was able to attend the Working Group Meeting on Forest Pathology in Canberra and to visit the diseased areas of east Gippsland during August, 1970. This is a brief report of the current P. cinnamomi situation in the Eastern States of Australia.

Evidence presented by pathologists at the meeting indicates that P. cinnamomi has been recovered from forest areas in all States, but that it has not been recorded from the Northern Territory or the Territory of Papua and New Guinea. The fungus is associated with the deaths of E. sieberi, E. muelleri and E. scabra in Victoria, E. saligna and E. sieberi in N.S.W., E. obliqua and E. regnans in Tasmania, as well as occasional deaths of eucalypts and understorey plants elsewhere in eastern and southern Australia. In most of these areas, mortality of eucalypts has been recorded previously, but had not been associated with P. cinnamomi until recently. The areas involved vary from tens to thousands of acres. In a number of cases, death of the associated understorey species is not as prevalent as in Western Australia.

This pathogen has also been associated with death of pines either in shelterbelts or in plantations in W.A., Victoria, N.S.W., S.A., Tasmania, Queensland and the A.C.T. For a number of years, P. cinnamomi has been causing losses in horticultural and nursery stock in eastern Australia.

Though this survey work is important and should be continued, it is but a preliminary step to the evaluation of the threat that this pathogen poses to the native hardwood and exotic conifer forests of Australia. At present, lack of suitable information makes this assessment difficult. Diseases with which fungi like P. cinnamomi are associated are rarely simple Host, Pathogen, Enviroment inter-relationships. Severity of the disease is dependent on the susceptibility of the host and the "inoculum potential" of the pathogen, but also upon many other interacting factors involving the enviroment and often other organisms.

The main recommendations of the working group were as follows:–

1. That work be directed to the study of the inter-relationship between P. cinnamomi, its hosts and factors of the enviroment. This work would benefit from co-operation with other specialist branches within the forest services.

2. That the illustrated bulletin on Jarrah Dieback being prepared by the Forests Department of W.A. be given wide distribution in Australia, especially to foresters.

3. In areas where P. cinnamomi does not appear to be widespread, forest nursery hygiene and the use of disease-free planting material are important in preventing the spread of the fungus.

4. That careful consideration be given by the T.P.N.G. to the possibility of excluding that type of plant material, including horticultural, which might be a possible carrier of P. cinnamomi.

The most extensive occurrences of dieback in Eastern Australia are located in east Gippsland and are centred around the town of Nowa Nowa 213 miles east of Melbourne. Since 1969, P. cinnamomi has frequently been recovered from diseased forest areas. The commonest eucalypts in this area are E. sieberi (silvertop ash), E. muelleri (yellow stringybark), and E. scabra (white stringybark). Other eucalypts observed in these mixed species forest were E. cephalocarpa (mountain grey gum), E. paniculata (grey ironbark), E. botryoides (bangalay), E. bridgesiana (apple gum), E. sideroxylon (red ironbark), E. bosistoana (grey box) and E. maculosa (red spotted gum).

The disease is quite widespread in medium to low quality forest in the coastal belt between Bruthen and Orbost. Dead trees may occur singly, in small groups or in distinct patches of considerable size. It is estimated by some foresters that about 1,000 acres have been severely affected and that about 10,000 acres are affected to some degree.

In the three main sites which were visited, the soils were podsols and consisted of a grey sandy loam over clay at very shallow depth. Drainage is impeded and the sites are very susceptible to waterlogging. In all areas, the understorey of sedges, grasses, wattles, tea trees and swamp paperbark closely resembled "graveyard" areas in the northern jarrah forest or parts of the Nannup Sunklands and Shannon River flats. Within the affected areas, E. sieberi, E. muelleri and E. scabra appear to be quite susceptible whereas E. botryoides, E. cephalocarpa, E. maculosa and E. sideroxylon display a considerable degree of field resistance. It is unfortunate that the susceptible species are the more desirable from the production viewpoint.

Parts of these badly affected areas are regenerating to susceptible species – particularly E. sieberi. Though a number of saplings and poles have become established on these sites, the areas are very poorly stocked. Recently dead poles and saplings were observed in all three sites and it is very doubtful whether successful revegetation of these areas will, in fact, occur.

In this portion of East Gippsland, Banksia species are a relatively minor component of the understorey. Most of the dense stands of Banksia were situated on deep and well drained sands. Very few dead Banksias were observed and this is a striking contrast to the occurrences of P. cinnamomi in the northern jarrah forests of this State.

P. cinnamomi is causing a steadily increasing forest disease problem in the Eastern States of Australia. To date, the disease has generally developed in areas which have been regarded as of low productivity and importance. This situation becomes appreciably more serious when it is realised that these very areas have been earmarked for large-scale chipwood production. In fact, the Eden Chip project is relying to a large extent on produce from the mixed species forests of Eastern Gippsland.

Trade Cutting as a Silvicultural Tool in the Southern Jarrah Forest

by

J. Bradshaw.

For many years the trade cut has been by necessity virtually the only silvicultural tool employed in the jarrah forest.

The shortcomings of this in producing a productive forest has been apparent to foresters especially those who have worked in the south where the quantity of unproductive trees is so high. Recent inventory figures have provided quantitative information in support of this. The histograms for a range of localities show the distribution of the various stand components in girth classes for Volume, Basal Area and Stem numbers. These are average figures for the type in each block. While it is sometimes dangerous to work on average figures for such distributions it is considered to be reasonably valid in the jarrah forest here where most sizes and species are represented throughout.

Table 1 summarises the information to show the effect of two cutting prescriptions on the resulting stand. The table illustrates a number of points:—

1. Following a heavy tree marking all the stands considered are still in a fully stocked condition or more.

2. Following a "clear felling" of marketable trees only two stands are left understocked while the rest remain fully stocked.

3. Under these conditions, growth stimulus on the remaining stems could be expected to be negligible. The table indicates the share of this growth which would be on potentially marketable trees.

4. This share of growth is only marginally improved by tree marking as opposed to total cutting but the total growth is possibly reduced by the additional stocking anyway.

TABLE 1

Prescriptions	Butler Virgin	Yanmah Cutover	Mersea Cutover	Sutton Virgin	Iffley Cutover	Tone Cutover
Present BAOB (sq. ft.)						
Prescription 1	109	99	143	139	129	88
1. BAOB/acre after cutting – total (sq. ft.)	86	66	122	111	89	80
2. % of this BAOB in marketable and potentially marketable trees. (i.e. % of growth going onto useful trees).	33%	46%	27%	19%	22%	60%
3. Stocking condition after cutting.	FS	TL	OS	CS	FS	FS
Prescription 2						
1. BAOB after cutting – total – sq. ft.	76	50	117	97	78	57
2. % of this BAOB in potentially marketable trees. (i.e. % of growth going onto useful trees).	25%	29%	24%	9%	11%	45%
3. Stocking condition after cutting.	FS	US	CS	FS	TL	US

Prescription 1 – remove all "tree mark" trees over 5' g.b.h. (i.e. retain all crop trees).

Prescription 2 – remove all marketable trees over 5' g.b.h.

Stocking condition (O.W. Lonergan – Research Officers Reports 1970).

(a) US – understocked.

(b) TL – threshold limit to full stocking.

(c) FS – fully stocked.

(d) CS – critically stocked.

(e) OS – overstocked.

(f) SL – suppression limit.

Various prescriptions within the marketable sector ranging from light improvement cut to "clear felling" can be applied. The silvicultural benefits of any of these systems are negligible compared to the major problems of removing the great quantity of unproductive stems. If these stems are not removed then in the choice of a cutting system administrative and management convenience is the only real consideration.

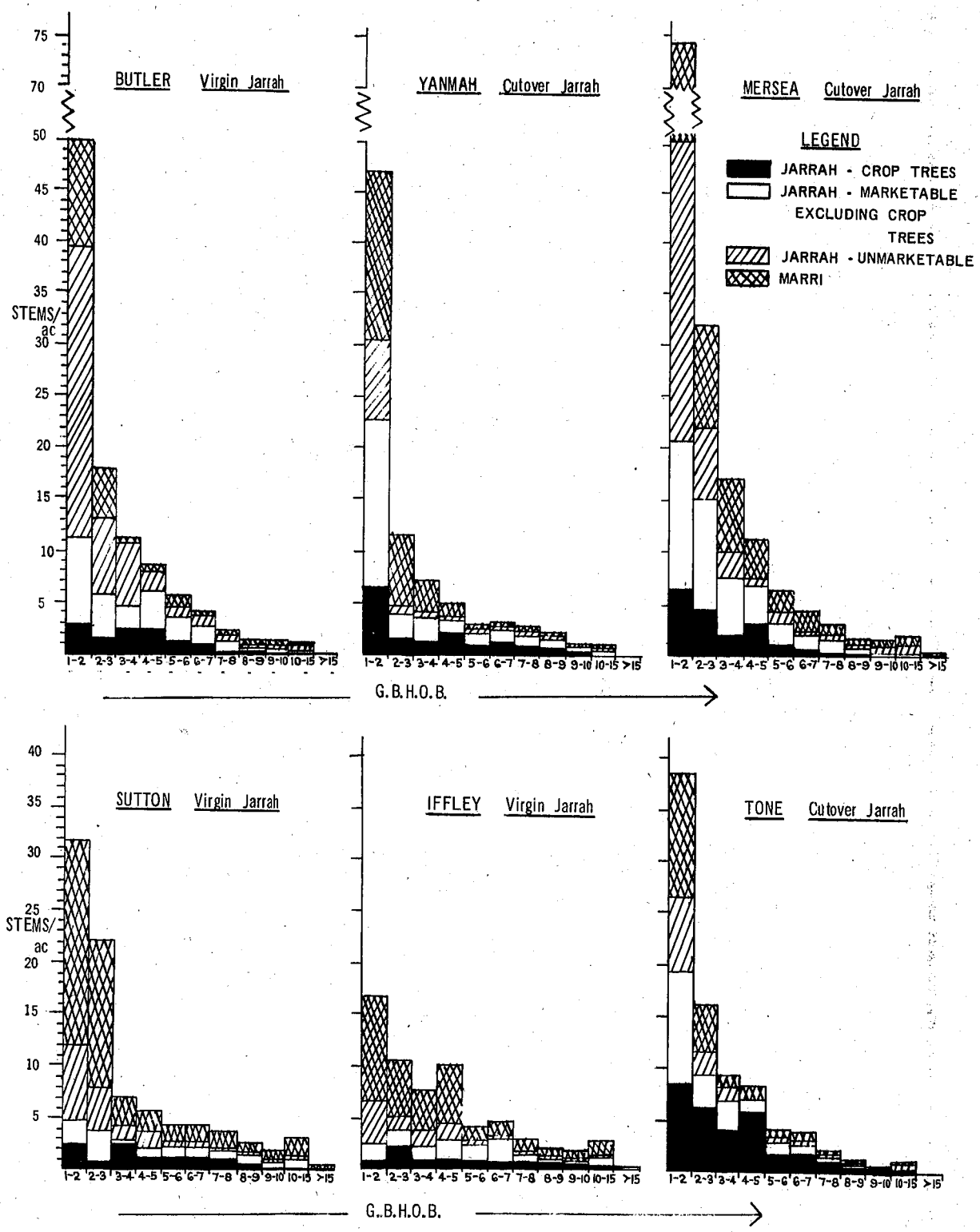
Stands in which a high proportion of their unproductive component is in the form of Marri and which are within the area proposed for future chipping operations are no real concern. While the condition of these stands cannot be rectified over-night at least it can be accomplished in the predictable future.

For stands outside this area and those which contain high proportions of unmarketable jarrah, the future seems much less promising. At this stage the utilisation of unmarketable jarrah in large quantities seems many years in the future.

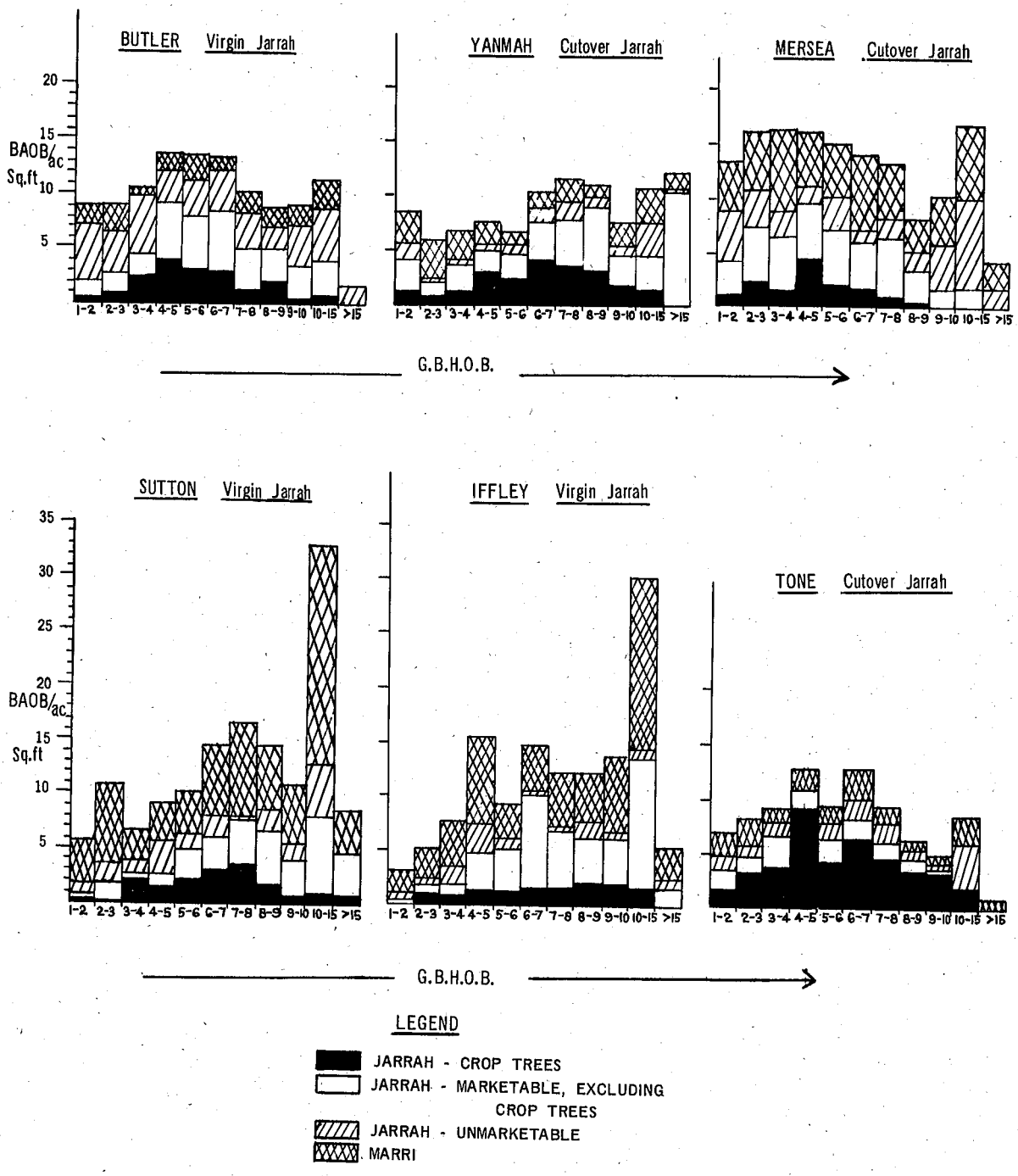
Unfortunately the bulk of these areas are also of low total productivity and it is doubtful if they could even justify funds for improvement work.

There seems to be no answer to this problem and it appears we must accept the fact that we can do no more than an exploitation cut of many thousands of acres of this type of country in the south. The implications of this are serious in that resistance to other land users might be hard to justify. Unless it can be shown to be of value for other species or watershed protection they must inevitably be lost as State Forest. This makes it all the more imperative that the maximum area of potentially good forest be retained and put into a state of maximum production. Future wood production predictions must surely be based on a much lesser area than the existing State Forest.

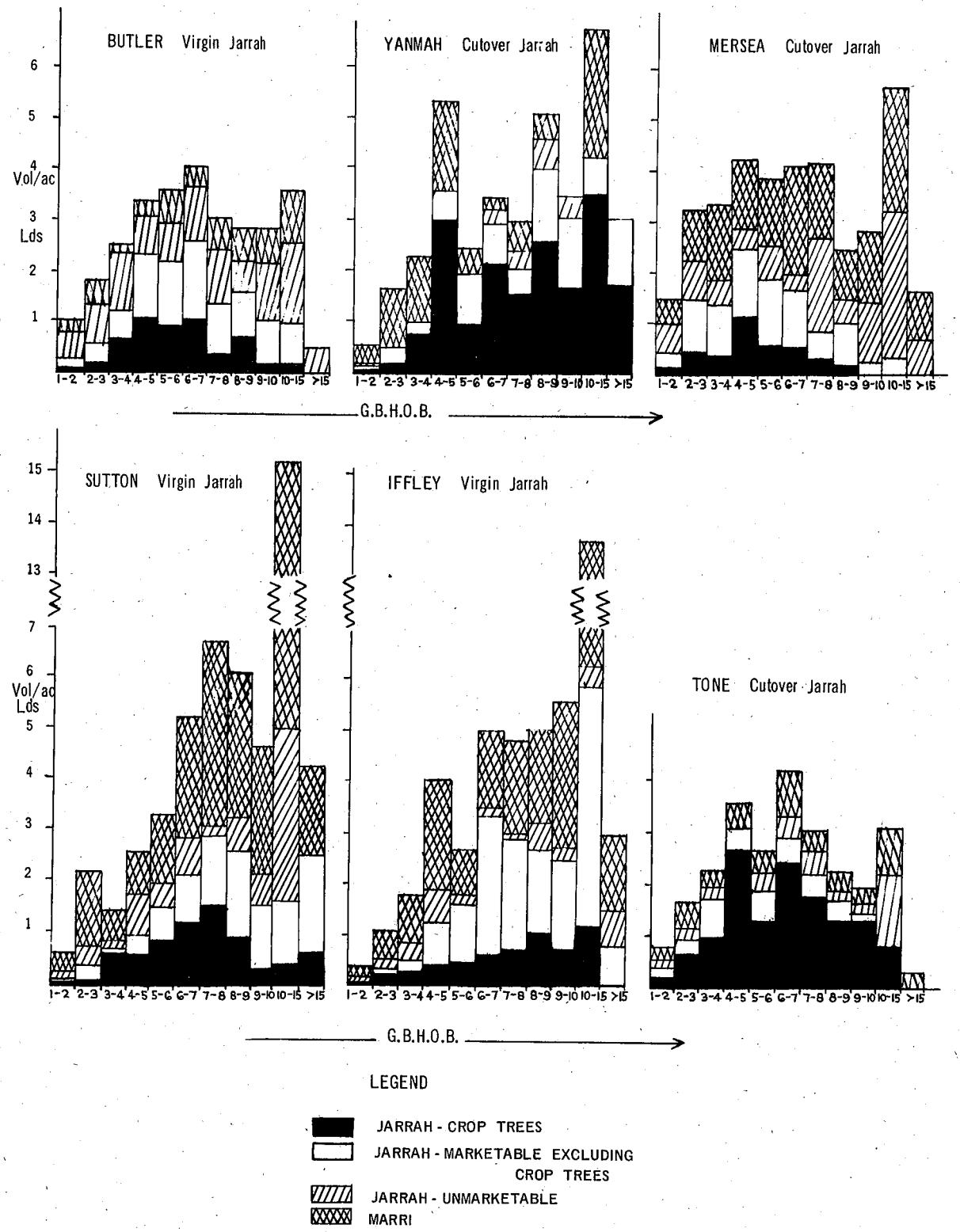
STEMS PER ACRE BY GIRTH CLASSES



BASAL AREA PER ACRE BY GIRTH CLASSES



VOLUME PER ACRE BY GIRTH CLASSES



The Effect of Soil Type on Logging Hygiene

by

F. Batini and J. Cameron.

Introduction

Results obtained from a previous study have shown that the equipment commonly used in the jarrah forest may transport large volumes of diseased soil for considerable distances. The potential for initiating new infections varied greatly between the units tested. It is probable that soil type will affect the quantity of soil carried by logging units, and thus influence the likelihood of initiating a new infection. The trial described tested this particular aspect of logging hygiene.

Method

The tests were run in the Mundaring Division, five miles north-east of the Mundaring Weir Headquarters. They were carried out in early winter, after appreciable falls of rain. A Bedford 3 ton standard gang truck fitted with a single set of duals was used. The soils were a sand, a lateritic gravel and a loam occurring within a plantation area not affected by P. cinnamomi.

The truck was driven over each soil and then driven in second gear for 10 chains along a nearby gravelled road. A 50% sample (one track) of the soil falling onto the road was collected, air dried and weighed. At the ten chain mark, the truck was washed clean, the soil collected onto a tarpaulin, air dried and weighed.

The unit bogged in the loam soil and had to be towed onto the gravelled road. The gravel test was conducted in a gravel pit where deep piles of coarse gravel occurred. Although the wheels sank and span on the gravel, the truck did not bog. Initially, the truck drove over the sandy soil with great ease. In a subsequent run, the truck was made to drive through a fairly deep hole, where it bogged, and had to be extracted by towing.

Results

In the preceding fortnight, the meteorological station at Mundaring Weir had recorded a fall of 592 points, 126 of which fell in the 48 hours prior to the trial.

Details of the three soils are shown in Table 1, and the data indicates considerable differences between the soil types tested.

TABLE 1

SOIL MECHANICAL ANALYSIS AND MOISTURE CONTENT PERCENT

Soil Type	Moisture Content (percent)	Gravel (percent)	Mechanical Analysis of Particles < 2mm Diameter	
			Sand (percent)	Silt and Clay (percent)
LOAM	61.5	3.0	74.5	25.5
GRAVEL	19.8	49.9	65.0	35.0
SAND	17.7	NIL	86.0	14.0

The weights of soil carried and dropped by the 3 ton Bedford truck are shown in Table 2.

TABLE 2

WEIGHT OF SOIL (AIR DRY) CARRIED BY THE BEDFORD 3 TON TRUCK

Soil Type	Approximate soil weight on unit at beginning (lbs.)	Soil weight lost between 0 and 7½ chains (lbs.)	Soil weight on unit at 10 chains (lbs.)
LOAM	100	53	47
GRAVEL	19	5	14
SAND (Second Run)	8	4	4
SAND (First Run)	NIL	NIL	NIL

The table indicates that the quantity of soil carried by the Bedford varied considerably between soil types. It appears that the amount carried is dependent on both the moisture content of the soil and the percent of fines (silt and clay) in the soil. Of the three soils tested, the very wet and heavy textured loam was particularly hazardous from a hygiene point of view.

The pattern of spread for the three soil types is shown graphically in Figure 1. In the loam soil, a rapid fall-off of soil loss with distance travelled occurred. In all soil types, peak losses occurred between 1½ and 3½ chains, i.e. as the truck began to gather speed.

For purposes of comparison, the weights of soil carried by different types of units, in different soil types and seasons, are shown in Table 3.

TABLE 3

WEIGHT OF SOIL (AIR DRY) CARRIED BY DIFFERENT UNITS, IN DIFFERENT SOIL TYPES AND SEASONS

Unit	Soil Type	Season	Soil moisture content %	Approximate soil weight on unit at beginning (lbs.)	Soil weight lost between 0 and 7½ chains (lbs.)	Soil weight on unit at 10 chains (lbs.)
CHEVROLET 15 cwt. Truck (Singles)	Loam	Summer	22%	26	19	7
LAND ROVER	Loam	Summer	22%	12	3	9
BEDFORD 3 Ton Truck (Duals)	Loam	Winter	61.5%	100	53	47
BEDFORD 3 Ton Truck (Duals)	Sand	Winter	17.7%	8	4	4

Discussion

The data presented indicates considerable differences between the three soil types tested. Although care was taken in the sampling and washing process, some soil was inevitably lost. These losses were small and could not materially alter the trends obtained. The soil falling onto the road could be readily distinguished due to its colour and wetness and was easily handled except for some of the smallest particles. The truck was washed at ten chains so as not to interfere with the samples on the road. As the soil losses between 7½ and 10 chains were small, the calculated soil weight on the unit at the beginning should be reasonably accurate.

The soils were above field capacity at the time of the trial. This, and the deliberate bogging of the truck in the sandy soil, indicate that the conditions tested were relatively severe. The biggest difference between soil types was due to the duals packing with soil in the loam site whereas this did not occur on either of the other two soil types.

Clod size is likely to affect the survival of P. cinnamomi in diseased soil. It was only in the case of the loam soil that large clods were deposited on the road. These were sprayed out from between the duals, particularly as the truck began to gather speed. Very few larger clods were observed beyond 3 chains. Soil type also affects the ease of washing and it was readily apparent that the heavier textured soils were more difficult to wash off the unit than was the lighter textured sand.

It is interesting to observe (Table 3) that, as the result of soil type, a potentially more hazardous unit (a truck with duals) in a potentially more hazardous season (winter), may in fact

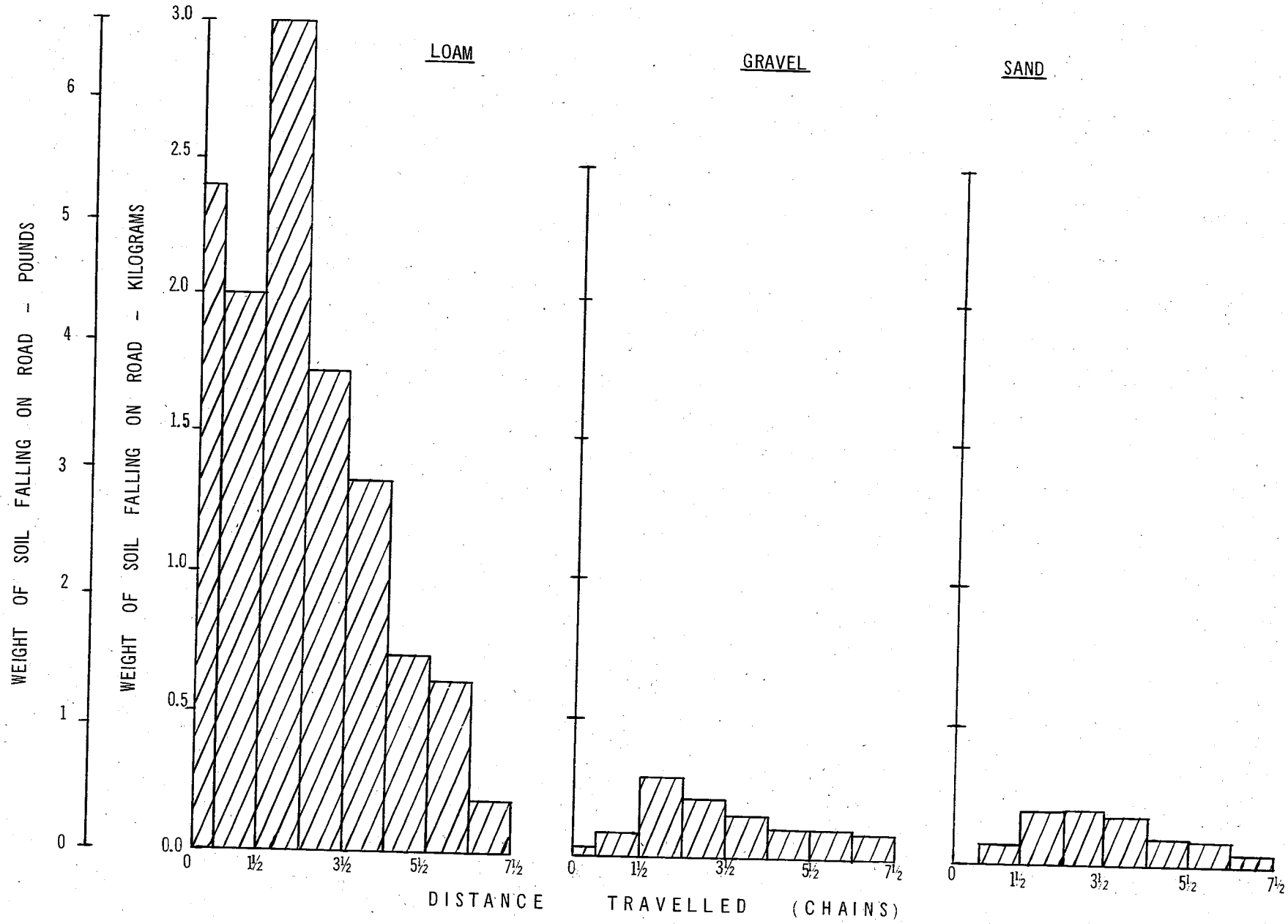
be less dangerous, from a hygiene point of view, than a Land Rover or a truck without duals. It is most probable that the difference between the soil types tested would be even greater in summer, when the likelihood of picking up any sand or gravel would be extremely low.

Conclusion

A careful selection of the site, the soil type, the time of year and the type of logging unit can markedly reduce the likelihood of spreading P. cinnamomi during logging operations. Care in the planning of a logging operation is just as important an aspect of logging hygiene as is the washing down of dirty equipment prior to its transfer into healthy areas.

Acknowledgement

We are grateful for the help provided by the D.F.O. at Mundaring and, in particular, for the assistance given by Forest Ranger R. Cave.


LOAM
GRAVEL
SAND
WEIGHT OF SOIL FALLING ON ROAD - POUNDS
WEIGHT OF SOIL FALLING ON ROAD - KILOGRAMS
0
1
2
3
4
5
6
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0
1½
3½
5½
7½
DISTANCE TRAVELLED (CHAINS)

At the end of the first quarter of the current year ten (10) disabling injury accidents were sustained as compared with twenty (20) during the corresponding period last year. This reduction of accident incidence has resulted in a further decline in the departmental frequency rate from 37 to 31.

During this period two divisions qualified for safety awards, namely Harvey and Nannup.

Harvey division who previously had qualified for 50,000 and 100,000 manhours without a disabling injury accident have sustained their safety performance by working a period of fifteen (15) months accident free for a total of 250,000 manhours.

This is indeed a meritorious achievement particularly so when we recall that approximately two years ago Harvey had the worst safety record in the department, but have now set a departmental record which can safely be claimed as an Australasian record in Forestry operations.

Congratulations are extended to the officers and employees of Harvey, and also to Nannup division who after being within reach of the 50,000 manhours award on several occasions only to miss out, have finally achieved this award, bringing the present total of 50,000 accident free manhours winners to ten (10).

Although several divisions are maintaining a satisfactory level of safety performance and in so doing are materially assisting in reducing the incidence of "On the job" accidents (see the divisional summary for the period under review) in others it is obvious that a more positive approach is required to the important aspect of control of the injured worker.

The term "Safety" is defined as "The control of men, machines, materials and methods to provide a working enviroment in which people will not be injured or property damaged".

That considerable progress has been made in achieving this control is evident by the gradual decrease of disabling injury accidents and their severity.

However, accidents are still occurring in some divisions resulting in lost time which when investigated prove that lack of control of the injured person rather than the severity of the injury was the cause of time loss.

Many doctors state that through their ignorance of available alternative employment, they have signed off work numerous injured employees who could have been returned to work on a selected job until fit to resume their normal occupation.

This is not only important to management but prevents loss of income to partially fit employees. Several divisions have achieved this control by the following simple procedure.

1. Personal contact with the doctor whom divisional employees visit for sickness or injury to acquaint him with available alternative employment for partially fit employees.

2. To ensure that all employees are aware of and adhere to their responsibilities in regard to injury accidents :—

(a) all accidents must be reported and a first aid slip filled in.

(b) In the event of an injury necessitating medical attention the injured person must first report to a responsible officer who will arrange a medical appointment.

This does not apply when an injury is sustained necessitating immediate medical attention. In such instances it is the responsibility of the person in charge to transport the injured immediately to the nearest doctor.

Failure to comply with these safety instructions could result in rejection of a claim for compensation.

The ultimate aim of an accident prevention programme is of course to reduce the incidence of all accidents regardless of their severity, however all possible control measures must be taken to reduce lost time due to disabling injury accidents.

An example of the method adopted by Mundaring is the letter appearing on the following page which is handed to the doctor by the injured person.

It is in this aspect of control that action by some divisions is required to ensure that no time loss is incurred by injured persons who in the opinion of the doctor could safely perform a selected job of work other than that on which he was engaged when injured.

Forests Department,
MUNDARING WEIR 6073.

.....

Doctor.....

.....

.....

Dear Doctor,

.....is an employee of this Division and has sustained an injury at work. He is normally employed as a.....
.....; if in your opinion he is temporarily unfit for this work, the following alternative jobs are available until he has recovered from the unjury and you are invited to indicate the most suitable with a tick.

Painting of Signs	*
Radio Operator (Summer only)	*
Tools Maintenance	*
Fire Equipment Maintenance	*
Vehicle Cleaning	
Carpenters Assistant	
Cleaning up at Headquarters	
Painters Assistant	
Park and Gardens Maintenance	

.....

.....

* Indicates work which can be done seated.

Our employee or this office will be able to explain the exact nature of the work in the above jobs and if the injury sustained does not preclude all alternative employment, loss of earnings by claiming Workmen's Compensation can be avoided.

Yours faithfully,

.....
ASSISTANT DIVISIONAL FOREST OFFICER

IS:SC

DIVISIONAL SUMMARY

D. I. A.

	July–Sept. 1970–1971	July–Sept. 1969–1970	SAFETY AWARDS		
			50,000	100,000	250,000
BUSSELTON	1	4	*		
MUNDARING	1	NIL	*		
DWELLINGUP	NIL	NIL	*	*	
COLLIE	1	1	*	*	
KIRUP	3	5			
MANJIMUP	1	1	*	*	
NARROGIN	NIL	NIL			
KELMSCOTT	NIL	2	*		
COLLIER-SOMMERVILLE	NIL	NIL			
WANNEROO	1	1			
HARVEY	NIL	3	*	*	*
PEMBERTON	1	NIL	*	*	
NANNUP	NIL	2	*		
WALPOLE	1	NIL			
TRAINEES	NIL	NIL			
RESEARCH	NIL	1			
WORKING PLANS	NIL	NIL			
	10	20	10	5	1

"I'm a good driver, so I don't need seat belts"

Even the best driver can make a mistake. And remember; many collisions involve two vehicles. It's human nature to think that collisions only happen to "somebody else". That's what everyone says . . . . until it happens to them.

"I've heard seat belts can break"

That's remotely possible. But it takes about 5,000 pounds of force to break an approved seat belt that's in good condition. Before it breaks, it will have saved you from smashing into the dash-board or windshield with that kind of killing force.

"What if the car catches fire or goes under water?"

Seat belts help to keep you conscious and uninjured so you can get free of the car. It takes only a split second to release the seat belt.

"We don't drive fast"

Most injuries and deaths result from collisions at 40 mph or less. A sudden stop or a collision at even twenty miles an hour can smash you and your passengers against the windshield with brutal force.

"They look uncomfortable"

They're only uncomfortable if you sit on them. They prevent slouching that adds to fatigue.

"I'd sooner be thrown clear of the car"

That's dead wrong. Research shows that you are at lease five times more likely to be killed if you are thrown out of the car.

"Our youngsters are trained to stay in their seats"

But could they stay in their seats if you stop abruptly or have a collision? Almost certainly not. And the driver can't hold a youngster with one hand while driving with the other . . . . . especially in a panic situation.

Reproduced by courtesy of ROAD SAFETY

EYES ON THE FRINGES

Many accidents are prevented by a driver spotting "out of the corner of his eye" another vehicle.

But the Better Vision Council of South Africa believes that many people do not have the ability to see objects on the fringes of their vision.

The Council has devised a simple test by which anyone can determine his field of vision. Here it is:–

Facing a wall, select a mark directly in front of your eyes. Extend both arms sideways with thumbs up. Then, looking steadily at the mark move your arms slowly forward until your thumbs come into your range of vision.

If you have a normally wide field of vision, you should be able to see both thumbs simultaneously when the arms have moved only a few inches. If you cannot do this with either eye you should make doubly sure that the road is clear.

If you wear glasses, try the test with and without them. You may find that wide or badly-placed sidepieces restrict your range of vision.

CONDITIONS . . . . .

Some drivers say the most dangerous conditions to drive in are rain and fog. Others say that glare and sight limitations make night driving the most hazardous. A winding road with sharp curves is a top troublemaker, claims another driver . . . . .

. . . .But suppose all weather and road hazards were eliminated. Know what would happen? We would still have accidents. The human factor is forever in the picture, by as much as 84%. Conditions may be ideal, but a driver can fall asleep, relax too much, day-dream, become too complacent – any number of things ! !

STAY ALERT to STAY ALIVE! ! !

Don't let ideal conditions lull you into an accident !

In a recent experiment two identical cars were driven 1,000 miles from Germany into Italy. One driver was told to make the best time he possibly could within the limits of safety.

The other was told to take it safe and easy.

The first finished only 21 minutes ahead of the other, with a driving time of 20 hours and 12 minutes.

The experiment was repeated over a further 800 mile course. Again the time difference was 21 minutes.

The fast driver used 10 more gallons of petrol than the slow driver.

HARVEY REGION

Staff:

Since the last Harvey Regional Notes were published, the following staff changes have taken place:–

Transfers

Alec Edwards to Forest Assistant, Kelmscott.
Des Donnelly to Harvey from Collie.
Charlie Broadbent from Kelmscott to Collie.
Andy Rynascewycz to Jarrahdale.
Chris Slotemaker de Bruine to Harvey.
John Robley to Harvey.
John Doorlandt to Dwellingup.

Resignations and Appointments

Miss Edwina Edwards resigned from Dwellingup and her place was taken by Miss Lynne Grogan, who returned from a working holiday in the Eastern States.

Miss Sandra McKay has resigned and intends to travel to Europe.

Safety:

Harvey Division were presented with an Award of Merit for achieving 250,000 hours accident free working. The award was made by Mr. Galton Fenzi, of the National Safety Council and the Deputy Conservator, Mr. D.W.R. Stewart. A lost time accident in November has now unfortunately spoiled this excellent run.

Dwellingup Division accident free run came to an end with a fatal accident involving a piece work faller, Ernie Reid. Our sympathy goes to Mrs. Reid and her family.

General:

Crime has been prevelent in Collie recently and the Mungalup Tower has once again been one of the focal points.

Pieces of wood were driven into locks and had to be burned out and following an unsuccessful attempt to burn down the Towerman's hut, Vandals made a successful attempt in October.

The Collie Office was broken into and District Forester Handcock's TREE MARKING AXE, used as a safe breaking tool. Luckily the axe gave way before the safe. A quantity of tea money was stolen.

METRO REGION

Aerial Controlled Burning

Despite an extremely cool and moist Spring the 1970 Spring Aerial Burning programme has been virtually completed by the end of October. Modifications to radio beacon assemblies have been quite successful and beacon signals have been received in the aircraft at a distance of up to five miles.

Fauna Studies

The fauna census of October 13th was entered into with enthusiasm and some twenty-two teams took part in the exercise. The number of sightings varied over a wide range but most parties saw at least six or seven native animals. Among the volunteers from Perth were Dick Perry and Jack Thomson. The Narrogin observations could be rated as the most exotic and included Boody Rats, Pigmy possums, etc.

Training

Preparations are underway for the Divisional and Regional Fire Gang competitions to be conducted in early December. Despite the uncalled for comment on page 26 of Volume 8 No.3, it is suggested that forces trained to this extent could be quite useful in other areas which apparently do not need this type of training.