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BUSSELTON
FORESTS
SCENIC
DRIVE

Suide 4



### BUSSELTON FORESTS SCENIC DRIVE

This tour is an introduction to both the past history and planned future management of the forest country to the east of Busselton, often called the "Donnybrook Sunkland". The tour will take you about a day and covers 106 km.

The forest area lies between two fault lines, the Darling Fault to the east, and the Leeuwin-Naturaliste Fault to the west. The landform is an undulating plateau 100 to 180 m above sea level, with a gentle slope from east to west and from north to south. The soils are primarily composed of sedimentary material with occasional intrusions of igneous rock.

Vegetation within the area is a mosaic of flats and forests, the pattern determined by topography and soil type. Generally the areas are composed of contorted and twisted jarrah trees in a closed woodland type, but in places this changes to forest stands of tall, straight jarrah with some marri. This occurs on the more fertile sites associated with rivers such as the Blackwood River or St. Johns Brook, or an intrusion of igneous rock, here known as Bunbury basalt, as at Milyeanup and Canebreak.

### Synopsis of history

The first settlers were attracted to the Busselton area by its open nature and its fine undulating plains. The tuart woodland further up the coast would have compounded this feeling and by 1840 the settlements of Wonnerup and Busselton totalled "83 souls" as measured in John Bussell's census.

As the settlement grew, so grew the demand for timber and the hope that the forests' seemingly vast resources could become an asset for the expanding colony. The first timber was pit-sawn (see Forest Information Sheet No. 9), but as early as 1858 a mill was established at

Quindalup on the Vasse by Yelverton, a somewhat dynamic man. This mill was the first to work in the colony for any length of time. Later, in 1869, a mill was under construction at Lockeville, near Wonnerup, under the direction of the West Australian Timber Company. Considerable publicity was given to the company and its activities and in 1871 it introduced the first locomotive into the colony, the Ballaarat, which can now be seen in Victoria Square, Busselton.

The initial beginnings of sawmilling in Western Australia were slow, as the sawmill companies had to supply their own transport links; railways, bridges, piers, etc. This was very expensive and many of the early mills in the colony were forced to close down. Control of cutting and management of the forest resources was negligible as the forest resource was not seen as limited, nor was there any formal government agency that protected the forest areas.

By the end of the century the West Australian Timber Company was closing its doors. Its assets were a tramway to Maryvale, two old mills, one at Goodwood on the Capel River, the other at Harrington, and an old private jetty at Lockeville. In 1897 the company was bought out by the Jarrahwood and Sawmills Company. The new company extended the tramway to Jarrahwood and there built a new town and sawmill.

However, the forests here were always of poor quality, due to the low fertility of the soils, and although more mills were opened up in the area, such as at Barrabup and Claymore, these were later closed down and the major impetus of sawmilling moved south-east to the Donnelly and Warren Rivers. The Jarrahwood mill continued to operate and is now the major sawmill in the area.

Schemes to convert these forest areas over to more productive forest began in the 1950s when Stoate, then Conservator of Forests, initiated a pine plantation scheme at Willcocks. However, at that time, there was little knowledge of soils and much of the area planted was unsuitable.

Since then there has been extensive mapping of soil types and this, coupled with an intensive research programme into pine nutrition, has shown that pines can be successfully grown on certain soil types within the Sunkland area. Forest cells within this area are now being converted to pine, to alleviate a forecasted severe shortage of wood. Ecological studies in the area have helped to delineate a network of reserves which will ensure that no community of plants or animals is endangered by the project.

### 1 THE BALLAARAT Victoria Square, Busselton

Notice the correct spelling of the locomotive's name, Ballaarat. The name was taken from the official spelling first given to the town of Ballarat (the more common spelling), Victoria. The name-plate now on the locomotive is said not to be the original.

In the park stands the first rail engine to be introduced into Western Australia. It was named Ballaarat, after its place of origin in Ballarat, Victoria.

The Ballaarat was brought out in 1871 by the West Australian Sawmills Company to transport round logs from Yoganup, a siding on the edge of the jarrah forest east of Busselton, to Lockeville on the coast. At Lockeville the logs would be sawn and shipped to other ports.

Across the road is St. Mary's Church, built during the early days of settlement and finished in April, 1845. Some of the timber for the church was pit-sawn on John Bussell's property, "Cattle Chosen".

### PORT OF LOCKEVILLE

Travel along the main road toward the pier, then turn right into Marine Terrace. Continue on this road for about 7 km, until you reach the lock gates of the estuary.

Lockeville was the location of the West Australian Sawmill Company's port and first sawmill. The mill at Lockeville was later abandoned in 1883 and the machinery was moved to the company's new mill, the Goodwood Mill, on the Capel River, about 8 km west of Yoganup.

On the east side of the lock stands the remnants of an old railway bridge. Across this the Ballaarat would come with her cargo for export. The old jetty stood close to where the boat ramp now stands. Timber would be transferred from the jetty to the waiting ships by lighters (large open barges), as the water was too shallow to allow the ships to tie up. The level of trade at this port can be ascertained by some old figures. Between 1882 and 1885 forty-three ships loaded at Lockeville taking 16815 m³ (approximately 20 per cent of the total timber export at that time).

The water locks were built later to protect the estuary upstream from the salty water of the sea. Closing the gates at high tide stops the salty water from flowing up the estuary, opening them at low tide allows the drainage water from the land to flow out to sea.

Lockeville was not named after the water locks, but after John Babbage Lock who took up residence here in the 1840s. You can see the grey buildings of the homestead from the road. John later married Mary Layman, daughter of George Layman from Wonnerup House, and it was Mary Lock who sold part of the property to the West Australian Sawmill Company.

## THE BALLAARAT FORMATION AND THE LOST LOAD

Continue along the road for another 2 km, past the Lockeville homestead, toward Wonnerup. Stop at the sign.

From here you should be able to see the raised ground of the old railway on both sides of the road. In the paddock to your left are some old rotting jarrah logs close to the formation. It is said that the engine driver of the Ballaarat, who was trying to break the speed record from Yoganup to Lockeville, lost control of his engine and tipped off a load of logs at about this point. This is not surprising if the words of an old settler can be believed, for he wrote that the Ballaarat had "no brakes on herself, though there was a hand brake on the bunker and more than enough, before Mr. Tumming fitted brakes to her, it was customary to have a pointed log inserted between the engine and the bunker, to check her speed". Whatever the cause, the logs were not recovered and their remnants can be seen here, one hundred years later.

Travel along the road, past Wonnerup House, into the Forests Department picnic

Wonnerup House was one of the first houses in the area, built by George Layman. George was later killed by an Aborigine after an argument about flour rations.

The homestead is now managed by the National Trust, and is well worth a tour. At present, opening times are from 12 noon to 4 p.m. daily, except Friday. There is a small admission charge.

A demonstration saw-pit has been constructed close to the picnic area, to show how the local timber was sawn in the early days of settlement. There are still old saw-pits that can be seen within the tuart forest, but most of these have caved in due to the sandy nature of the soil and are now only depressions in the land.

The saw-pit is located a short distance into the forest. Routered signs will guide you from the picnic area to the saw-pit.

## THE BALLAARAT FORMATION

Continue along the road to Bussell Highway and turn left. Pause at the tour marker approximately 1.2 km from the intersection.

Again you should see signs of the old formation on both sides of the road. To the right a railway memorial stands on the original line where it links with the modern line to Nannup, built on top of the old formation.

The old line ran across where the highway now stands and continued on towards the coast.

# STOP

About 2.3 km further up the highway, pull in at the Simpson picnic site.

Tuart (Eucalyptus gomphocephala) forms an open forest. Although this forest type occurs

River in the south, to Moore River in the north, it is here at Ludlow that the forest is at its prime.

Before white settlement, aborigines were attracted to this area by the abundance of game. Bunbury, an early explorer of the area, wrote that the "Open country . . . from Capel to beyond the Vasse swarmed with kangaroo", and John Bussell spoke of "Native paths which traversed these lawns in every direction" and of "the natives being so very numerous on the Sabina".

The early colonists also found the parklike appearance attractive, being ideal for grazing stock, with trees that could be felled for timber. But, as they settled, the tuart forest began gradually to decline. Their domestic stock kept the grass down, the lowering of fuels brought cooler fires, and those seedlings that germinated and survived the competition with the grass were eaten by the stock.

By the beginning of this century the government purchased back part of the tuart area, but cutting within the forest was largely uncontrolled until 1918 when the Forests Department was set up to manage state forests. Cutting continued, but young tuart trees did not come up to replace the old ones, and the tuart forest continued to decline. The Forests Department started planting pines in the '20s to replace the diminishing tuart resources, and planting continued to the '70s. But tuart was left among the pines in most of the plantations so that when research was successful in finding ways to regenerate the tuart, the pines were slowly replaced by them.

Methods used to regenerate tuart are quite simple. Some trees bearing seed are left to act as a seed source. The peppermint that grows beneath the tuart is bulldozed over to form fuel for the fire. A hot fire is burnt through this fuel bed, hot enough to kill the grass. The seed that falls on to the ashbed after the fire, germinates and grows without competition from the grasses.

The tuart forest is now largely managed for its scientific value, recreation and amenity.

others you may have passed, have been provided for the public by the Forests Department. These facilities and walk trails are used by hundreds of forest visitors each year.

# YOGANUP

Travel northward and turn east on to Ludlow Hithergreen Road opposite Ludlow Forests Department settlement. Travel toward Ruabon for about 6 km, crossing the first railway line soon after leaving the highway. Just before the second crossing, turn left where the signpost points to Tutunup. Continue along this road for another 8 km, following close to the line. The road then veers to the left. At this point cross the line and follow the track for about 2 km.

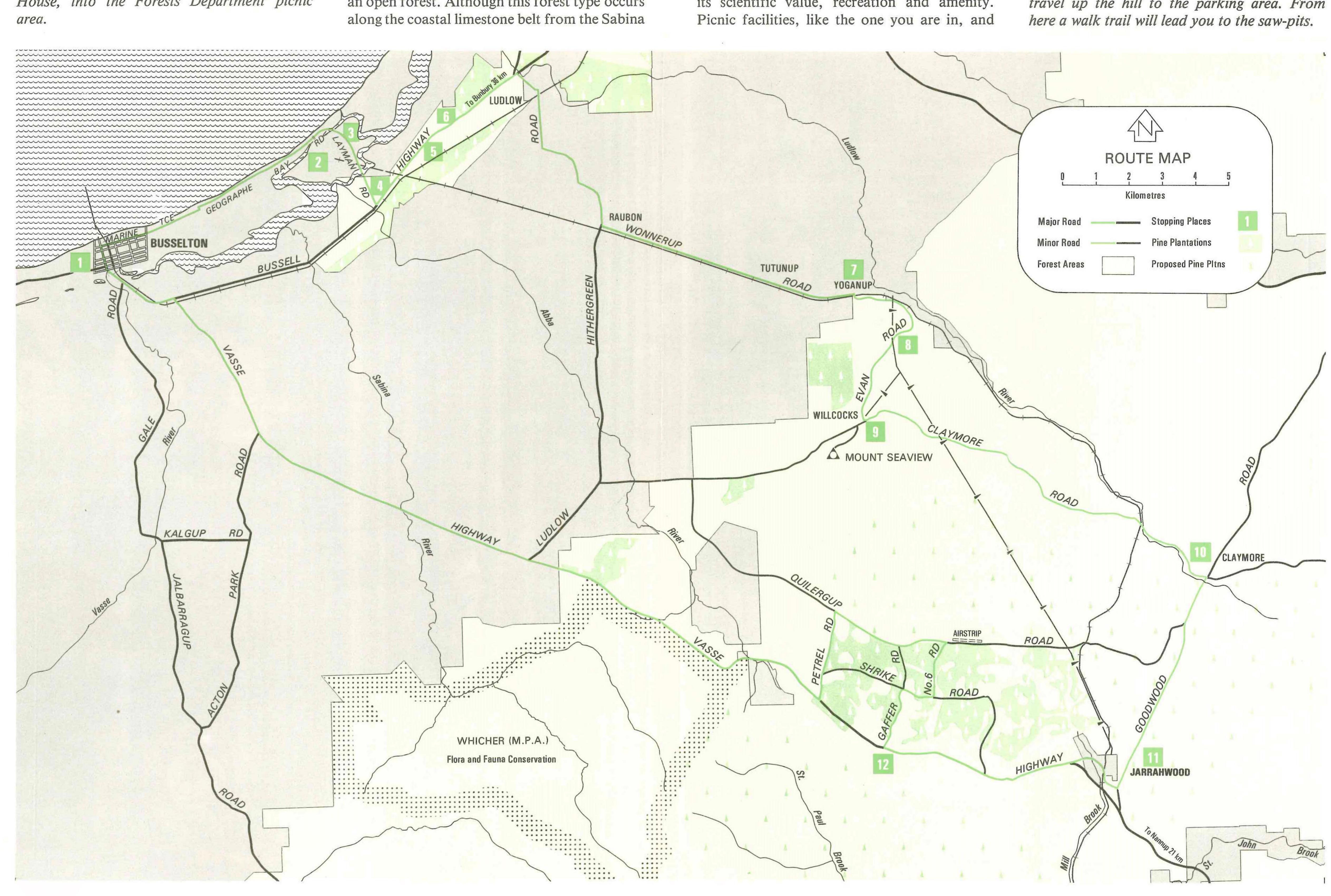
This section of the tour takes you first through the tuart forest, then alongside the old formation used by the Ballaarat, which now supports the present line to Nannup, into the jarrah torest.

Stop 7 marks the termination of the first rail line at Yoganup. It was from this area that the first logs were extracted for export, during the early days of the colony. The line was later extended to Maryvale, deeper into the forest.

Later Yoganup became the site of a sleeper camp that specialised in cutting sleepers for the then privately owned line. The remnants of the old houses and a grape vine are still visible. The mill was located further along, where the road forks.

## JARRAH SAW-PITS

Take the right fork of the road on to Evans Road. Travel along this road for about 1 km until you reach the power line. Turn left and travel up the hill to the parking area. From



that the timber when cut, was already partly dried. This made the logs lighter, and easier to handle.

On your way back to the car park find the old stumps of the Ballaarat days.

## 9 WILLCOCK SETTLEMENT

Turn left back on to Evans Road and drive for approximately 2.5 km.

In the 1950s there was a scheme here to convert areas of low productive eucalypt forest to pine. The attempt failed as the plantation was planted on upland sites, prone to drought stress and this coupled with nutrition problems resulted in low growth rates and a high mortality. However, sufficient well-grown pines survived to justify the belief that given proper site selection, preparation and fertiliser treatment, radiata pine (*Pinus radiata*) could be grown successfully.

Stop 9 is the Willcocks Forest Settlement which housed the forest workers at that time. The forest office stood at the other side of Goodwood Road, close to the red flowering gum.

# 10 CLAYMORE

Turn left into Claymore Road. Continue along Claymore Road for 12.5 km.

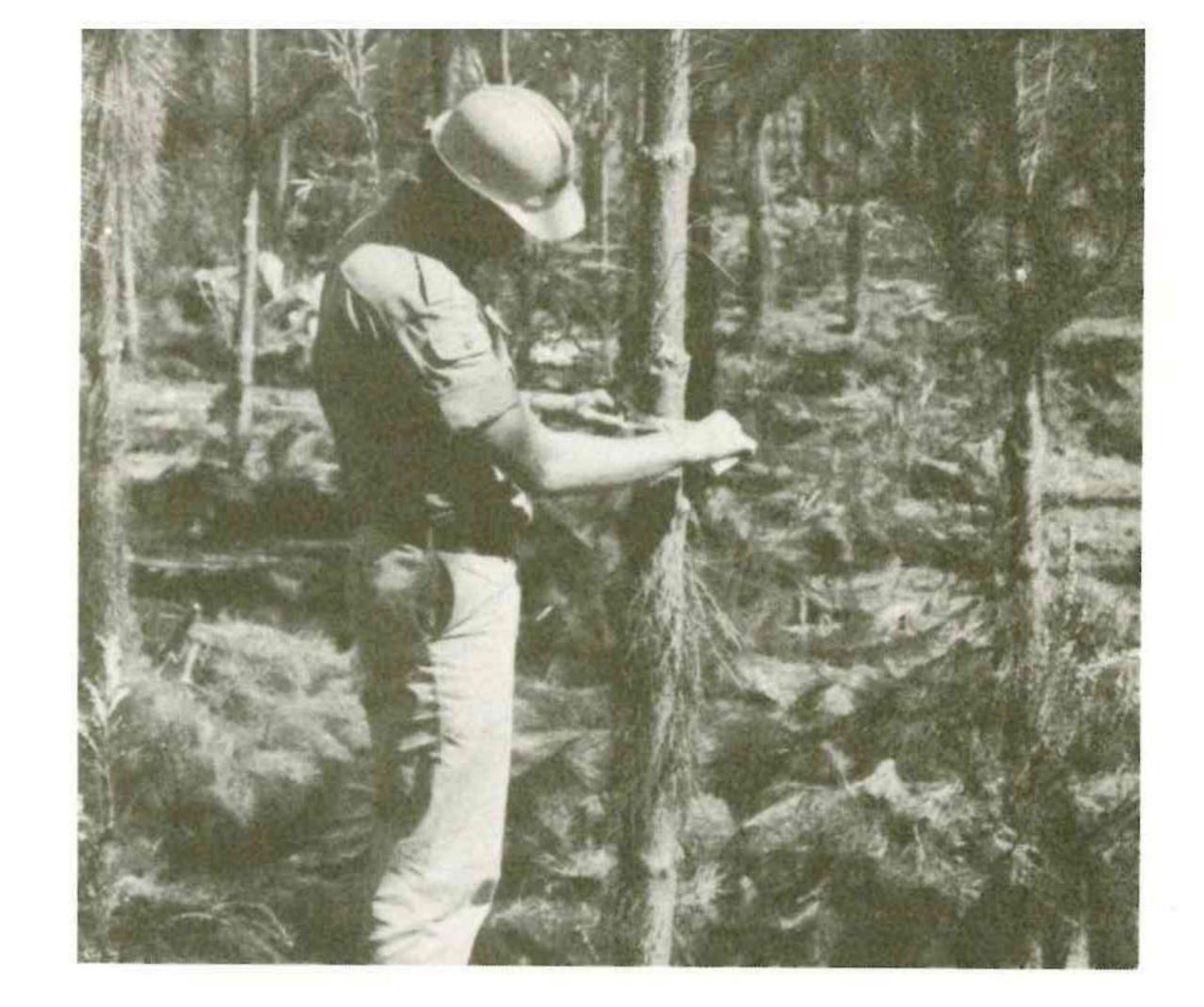
The route passes through jarrah forest, much of which has been infected by dieback fungus (*Phytophthora cinnamomi*). This fungus is soil borne, and attacks the fine feeder roots of the tree, thus starving the tree of nutrients and water. If you look at the tops of the trees as you drive past you will notice that some look very unhealthy and some are dead, particularly around No. 6 Road.

The dieback fungus is spread by the movement of soil and it is probable that its spread has accelerated rapidly with the advent of trucks and cars and the expansion of roading. The Forests Department is trying to reduce the spread of the disease by closing off healthy areas from traffic, by "quarantine" and by marking out healthy and infected areas on roadways with yellow and green pegs, so that dirt from infected areas is not pushed by graders into healthy areas. You may notice some of these pegs on the roadside as you travel through the forest.

About 12 km along Claymore Road on the right hand side is a weir constructed by the Forests Department. The weir measures the amount of water flowing in this stream and is part of an intensive research programme that is being carried out into water quality and quantity in this area.

Stop 10 is on the site of Claymore Mill, built in 1919 and opened in 1920 by Swan Saw Mills. The mill was built from material salvaged from the Lowden Mill, 16 km east of Donnybrook. Over sixty men were employed at the mill, not including the sleeper cutters working in the surrounding forest. The mill town boasted thirty or forty houses and single men's quarters, and a railway formation which linked on to the government line running to Jarrahwood.

In 1929 the main shaft of the mill broke and as it was too expensive to fix, mill operations closed down. The settlement stayed until 1939 and the men commuted to a nearby mill. The remnants and shafts of the mill are still visible, as are the railway formations and the ruins of the old houses.



# 11 JARRAHWOOD MILL

Turn right on to Goodwood Road and travel for about 7 km. Turn right at the signpost to Jarrahwood.

The first mill at Jarrahwood was built around the turn of the century, when the Jarrahwood and Sawmills Company bought out the West Australian Sawmills Company and the rail formation was extended from Maryvale to Jarrahwood. In 1902 the Jarrahwood and Sawmills Company amalgamated with seven other sawmills to form the Millars Karri and Jarrah Company, based in London. This was an effort by the sawmill companies to stop over competition and price cutting, and Teesdale Smith, the instigator of the merger, was made the managing director. In 1907 the government took over the line from Wonnerup to Jarrahwood.

In the early part of the century, when transport links were primitive and travel was restricted to the privileged few, residents of mill towns such as this, had to make their own entertainment. The selling of liquor was frowned upon by mill managers, who had virtually full control over the employee's life, and sport and outdoor activities were encouraged. Jarrahwood, in its heyday, supported a post office, a store, a butcher and a school. Sports played included tennis, badminton, football, cricket and baseball.

Jarrahwood now is smaller than it used to be. The original mill burnt down in 1950 and was replaced. The boarding houses vanished and many mill workers commute to Jarrahwood from other towns.

# 12 WASH DOWN STATION

Follow the tour signs back to the highway and turn right. Travel down the highway for about 7.3 km until you reach Gaffer Road. Then turn right into Gaffer Road.

Again as you travel along the Vasse Highway you will see signs of unhealthy or dead jarrah trees and banksias, and you may notice the green and yellow pegs along the road used to map dieback (see Stop 10).

Soon after turning into Gaffer Road notice the trees planted to the left of the road. This species, red mahogany (*E. resinifera*), is resistant to the dieback disease and is planted here on a reclaimed gravel pit.

Stop 12 is on the site of a washdown station. On this ramp the soil is washed from earthmoving vehicles such as graders, dozers and trucks before they are moved from a dieback infected site to healthy areas. The washdown station was sited within an infected valley so that the soil washed from vehicles could do no further damage. Notice the dead trees downstream from the road.

From Stop 12 travel slowly down Gaffer Road for 2 km, turn right into Shrike Road and left at No. 6 Road. Turn left at Quildergup Road, then left at Petrel Road on to the highway.

Most of the tour until now has dealt with the past history of the Sunkland forest. The next part of the tour will deal with the pine planting scheme already initiated, which will mould the future of this forest area. Unless stated otherwise, all pines that you will pass in this part of the tour are of the one species, radiata pine.

Radiata originated on the Monterey Peninsula in California. It was introduced into Australia and was planted with other introduced species in arboreta (tree farms). Radiata pine excelled. In most cases it was shown to grow faster than other introduced species and much faster than the native species. The quality of its wood made it suitable for a wide range of products from structural timbers to joinery.

In this area radiata grows successfully, but only on the deeper soils, and pine planting is restricted to these soil types. As the soils vary quite markedly in depth over quite small distances, rarely is there a wide expanse of pine which is not interspersed with areas of native bush.

When an area has been chosen as suitable for planting, the forest is cut and all suitable wood is sold. No merchantable wood is left to waste. After logging is finished, logging slash is piled into heaps and burnt. The soil is ploughed and mounded, and pines are planted on top of the mounds to stop them becoming waterlogged. Fertilisers are applied at the time of planting and during the pines' early life to make up for the nutrient deficiencies in the soil.

As you go down Gaffer Road you will notice an area of jarrah forest to the right and to the left there is an area that was planted with pines in 1978. The pines are still quite young. Notice the areas of native bush left on the shallow soil types within the pine area. Notice also the mounds on which the pines have been planted.

Shrike Road first passes through native forest on an upland site, then down through more pines. The pines on the right were planted in 1978 (same as on Gaffer Road), while the pines on the left are two years older. On the corner there is a plot of older pines planted in 1971.

It is of interest that many more pine trees are planted than those that will be the final crop trees. This ensures that even if some trees die, there will be enough left to maximise the timber yield on the area. It also affects the way the trees grow. Trees growing close together grow straight and tall, with small branches, while those growing further apart spread out with large branches. As the branches affect the quality of the timber by causing knot holes in the sawn boards, the smaller the branches are, the better. Growing the trees close together improves the form of the tree (from a timber viewpoint). But if the trees grow too close together they compete with each other for the available nutrients, water and light, and can stunt each others growth. It is necessary to strike the right balance.

After much experimentation a spacing of 2.5 by 3.5 m was chosen (1100 trees a hectare). When the trees reach five years old they are given their first pruning to 2 m (all branches below 2 m are cut from the stem). Later the trees are thinned out to give older trees a larger spacing to promote growth, and they may be

pruned up to 5 m. As you continue along the route you will see pines that have been thinned and/or pruned.

No. 6 Road continues to run along the edge of the 1976 planting. Wildflowers grow beneath the pines. On the right hand side of the road you can see a band of native forest. This is a reserve which has been left alongside the stream to protect the stream water and provide a refuge for birds and animals. These reserves will be subject to burning during the clearing operations in adjacent areas, but will quickly recover. They will not be burnt again until the neighbouring pines mature in about thirty years. In some of the stream reserves the burning will encourage regeneration of bullich (*E. megacarpa*), a tree that strongly resembles karri with its smooth, grey bark.

Further along the road, and to the right is a gauging station on this stream that measures the flow of water. (For further explanation see Stop 10.)

About 1 km up No. 6 Road you will pass through a gate into some grazing trials. These are part of the intensive pine research programme that has preceded and accompanied the pine planting scheme. It is hoped that agriculture and forestry practices can be combined in some plantation cells, to mutual advantage. Grazing animals in pine plantations would make available more grazing area for farmers, while it benefits the forester by reducing the fire hazard. This project is still in the experimental stages. Just past the grazing trials are some more experimental plots designed to find out how pines respond to various fertilisers.

There is an airstrip at the intersection of No. 6 Road and Quilergup Road. This airstrip is used for aerial fertilising the pines. It is also used in the fire protection programme for the pine plantations.

Quilergup and Petrel Roads continue to follow the edge of the pine planting. The first pines you travel past were planted in 1975, the second in 1976, the third in 1977 and as you reach the end of Petrel Road you will pass beside pines planted in 1978. Interspersed within these areas are a mosaic of unplanted forest thickets, which have been left as the soils are unsuitable for pines.

Notice the small dams within the pine areas. These are water points for fire fighting in case of a wildfire. As the pines are a very costly and valuable resource it is important to protect them against wildfires. If you look carefully at the banks around these water points you may see the tracks of kangaroos and other animals which come down to drink.

Back on the Vasse Highway are some older experimental plots that were established on sites severely affected by dieback disease. The soils are the same as those you have already passed, the deep sands that are best suited to pines. On the right is a large trial of pinaster, or maritime, pine (*P. pinaster*) planted in 1966 and 1968, and a smaller patch of eucalypts. Opposite is a 1972 planting of radiata, a species that you have already seen much of on the tour.

Turn back up the highway towards Busselton and the end of the tour.

We trust that you have enjoyed Route 4 and invite your comments on the practicality of the tour, and your questions about proposals for management of this large tract of forest. More publications dealing with the pine planting scheme are available from the Forests Department.



