FOREST NOTES

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Editor: R.J. Underwood

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The Editor,
"Forest Notes",
PEMBERTON

Dear Sir,

VISIBLE AREAS BY COMPUTER

The article on page 10 of Vol. 10 No. 2 surprised me because I thought that all foresters who had taken a surveying course would be conversant with the use of a contour map to plot seen and unseen areas from a proposed fire tower of any particular height.

The procedure is to draw spokes radiating from the tower site. Next draw a profile of the country along a spoke and set on it a line of sight to each ridge or obstacle. Then transfer back to that spoke on the topo map the visibility cut-off points so obtained. Very little practice is required to keep the number of spokes to the minimum needed to allow a satisfactory plot of seen and unseen areas to be made. Forest or scrub heights, if any, are of course easily allowed for on the profiles.

Using this method no superfluous data need be extracted, the view considered in any particular direction can be as long or as short as one may wish and earth curvature can be readily allowed for.

The time required to check one tower site depends on the uniformity of the topographical features or conversely the "Spottiness" of the unseen areas but I'd be surprised if it took more than half a day to check a site and get the seen/unseen boundaries pencilled onto the topo map.

Moral - Don't let a computer run away with you.

Yours,

H.C. Wickett
Como

THE MALLEE - FOWL

by

P.K. Tomlinson

There has been considerable attention paid to wildlife inhabiting forested areas in Western Australia, particularly over the last few years. This increasing awareness from the general public towards fauna and flora has resulted from the realization of the dangers of extermination to certain species of wildlife in the South West.

With the current trend in conservation and preservation of the existing flora and fauna, people are more conscious of the need to conserve our natural heritage of beauty and wonders of such fine West Australian bushlands. Thus people today are more observant to any unusual or rare occurences of fauna in West Australia.

During July 1971 Forest Guard Max Campbell and I were conducting a dieback survey in the north eastern region of Walpole Division, when we discovered an interesting structure in the table drain of a forest road. The structure resembled a small crater approximately 8 feet in diameter at the apex of the cone, 16 feet in diameter at the base, with a height of 3½ to 4 feet. The crater showed remarkable symmetry and excited interest as to what its origin and purpose was.

Consulting fellow local officers within the Department it was suggested the crater was probably built by a mound-building bird.

Subsequent enquiries to the West Australian Museum revealed the bird was the Mallee Fowl, and the first reported sighting in this area.

The Mallee Fowl belongs to the order of Galliformes, family Megapacliidae, species Heipoa ocellata. Common native names are Gnow and Ngow-o. In the eastern states it is known as Lowan, from where the town of Lowan in Victoria received its name.

Mallee Fowls are found in open mallee and sand plain country, south and west of a line from Cape Farquhar to Kathleen Valley, Corregie and the Warburton Range and also a narrow coastal strip in the south, mainly around The Warren River, Cape Leeuwin, Mentille, Naturaliste and near Busselton.

The Mallee Fowl is a rather large bird, weighing between 4-4½ lbs with a length between 22-27 inches. The bird is easily recognized as the body is brown with black and white cross-markings to the feathers, tail is tipped white, under parts white with a prominent black strip down the centre of the upper breast and legs a blue-grey colour.

The nesting habits of the Mallee Fowl are the most outstanding characteristics of the bird. They excavate a hole in the sand about 3 feet deep and 6 feet across. The male bird then scrapes a heap of sand and dry leaf litter into a large mound measuring up to 15 feet across and 2½ feet in height. The eggs are laid in the wall of the chamber at intervals of 5-6 days starting in early September and continuing until the end of December. The number of eggs laid by the female varies between 15 to 24 in one season.

The basic idea of the nesting habit is for the male bird to form a mound with litter and sand into which the eggs are laid and incubation effected from the heat caused by the decaying litter. If sufficient heat is not produced the male bird opens the mound on a hot day to capture the solar heat, and closes the nest with a drop in temperature. As usual the male bird engages in the major part of the work; i.e. constructing the mound, gathering litter, opening the mound for the female bird to lay her eggs and controlling the temperature at about 33-34°C. It is not known how the male bird gauges the temperature but one theory suggests the bird's tongue, or a sensitive part of his mouth is used.

The eggs have an incubation period of between 50-90 days depending on the temperature in the mound. Some eggs are hatching while others are incubating because of the time intervals between laying. When the eggs are hatched, the chick struggles out of the mound and down the side to take shelter in the nearby bush where it leads an independent life from both parents and other chicks.

The male bird never moves more than 100 yards away from the nest while the female wanders further to feed on seeds, buds, young shoots and insects.

After the incubation period is over, the birds will begin to re-build the nest after a short period when they briefly associate together at a common feeding ground.

During my observation of the Mallee Fowl I sighted the male and female birds once, the male taking cover in the nearby scrub and the female running along the ground for over 20 meters and flying with some difficulty into a tree.

The road where the nest is, has been closed to the general public to avoid disturbing the birds, and to try and ensure an increase of bird activity in the area. The location has not been stated to avoid any unnecessary disturbance by eager observers.

Any further information or sightings by Forest Officers would be gratefully acknowledged.

KARRI REGENERATION

by

P. Christensen

INTRODUCTION

Under the present seed tree system of regenerating karri there are many alternative site treatments which may be considered both prior to and after regeneration burning. Much information is available on individual aspects of karri regeneration but no overall plan exists.

This article is an attempt to define the problem as a whole and to discuss briefly the various alternatives that exist. The emphasis is on overall planning and no attempt has been made to enter into any detail. For more detailed information on individual aspects of the problem the reader is referred to the reference list at the end.

THE ANNUAL SEED FORECAST

Referring to Fig. 1 we begin at the top with the annual seed forecast (see For. Notes Vol. 8 No. 2 1970, and Vol. 9 No. 2 1971). This forecast is published in Forest Notes each winter and is the result of a survey of the karri done by Research branch each year (for method see For. Notes Vol. 7 No. 2 1969).

Using the information contained in this forecast the fate of each cutover area should be decided in advance. If a good or reasonable seed year is forecast all areas should be allocated to the 'good seed supply' or left hand column. If on the other hand a poor seed year is forecast then it may pay to select certain areas for artificial re-stocking. Once having made a decision the area should be allocated to the 'poor seed supply' or right hand column.

GOOD SEED SUPPLY

This situation is depicted in the left hand column. Detailed seed estimates will be carried out by research branch on request. Poor or doubtful areas may then either be deferred till later, or transferred to the right hand or 'poor seed supply' column.

Areas with a good seed supply or where it is decided to chance a doubtful seed supply, may be scrub rolled, that is the scrub may be pushed over by means of a bull-dozer prior to burning. Although this involves considerable extra expense, it has become almost standard practice now since it results in a much improved burn which creates good ashbed conditions ensuring optimum seedling development. Once having been scrub rolled an area should not be left too long before burning as the flash fuel created quickly deteriorates and green scrub grows, resulting in a loss of the effect of rolling.

Nursery stock, either in the form of Jiffy pot stock or open-rooted plants, may be grown and held on hand in anticipation of a percentage of failed areas. Open-rooted stock is recommended and it should be sown in the nursery in spring and kept down to 2' high by root pruning. Summer sowing as a means of producing smaller plants and thus avoid root pruning can be disastrous (see Bi-annual report July 1972).

Burning may be carried out either in summer or in autumn. The pros and cons of this are discussed fully in two articles in Forest Notes, Vol. 8 No. 3 1970.

Regeneration counts may be carried out as indicated either in early winter or in spring. In most years it is advisable to wait until spring, as autumn results are generally inaccurate (see For. Notes, Vol. 8 No. 3 1970). However in some years reasonable results are achieved in autumn because of early germination and development due to favourable conditions. For regeneration count method see B.J. White 1972.

If regeneration counts are done in autumn, and the area is deemed a failure, it may be artificially regenerated by means of either planting or sowing. Nursery stock may be used if this was provided for, if not wildings may be used if a supply is readily available (see For. Notes Vol. 7 No. 3 1969 and Vol. 8 No. 1 1970 and Vol. 10 No. 3 1972). Plants should be fertilized preferably with a fertilizer containing a high percentage of phosphate (Christensen 1972 b.) Sowing is also a possibility but is not recommended in practice. No suitable seed pellet has yet been developed for karri. Broadcast or spot sowing gives extremely variable results and is recommended only as a stop gap measure for very limited areas.

Again it is warned that autumn regeneration counts may be misleading.

Spring regeneration counts are reliable. The seedlings are all easily visible and they have passed the most susceptible stage and the majority are likely to survive the summer, (see For. Notes Vol. 8 No. 3 1970). If the results of regeneration counts are good then no further action need be taken. If however, they are poor, problems arise. It is too late to regenerate the area artificially, this can now only be done next season, and by then a scrub problem has developed.

Scrub control by spraying with 2,4,5-T in spring is a possibility if it is desired to plant the area. However this is expensive and not always successful and it is doubtful if it is justifiable on a large scale.

There is however some evidence that good open rooted nursery stock 60-75 cm in height, will compete with one-year-old karri wattle (Acacia pentadenia) and hold its own if well fertilized. Jiffy pot stock or wildings are not recommended for planting at this stage unless no other stock is available. Jiffy pot plants are generally too small and wildings do not have the vigour of open rooted nursery stock.

POOR SEED SUPPLY

This situation is represented by the right hand column in the diagram. It is suggested that this line of action could be followed at least on a limited scale between seed years. This would help to reduce the build-up of very large areas for regeneration burning which at present tends to occur between seed years.

Once having made the decision to artificially re-stock an area and not to wait for a seed year, there is no longer any need to keep the seed trees. They can be removed and their crowns will add to the available fuel.

Something which has yet to be tried, but which might prove successful is windrowing of the logs and planting mainly in and along the edges of the resultant lines of ashbed.

If it is desired to keep the seed trees for the little seed that they might contribute then the area may be scrub rolled as already described. This also applies to any areas that have been deferred from the left hand column because of poor seed crops.

Burning can again be carried out during either summer or autumn.

After burning, if germination should exceed that expected, in the cases where seed trees were left, then an area may be transferred again to the left hand column and treated in any of the ways already described. For the rest, the logs may be heaped or the area may be sprayed with 2,4,5-T before planting. Heaping of logs may be advantageous for later access and fire control. It could be done before the burn but it should be remembered that this

would then confine ashbeds to a few scattered spots and it might also be difficult to obtain a good continuous burn.

Planting may be done using open rooted nursery stock or Jiffy pot plants, either would be successful under these conditions.

DISCUSSION

It is obvious from the diagram that karri regeneration relies heavily on the seed tree system. Though this method is often regarded as being somewhat primitive it is eminently suited to the present situation. It utilizes the natural fire adaptations of karri to provide a cheap and effective method of regenerating the forest after trade cutting.

There are only two methods which might be considered as replacements of this system, namely, aerial seeding and planting. Neither of these appears to be a viable proposition at the present time. Seeding of karri has received a lot of attention but results of experiments have not been encouraging. Variability both with site and season is extremely high and results are unpredictable.

Planting on the other hand is very successful but with the ever increasing labour costs it does not appear to be a real alternative to regeneration of the 2000-3000 acres that are clear cut every year.

Therefore although a certain amount of both planting and seeding will be done, indeed should be encouraged between seed years, it does not seem likely that there will be any major deviation from the present seed tree system in the near future.

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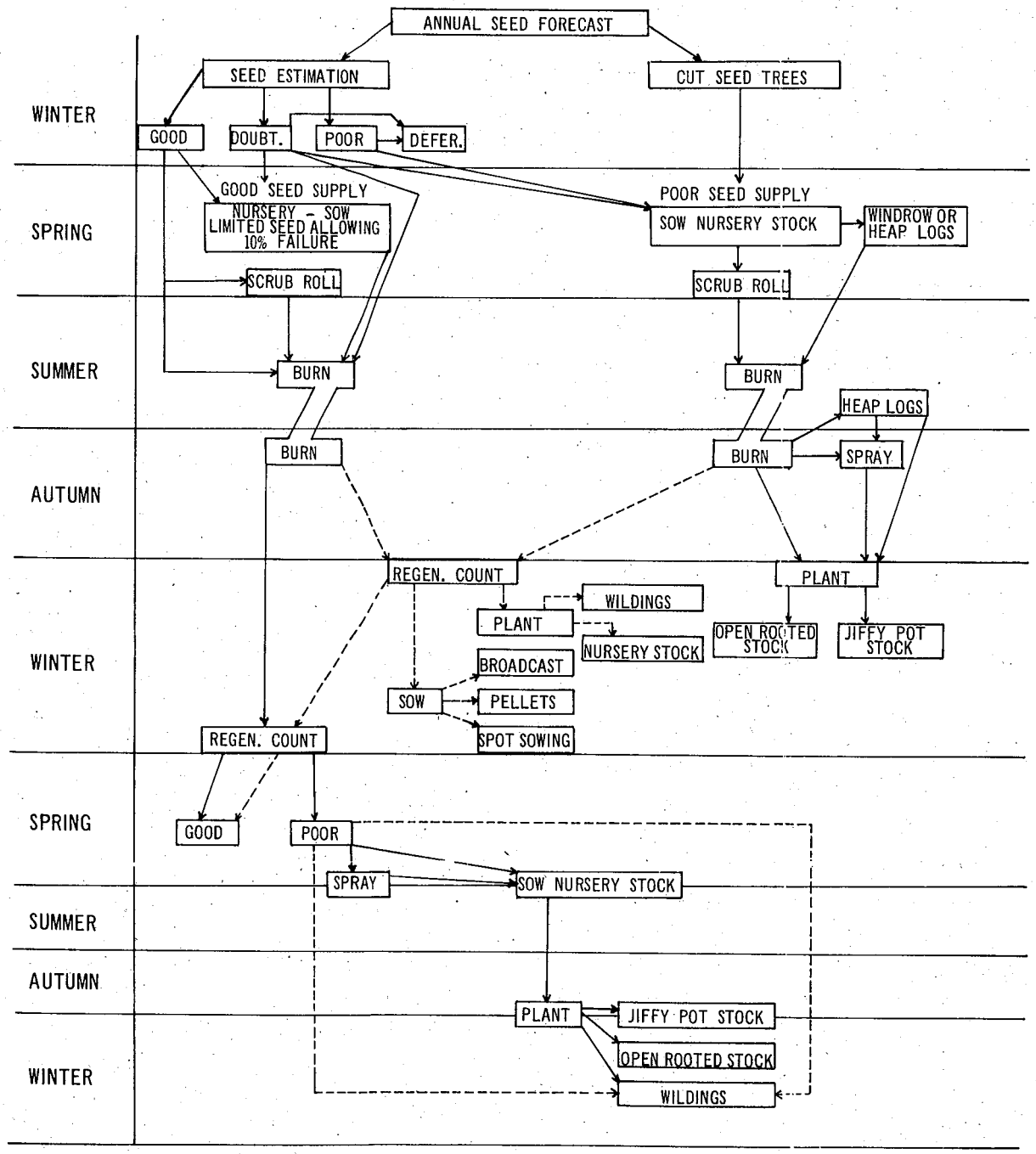
KARRI REGENERATION - ALTERNATIVES



ARROWS INDICATE ALTERNATIVES DOUBTFUL ALTERNATIVES ARE SHOWN BY BROKEN LINES.

NOTES FROM HAMEL NURSERY

by

A.J. Hart

INTERSTATE VISITOR

An interstate visitor recently was Mr. Bert Semmens, from the Victorian Forest Service, Melbourne. He was on L.S.L. and took the opportunity to see some of W.A. and no doubt other divisions saw something of him also. His main interest at present is farm forestry extension work arranging loans for private landholders to establish plantations, mainly softwood.

BUNYA PINE (Araucaria bidwillii) - A NOTE ON GERMINATION

The season just past resulted in one of the best crops of seed of this species ever harvested at Hamel. In fact, natural regeneration was in progress, until control burning killed off seedlings.

The parent trees are approximately 44 years of age, height estimated at 55'-60' and G.B.H.O.B. 7' 5" approximately.

It is reported in some literature that in Queensland, a good crop of seed can occur every three (3) years and is used as a source of food by natives. Indeed, the kernal of the seed, which measures approximately 2" x 1", when roasted like chestnuts, is extremely tasty.

The method of reproduction in this species can only be regarded as unusual. The seed throws out a normal looking radicle, the plumules being retained in the seed testa. On reaching a solid base apparently, the radule enlarges to an elongated ovoid swelling at the end of the radicle. This commences to grow fibrous roots and about the same time, severs the original plumule thus discarding the old seed testa as well, usually with a fair amount of endosperm remaining.

This new process then proceeds to grow a normal shoot from the apex, dark coppery colour at first and much unlike a shoot. At about 2"-3" in length, green leaves begin to appear and elongation is then rather rapid. The whole event takes approximately five (5) months from the time of initial germination.

References in literature indicate that deliberate removal of the old plumule, seed testa etc., improves growth compared to that which is left to be severed under normal growth stresses.

Those who have seen this species will probably agree they are spectacular. I would be interested to hear from anyone regarding the onset of seeding, as locally it seems to be linked with favourable weather conditions which prevent seed cones aborting before seed testa are properly developed.

NOTES AND ARTICLES FOR PUBLICATION IN:

COMMONWEALTH FORESTRY REVIEW

In the event of it not being generally known that material can be published in the above Review, it is wished to advise all interested persons that if you have any scientific material which you would like published please contact:

A.J. Hart,
Hamel Nursery,
HAMEL, W.A. 6216

This Department is a strong supporter of the Commonwealth Forestry Association in other directions but as yet there has been little material available to send forward for publication.

SURVEY OF MARRON FISHERMEN

by

W. Edgecombe and M. Dillon

Research staff at Dwellingup have conducted surveys of marron fishing over recent months to gauge the intensity of this form of recreation in the Murray River Valley.

Marron were also measured to supplement research data collected by individual fishermen for the research branch of the Fisheries and Fauna Department. The work has its light moments.

On one occasion, we were travelling along River Road in a Toyota and pulled up with a squeal of brakes alongside a fisherman's car.

When we reached the river's edge we spoke to a man and his son and explained the nature of our business.

At this point a second man appeared out of the scrub and spoke out of breath, "Are you from the Fisheries Department, because we've got our licences".

"No", I said, "We are from the Forests Department".

"Oh no!" he cried "I thought you were Fisheries Inspectors; I've thrown all my marron away!"

"You haven't?" I said.

"I have, I have" he cried. "You've no right to come driving along and squeal your brakes and flash your torches".

I told him we were only interested in data collection and did not wish to inconvenience him.

He replied, "I've come two hundred miles to fish for marron; I had not sorted my catch and when I saw you coming I thought you were one of those unreasonable "B's" from the _____ Department; I would be branded a criminal for the rest of my life; now I have nothing to show for my efforts and we're going home empty handed".

I suggested he throw his nets in and endeavour to recapture some he had returned.

"It's no good, it's no good, they've gone, they've finished feeding, you've ruined our fishing trip".

"I'm sorry", I replied, "Thankyou for your help".

We walked away convinced that most of his catch were undersize and justice had prevailed.

CLASSIFYING THE POTENTIAL OF STATE FOREST TO PROVIDE RECREATION

by

A.R. Gobby

A system for classifying the potential that land in State Forest has for providing recreational satisfaction is being developed. Information on the value of different areas for recreation is required in the preparation of management plans for recreation. To attempt to plan for recreation without first classifying the recreational potential of the forest is like trying to draw up a logging plan without A.P.I. maps.

The objectives in classifying the forest are as follows:

1. To provide a reliable overview of the location, quantity and quality of the recreation resources in state forest to:

   (a) enable zones to be defined where different management practices are implemented to cater for diverse recreational demands.

   (b) ensure that areas of possible conflict with other management practices are recognised and minimised.

   (c) assist in determining the priorities for development in different areas.

2. To identify lands or features of outstanding or unique recreational value.

3. To facilitate the location of recreational facilities such as scenic roads, walk tracks and picnic sites in areas with the best recreation potential.

The system developed so far is subjective, simple and easy to apply because there is insufficient time and money to carry out a more detailed classification of large areas. It therefore has numerous faults and the

reliability and validity is not high at this stage. Foremost among the defects in the system is that in classifying the value of an area for recreation the rating should be based on the opinion of a large cross section of people. Future research in this area should reduce the element of personal bias which many feel is painfully obvious at present. The system is flexible however because it can be refined to give a more accurate rating and additional information as the need arises and there is some value in making a start in the hope that the idea will not be rejected out of hand but others will offer suggestions for improvement.

The basis of classification of an area of land is its natural ability to provide recreation enjoyment. The following assumptions are made:

1. There is access to the area or it can be provided.

2. The presence or possibility of developing recreational facilities such as picnic sites, walking trails, boat ramps etc. is not considered.

3. Distance from population centres does not influence the classification.

4. The overstorey vegetation will not change. Where it is altered as in the case of logging or fire the area will be reclassified.

5. Present use will not influence ratings except in cases where features have become part of the folk lore of Western Australia and have assumed historical significance. (Example: Gloucester Tree and giant tingle hollow butts in the Valley of the Giants).

6. Sound management practices are assumed to ensure that the attractive features in each area are retained.

The classification rates the number of people an area will attract annually for any recreational pursuit without causing site alteration. It also indicates the type of recreation that the area will provide. This rating is applied to areas with a similar recreational

potential which can be isolated by drawing the boundaries on an 80 chain to the inch scale map. The classification is designed for undeveloped land and at present will not be used to classify agricultural and urban land.

The classification system rates each area by placing it in one of seven classes and one or more alphabetical subscripts are added to indicate the type of recreation that an area will provide. These are defined below:

Class 1

Very high capacity to attract high density use with no limitations on the ability to sustain this level of use or features of historical or special interest with state significance. These are features which already are or could become major tourist attractions in their own right.

Examples: Gloucester Tree, Giant tingle hollow butts in the Valley of the Giants, One Tree Bridge (becoming of historical significance), Serpentine Dam.

Class 2

High capacity to attract steady use on broad areas with no limitations on the ability to sustain this use. These areas may be at present or could become well known throughout the State.

Examples: Spectacular sections of the south coast, Yeagerup Dunes, The Darling Scarp, Murray and Collie River Valleys through the Scarp.

Class 3

Attractive areas which can supply steady recreational satisfaction but without the special attributes of areas in Class 2.

Examples: Pure karri valleys, steep good quality jarrah valleys with good trout and marron streams, most coastal shorelines.

Class 4

Areas which are acceptable aesthetically but offer neither great attraction no dissatisfaction for recreational use.

Examples: Karri-marri or good quality jarrah-marri stands with undulating topography, interesting understorey species and small streams.

Class 5

Areas which are not naturally very attractive but where occasional minor features relieve the unattractiveness.

Examples: Average to below average jarrah forest with undulating topography and an interesting understorey or a distant view.

Class 6

Areas where natural unattractiveness presents a severe obstacle to recreational use and where there are no relieving features.

Examples: Poor quality jarrah and flat country (JC and flats).

Class 7

Areas with a very low capacity for most types of recreation providing only open space. People tend to avoid these areas.

Examples: Dieback areas, eroded areas and minesites.

SUBSCRIPTS - TYPES OF RECREATIONAL ACTIVITY

These are placed in the order of importance behind the rating for the area.

V = viewing scenery when driving, bushwalking, horse riding, trailbike riding, picnicing or barbecuing.

C = camping or caravaning

X = viewing flora

A = viewing fauna (animals and birds)

D = dunebuggy riding

HA,HW = Hunting or shooting (animals or waterfowl)

R = rockclimbing

I = site of historic or special interest

S = swimming (in bath, sea and river)

B = boating and canoeing (rivers and streams)

W = water skiing, sailing and boating (lakes and broadwaters)

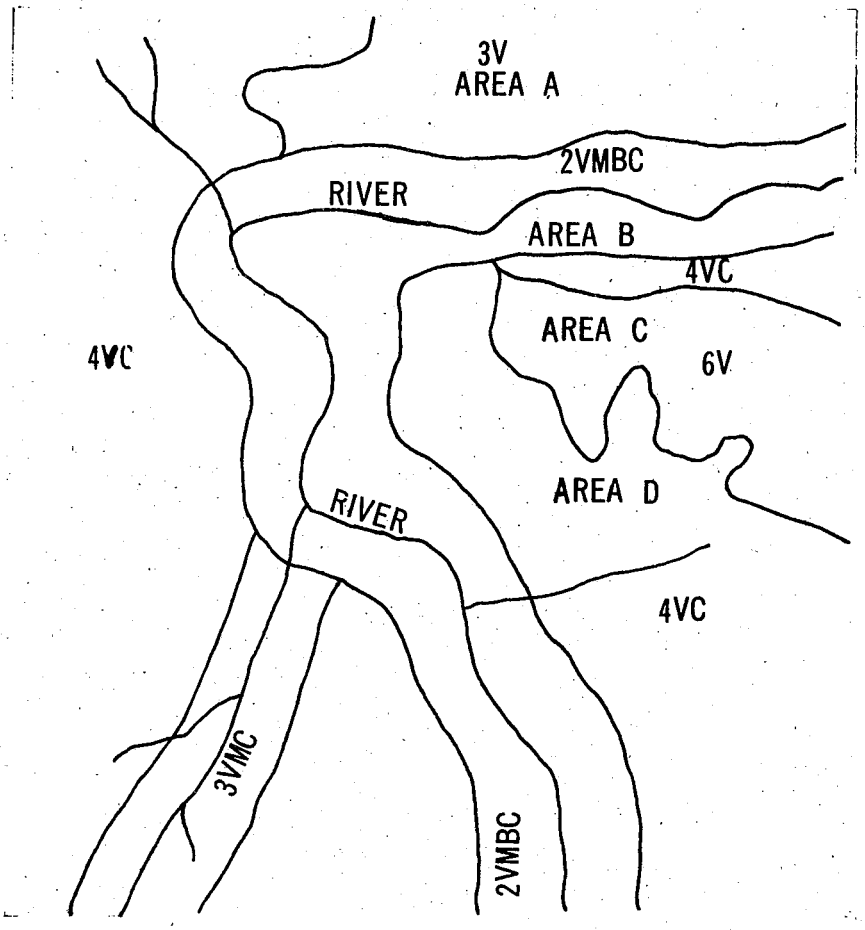
M = marron, trout and other fresh water fishing.

F = salt water fishing.

To apply the system the area to be classified is divided into areas with a similar recreational potential by drawing boundaries on an 80 chain to the inch scale map. This is done with the aid of local knowledge, aerial photographs and A.P.I. Maps. These areas should be as large as possible while ensuring that all land within the unit will have the same rating. The recreational activities which an area will support are then listed in order of importance. For example VBC refers to an area which will provide viewing, boating and camping in that order of importance. The rating from 1 to 7 is then selected on the basis of the first activity and modified as required after consideration of the rating that the other activities would give to the area. To assist in this process "guide to classification" sheets have been written for each activity. They are too detailed to be included here but they describe more fully and give many examples of the rating different areas should be given. Areas in each class are then coloured on the map using a standard code so that the potential of all land in an area for recreation can be easily seen.

The map shows a small area classified as an example of how the system works. Area A is rated 3 because it is an area of pure virgin karri in a steep river valley and hence can attract people to view the scenery while driving, picnicing etc. Area B along the valley of a major river has an even higher capacity to attract people for viewing, marroning, boating and camping. On area C the karri has been clear felled and it is therefore rated low for viewing which is the only activity which it can support. Area D is an average karri-marri stand which is capable of providing for viewing and camping.

The rating an area is given does not indicate whether or not it should be developed for recreation. Some highly attractive areas for example could be left as wilderness. Areas and places with a lower rating may be developed if they are more accessible. Neither does the rating indicate how many people will actually use an area because of the importance of the degree of development, advertising and distance from population centres, in attracting people. This classification is therefore similar to the forest types on A.P.I. maps which give no indication of whether an area should or will be logged. The system however does provide information on the quality of forest areas for recreation and although it could and should be greatly refined, will provide a basis for drawing up management plans in the near future.



An example of a forest area classified on the basis of its potential to provide recreational opportunities.

DEMONSTRATION FORESTS: CONCEPTS AND APPLICATION

by

W. Schmidt

INTRODUCTION

In the past decade, we have witnessed the growing public concern over the environment and its use or, as in some instances, its misuse. While the forestry profession has always been concerned with the environment, too often it has failed to either recognize or account for both the direct and indirect effects of its management on the total land resource. There are numerous examples where the profession has badly misjudged or underestimated this public concern and awareness for the environment. For instance, foresters in North America have come under attack from all quarters (including from within the profession) over the environmental implications of clearcutting. Closer to home, there has been a public outcry in the Eastern States over the practice of converting native eucalypt forest to softwoods.

In Western Australia, the Forests Department has so far escaped any serious public criticism over its land-use management. But it is only a question of time before it too is subjected to closer scrutiny and possible criticism by the public. Like it or not, the Department must accept the fact that we are now in an era when anything and everything it does is open to question, misrepresentation and criticism from outside sources.

What the Department must do, and do as soon as possible, is to get the public on its side; in short, educate them to what, when, where, how and why it does things. Other forestry organisations throughout the world have or are learning this lesson the hard way.

CONCEPTS AND APPLICATION

There are numerous methods available for educating the public, some of which the Department is using (e.g. Extension Branch services, publications such as "Forest Focus, etc.). One effective and relatively inexpensive

educational technique is the demonstration forest. As the name suggests, a demonstration forest is an interpretive forest block or unit that displays the core element of forest land management.

The concept of a demonstration forest is not a new one. A number of private forestry organisations in North America have set up demonstration forests to justify their management practices to the public as well as to satisfy recreational use pressures. These organisations have found that the demonstration forest is not only necessary, but profitable in the long term.

A successful demonstration forest should be planned to cater for both active and passive forms of recreation while presenting the forest management story in a logical, straightforward manner. This can be accomplished by complementing existing recreational facilities (e.g. picnic areas) with scenic drives, hiking tracks and shorter self-guiding nature trails to develop a comprehensive network of development. Throughout this unit, forest management can be featured with the aid of informative signs, brochures and pamphlets. Some of the major features that could be explained or demonstrated are as follows:

1. Jarrah or Karri life cycle
2. Jarrah dieback
3. Economic and biological considerations of forest management
4. Plant ecology
5. Prescribed burning
6. Forest fauna - species and habitat requirements
7. Catchment management
8. Bauxite mining and forest geology
9. Pine plantation programme
10. Forest recreation

The key element in presentation is simplicity; that is, signs and pamphlets must be written in the layman's language. For example, one private forestry organisation in the south-eastern U.S. has a sign at one of their demonstration forest plantations which expresses softwood growth rates in terms of the number of home units that can be constructed from the periodic increment. As another example, a public land management agency in the western U.S. has demonstrated the benefits of thinning by incorporating cross sections of a thinned and unthinned stem in a sign depecting the logic behind this management practice. Presentations made in this manner will obviously make a much greater impact on the public than will more involved, technical explanations.

The demonstration forest concept, if it is adopted, need not be limited to one area. A system of such units in several forest types (i.e. Jarrah, Karri, Tuart, Wandoo, etc.) could be readily and effectively incorporated into the existing system of intensive management units. Rather than try to conceal forest operations (this has been tried in North America with a notable lack of success), it would seem better to display our management openly. If, by so doing, our management is questioned or criticized, then we are in a much stronger position to answer this criticism.

Forestry is not something to be hidden or ashamed of, although it has been treated this way to some extent by the profession itself. By taking the offensive and educating the public, we will avoid a great deal of criticism. However, if we choose to ignore the public and areput on the defensive, then any answers to criticism may end up sounding more like excuses than sound justifications.

BOOK REVIEWS

"THE VALUE OF THE WEATHER" by W.J. Maunder (365 pages)

Review by A.J. Hart

This publication has appeared both in paperback and hardback form published by Methuen Co. Ltd., London, E.C.4.

At a time when wide interest is being shown in weather, factors affecting it (e.g. the effects of atomic explosions etc.) and resultant effects of factors which influence the weather, this publication can be recommended to anyone who is interested in weather from various aspects.

This book covers in an interesting fashion socio-economic aspects of weather (e.g. why a retail store is interested in weather and how a relatively small temperature variation influences the sale of ladies' coats).

However, the sections which deal with weather factors and their influences and means of moderating meterological extremes are of greater interest in that they indicate how our environment in terms of weather is at this moment the subject of serious research in U.S.A. mainly.

The section devoted to forestry is disappointing and does not elaborate on some techniques of weather abatement except in general terms (pages 86-92) but evidently lightning suppression is to be the focus of more research in future. Nevertheless, it puts in print some generalizations of weather influence which probably many foresters feel to be true or partially so but never brought to the reading public or put on record for reference.

Some interesting facts of weather influence on certain aspects of agricultural pursuits are included and make interesting reading e.g. South Australian experience is that rainfall in the months following sowing is detrimental to high wheat yields. The yield is reputedly reduced by 9 bushels for every inch of rain in that month.

The bibliography at the end of each section is full and would enable further reading on any of the topics raised; in all a useful book to appreciate the place of weather in our environment.

"FUNDAMENTALS OF AERONOMY" By R.C. Whitten and I.G. Poppoff. John Wiley & Sons Inc. Publishers 1971

Review by A.J. Hart

This is in some respects a follow up to the review of "The Value of Weather" by J.W. Maunder.

At the outset, it is wished to reiterate that in modern terms weather can now be conveniently broken down into three (3) Studies -

(i) Meteorological - including those studies of the day to day type requiring the preparation of synoptic charts from satellites etc. for prediction of weather within the next 24-48 hours and used by aviation, shipping and commercial enterprises generally.

(ii) Climatological - where the study is of longer trends in weather effects its changes and comparisons of one region with another, used essentially by sociologists, demographers and scientific discipline and

(iii) Aeronomically, the latest entrant to the weather study field.

This book refers to the last new field of study and is absorbing because of the treatise simply set out which examines the influence of solar flares and magnetic disturbances on various levels of air space, above ground level right through to the ionosphere.

The full text is covered in 427 pages with 4 pages of Appendix and six (6) pages of symbols explanation - in all 446 pages.

Each section of the book has a small set of problems for the avid student to check his appreciation of the subject matter. Some of the equations developed as mathematical models of the suggested reactions which are occurring are somewhat abstract for my "model" of mathematics but nevertheless understandable as they deal largely with gaseous interchange reactions under the influence of variable factors each of which is held constant for the purpose of study.

Diagrams and illustrations are widely and intelligently used and assist in describing what the author is attempting to relate. The factor which seems to come forth of the greatest importance in the study of aeronomy and its subsequent effect on weather, is that of ozone. This apparently has several quasi stable states and undergoes rapid change and gaseous admixture at about 90 Km - 100 Km, and by so doing influences recombination to OH^- and H_2O at lower levels in reaction with other gases.

The section on optical phenomena (i.e. Southern lights) gives new information on the cause of such happenings and in all makes interesting reading.

REGIONAL NOTES

KIRUP

Staff: Lyndon Piggot has completed his Cadetship and commenced duty at Grimwade on 18th December, 1972, as a Forest Guard. We hope your stay will be pleasant, Lyn.

The Kirup Division played a social game of cricket at Kirup on Sunday, February 11th, against the best team Nannup Division could muster. In view of the obvious novices representing Nannup the Kirup Division graciously allowed the visitors to win. At the conclusion of play the team members (about fifty in all) enjoyed a barbecue and refreshments at the home of Don and Fran Keene.

After great deliberation plans are under way to move Kelson Tower (110' Standard Lookout Tower) to a new site. Some 6½ Kilometers distant overlooking the developing plantations of the Blackwood Valley.

Details of the success or failure of this project will appear in the next issue of Forest Notes - provided of course that there are some survivors.

Any further comments on Brian Fitzgerald's sailing ability would be best left unsaid.

There is no truth in the rumour that some officers of the Kirup Division are part owners of the race horse "HAYBURNER").

BUSSELTON

Staff: Miss Wendy Joyce resigned on 3rd January, 1973 and the position has been filled by Miss Robyn Lucas.

Dr. McKinnell's research section, including Ray Fremlin and Bob Hingston from Collie, has now been set up at Busselton.

NANNUP

Staff: F/G Paul Marsh has been posted to Nannup following graduation from the Trainee Scheme.

Long overdue office extensions are now well in hand.

SOUTHERN REGION

Staff: Ross Gobby was transferred from Dwellingup to Manjimup, he has since been transferred to Pemberton and moved to Nannup in early March.

Mark Sanderson was appointed A.D.F.O. at Manjimup, and Drew Haswell was appointed A.D.F.O. at Pemberton.

Forest Guards, Peter Headlam and Russell Gould, commenced duties at Manjimup.

Forest Guard Geoff Young commenced at Pemberton.

Miss Judith Daubney was appointed clerk/typist at Pemberton. Mrs. Alice Benson resigned as clerk/typist at Walpole and Miss Brenda Cooling was appointed in her place.

Miss Kaye Marsh resigned as telephonist at Manjimup, after 8½ years with the Department. Miss June Larkin was appointed in her place.

Frank McKinnell was transferred to Busselton. Len Nicol was appointed Senior Timber Inspector and has moved to Bunbury.

Gordon Styles has replaced Len as Senior Fire Control Forester at Manjimup.

GENERAL:

1. The whole of the south-west including the southern region, experienced one of the heaviest Marri flowering seasons ever recorded. As a result, Pink Flowering Marri (variety rosea) was more obvious and many trees have been noted and identified in the field with distinctive markings to avoid their subsequent loss during logging and culling operations.

2. The early summer conditions in the Manjimup, Pemberton and Walpole areas were drier than average and resulted in a curtailment of the controlled burning programme and contributed to the fire control problems by causing excessive re-ignition under severe conditions.

3. The Fourth Year Forestry Students from the Australian National University visited the south during late February and appeared to have an enjoyable, and we hope productive, stay.

WORKING PLANS

(SOUTHERN REGION, MANJIMUP)

Staff:

A.D.F.O. B. Harvey
T/O D. Speldewinde
T/A T. Brittain
T/A Miss Collins
T/A N. Hamilton
T/A G. Jenkins
T/A K. Phillips-Jones
T/A Miss Cutts.

T/A Jenkins returned to W.P.O. on 2nd April, 1973, after his period of National Service.

This summer the Hardwood Assessment programme covered 12 Forest Blocks in the Walpole Division east of the Frankland River. With the completion of this programme a total of 1,200,474 hectares has been covered since the introduction of computer processing of Assessment Data in 1965. To date Assessment has been carried out over 234 Forest Blocks leaving seven coastal and two inland blocks to be completed. The two inland blocks, Big Brook and Treen Brook, are at present being assessed. During the period 6,056 plots covering 4,133 hectares was assessed.

The highlight of this summer's programme was the discovery of a hill cave and rock cairns near the Mitchell River by T/A's Brittain and Phillips-Jones. The "find" made radio and newspaper headlines until the previous occupant of 44 years ago came forward with his story. However, there is still a lot of interest being shown in the origin of the two rock cairns and rock-made-arrow seen in this area. Further clearing up of this mystery is awaited with interest.

W.P.O. T/A's will be starting work in the Kirup I.M.U. area prior to going on to the winter programme of Pine Inventory.

Of social interest was the good effort by Office T/A Miss Sandra Cutts in raising more than $1,250 in the Miss Australia Quest, and receiving a holiday to Singapore and return.

A.D.F.O. Harvey nominated a forestry side into the Warren Cricket Association, and during the season performed best of the team's batsmen to receive the C.J. Edward's Batting Trophy, presented to him at the Club's inaugural wind-up dinner, on Thursday, 12th April, 1973.

Meanwhile log-chopping T/A Brittain has once again included part of his big toe in the wood chips at the Kalamunda chop. However, it was salvaged and reunited with the remainder of his foot.

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