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Pemberton Forests Drive Route 1

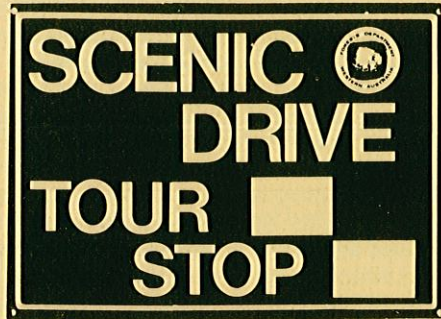


Pemberton Forests Scenic Tour

This self guiding tour provides an introduction to the beautiful karri, marri and jarrah forests in the Pemberton area.

The tour layout and suggested stopping places are marked on the accompanying route map. These stopping places and roads are clearly signposted on the ground.

Stopping Place Signs look like this: -



Tour Directional Signs look like this: -



Remember that there is an extensive network of roads in the forest. Many roads may not be signposted nor be suitable for conventional vehicles, especially in wet weather. For this reason it is suggested that you keep to the directional route.

Depending on how long you stop at each point, the tour should take about five or six hours. It is designed so that you return to Pemberton at the half way mark. This could be a good place to break the trip for refreshments. An alternative lunch stop is at Big Brook Aboretum (stop 13) where there are picnic and barbecue facilities. There are also picnic areas at many of the other stops.

Enjoy your day but please be careful with fire.

STOPPING PLACE 1. Pemberton Sawmill

The Pemberton Sawmill can be seen behind the Tourist Bureau.

This mill is the second largest in the State and produces about 140m³ of sawn karri timber each day - enough to build about ten average size brick veneer houses. The first Pemberton mill was built on this site in 1913 by the State Government. Its purpose was to cut railway sleepers for the Trans-Australia line and to remove trees which were seen at the time to be a hindrance to land settlement. The mill has been in continuous production since then, but has changed hands and been rebuilt over the years. Most of the timber produced now is used in the building trade but there is also a demand for large size beams not readily available elsewhere in the world.

These days the mill draws its logs from a Sawmilling License Area allocated to it by the Forests Department in surrounding State forest. The License Area is carefully managed to provide long term life to the milling industry and the community through regulation of the cutting of the forests and regeneration of cut over areas.

STOPPING PLACE 2. The Cascades

Drive along the main road to Northcliffe for about 5 kms. Turn left at Glauders Road and follow the signs to the "Cascades."

This is one of the most beautiful and popular recreation areas near Pemberton. The name "Cascades" is derived from the series of waterfalls which occur on the Lefroy Brook here.

The Cascades was developed as a recreation area by the Forests Department in the early 1970's. However, it was well known many years before then. Early settlers, cattlemen and mapmakers used it as a "trig point" (a tie-in point for survey lines) and as a crossing of the Lefroy Brook. In the 1930s, the railway line which traverses the area was built. This line was built to link the Group Settlement farming area at Northcliffe with the town of Pemberton and points further north. For nearly thirty years after its

construction, the Pemberton-Northcliffe railway line was easily the most expensive built in W.A., as it traversed such heavy forest and broken topography. For the first 10 km out of Pemberton the line at no point lies upon the natural land surface - it crosses either a bridge, or cutting or a fill.

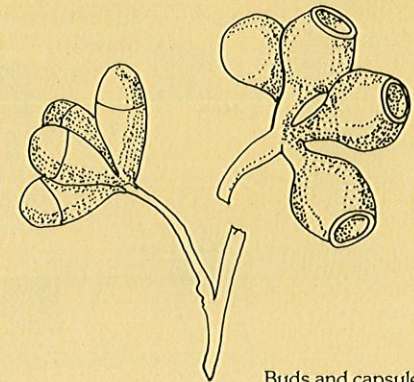
The Cascades is now part of a 900 ha State forest recreation area, managed to preserve its natural character and charm. Its full beauty can be seen by walking the 1 km long loop trail. Various natural features along this walk trail are highlighted and explained in small interpretative signs.

STOPPING PLACE 3. Brockman State Forest

Leave the Cascades by the same route as you entered. Turn left when you reach the bitumen Pemberton-Northcliffe road. You are now entering part of the Brockman State Forest.

At this point you can examine and compare the two major tree species in the Pemberton area: karri and marri. Specimens of each type of tree are labelled at this stopping place.

Karri (*Eucalyptus diversicolor*) is the large tree with pale, smooth bark. The colour of karri bark changes periodically as old bark is shed each year, usually in late summer or early autumn. Karri is the main timber tree of the district.

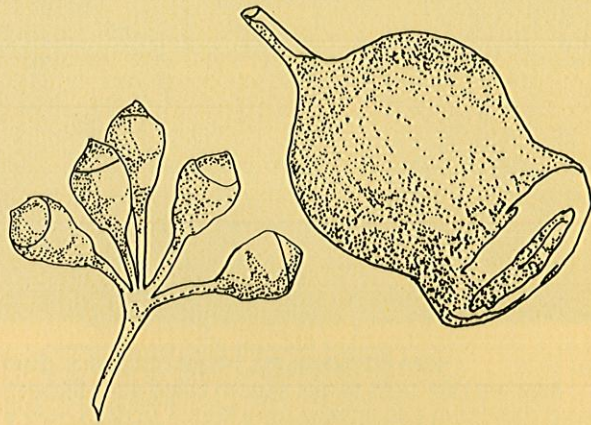


Buds and capsule of karri (*Eucalyptus diversicolor*)

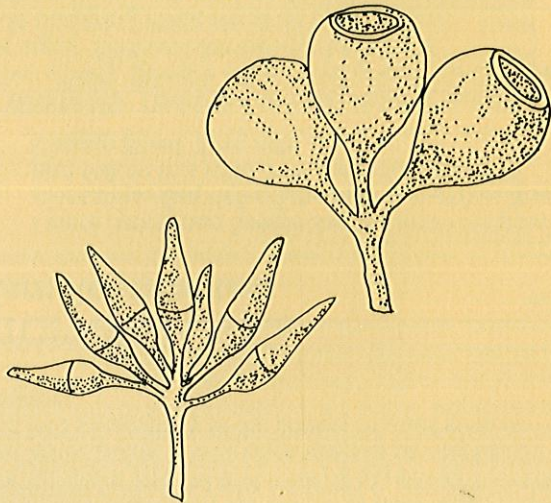
Marri (*E. calophylla*) is also a large tree, usually with a rough, blackened or dark grey bark. Marri is sometimes known as "red gum" because of the red kino or "gum" which is exuded from the wood and bark. The marri fruit is very distinctive being a large bell-shaped woody structure, known locally as a "honkey nut."

Marri timber is tough and strong, but the prevalence of gum veins and loose rings in the log has inhibited its use as a sawn timber. The main use of marri timber is for paper pulp.

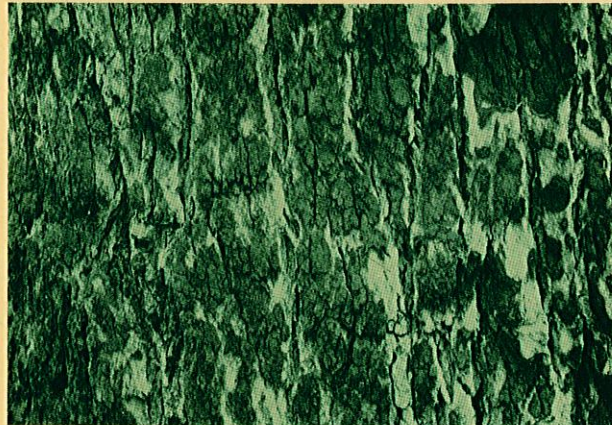
Both marri and karri blossom produce magnificent honey.



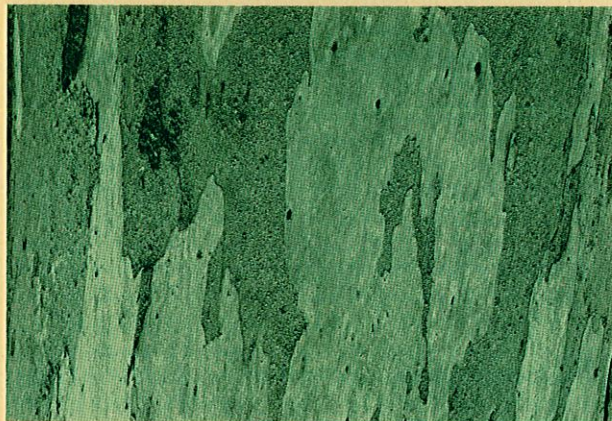
Buds and capsules of Marri (*Eucalyptus calophylla*) above, and jarrah (*E. marginata*) below.



Bark types:
Jarrah



Marri



Karri

STOPPING PLACE 4. The Warren River and Brockman Homestead

Leave Brockman State Forest and continue along the main road towards Northcliffe, the Warren River Crossing is the next stopping point.

The Warren River is one of the best known rivers of Western Australia. It rises a few kilometres west of Kojonup in farmland, enters State forest north-east of Manjimup and eventually reaches the Southern Ocean some 30 kms south-west of Pemberton. Including its main tributary, the Tone River, the total river length is over 200km. The Warren flows permanently and has the largest summer flow of any river in the lower South-West. The upper reaches of the river, where catchment areas have been cleared of their forest for farming, have become salty in recent years, but the lower tributaries which draw their water from the forested catchments (Leftroy Brook, Treën Brook, Big Brook, Big Hill Brook and Dombakup Brook) contain pure water suitable for any purpose. The maintenance of pure water catchments is one of the most vital roles of State forests in Western Australia.

The Brockman farm and homestead on the banks of the Warren River at this point is of historical interest, Edward Brockman settled here in the early 1860s, the first settler in the Pemberton district. The house he built from locally made mud-brick and pit-sawn timber (cut by convict labour from nearby forests) still stands today and can be seen through the trees to the left of the road. Note the original post and rail fences and stockyards still standing and over 120 years old.

The house is not open for inspection, but further information on the Brockmans and this settlement is available from the Pemberton Tourist Bureau and Pioneer Museum.

STOPPING PLACE 5. Brockman National Park

After crossing the Warren River, continue along the main road towards Northcliffe.

The route now enters a magnificent stand of virgin karri forest. This small reserve is Brockman National Park and is one of several forest reserves in the district which are managed by the National Parks Authority.

Over 4,000 ha of these virgin forest reserves have been set aside in the Pemberton area alone. In

addition, there are numerous areas of virgin State forest which have also been reserved from timber harvest because of their special beauty or interest. About one third of the karri forest has been set aside to be retained as near as possible to its natural state.

The "Bibbulmun Track" crosses through the Brockman National Park at this point. The Bibbulmun Track is a long distance walk trail which extends through almost the entire length of Western Australia's forest belt – from Kalamunda just east of Perth, to Northcliffe. This special walking trail was developed specifically for the hardy bushwalker who seeks the solitude and challenge of the forest. A network of shorter walk trails have also been constructed in the Pemberton forests. Information about these can be obtained from the Forests Department office or Tourist Bureau.

STOPPING PLACE 6. Pine Plantation, Allis Road

As you leave the Brockman National Park reserve note the rapid change in appearance and nature of the forests on either side of the road. Within the space of only 1 km, the forest changes from stately karri and marri to low stunted jarrah and banksia bush. This change in "forest type" is caused by a distinct change in the underlying soils. The tallest and most rapidly growing forests always grow on the best soil types. Thus, karri usually occurs on well-drained red-brown loamy soils, but where the soil is white sand, or rocky "ironstone" gravel, the forest will usually be jarrah. Trees such as jarrah and banksia can grow quite readily on very impoverished or stony soils.

The small pine plantation in this area is quite interesting. It is an experimental plot designed to test the suitability of a number of different species of pine to grow on this poor, sandy site. The predominant species are maritime pine (*Pinus pinaster*) from Portugal, and slash and loblolly pines (*Pinus elliotii* and *Pinus taeda*) from the south-east of the U.S.A. The pines were planted in 1968 and 1969.

Foresters undertake experimental pine plantings because W.A. has no natural softwood (pine) forests and unless we grow our own, softwood timbers must be imported. The experimental plots are used to help select the pine species which will grow best on a particular soil type and produces a useful timber. From the evidence of trial plantings such as these, both successful and unsuccessful large plantations of *Pinus radiata* and *Pinus pinaster* have been established in various centres in the South-West. The timber of these fast growing softwoods is being used

to supplement stocks of slower growing native hardwood trees, thereby helping to relieve demands on the hardwood resources.

It is of historical interest that this small plantation is established on the site of a former farm, known as "Connolly's." Mr. Connolly and his sons attempted to settle in this area just before World War I, attracted by the high rainfall and relatively easy clearing. The venture failed, however, mainly due to the infertility of the soil and swampiness of the ground. The remnants of the old camp, with its hewn timber and round posts still stand beyond the older pines around the big bend in the bitumen road towards Northcliffe.

STOPPING PLACE 7. Brockman Sawpit

Continue towards Northcliffe for about 400 m until you reach Rowe Road on the left. Turn here and follow the signs to the Brockman Sawpit.

Information pamphlets about the sawpit are available from the dispenser at the site, or from the Pemberton Tourist Bureau or Forests Department.

Notice the many beautiful young jarrah *Eucalyptus marginata* trees amongst the marri in this area. Several trees are labelled. The jarrah has grey, stringy bark often blackened by past fires near the bottom of the tree. The fruit is small and round – about the size and shape of a large pea.

Jarrah grows in magnificent forests throughout the south-west of the State. The original forest has been depleted by clearing for farms, roads and mining. Some areas have also been affected by a root rotting disease called "jarrah dieback" (*Phytophthora cinnamomi*). The root-rot fungus is thought to have been introduced into W.A. on the roots of fruit trees brought into the state early in the century. Hygiene and quarantine controls have been implemented to help minimise further spread of the disease.



Jarrah timber is one of the finest and most versatile hardwood timbers in the world. Its uses range from fine furniture and cabinet making to railway sleepers and fence posts. It was once used as paving blocks and laid extensively in the streets of cities such as London.

STOPPING PLACE 8. Karri Regeneration

Leave Brockman Sawpit and return to the pine plantation. Turn left off the highway at Allis Road and follow this road over the logging road to Callcup Road. Turn right.

WARNING. These are narrow, winding forest tracks. Drive slowly, beware of on-coming traffic and follow the signs. All roads are clearly signposted.

At Stopping Place No. 8 an area of karri regeneration is situated on the left hand side of Callcup Road. This is an area where mature karri trees have been harvested for sawmilling at Pemberton and a new crop of young karri established to replace them. Cutting took place on this site in 1971 and the new crop was established the following year.

When the seed ripens in the crowns of the seed trees (karri trees produce ripe seed only every four to eight years), a hot but controlled fire is run through the scrub and logging debris below. This fire produces a fertile ash bed free of scrub competition and also causes the seed capsules to open and drop their contents two to three days after the burn. The seed trees are then removed. If these trees were retained, their huge crowns and root system would suppress and kill the new seedlings. The seeds germinate with the onset of the next rains and the life of the new karri forest begins.

Some parts of the logged area or "coupe" as it is known, do not revegetate very quickly. These are the tracks used by the logging trucks and the areas where the logs were stacked prior to loading onto the trucks. In these areas the soil is compacted by the logging vehicles and must be ripped (similar to ploughing) before successful germination and growth can occur. They may also be hand planted with young karri trees raised in the Forests Department nursery at West Manjimup.

STOPPING PLACE 10. Warren National Park

Follow Callcup Road back to the main highway. Turn left back towards Pemberton and continue for 4 kms until you reach Old Vasse Road. Turn left and follow the signs to the Warren National Park.

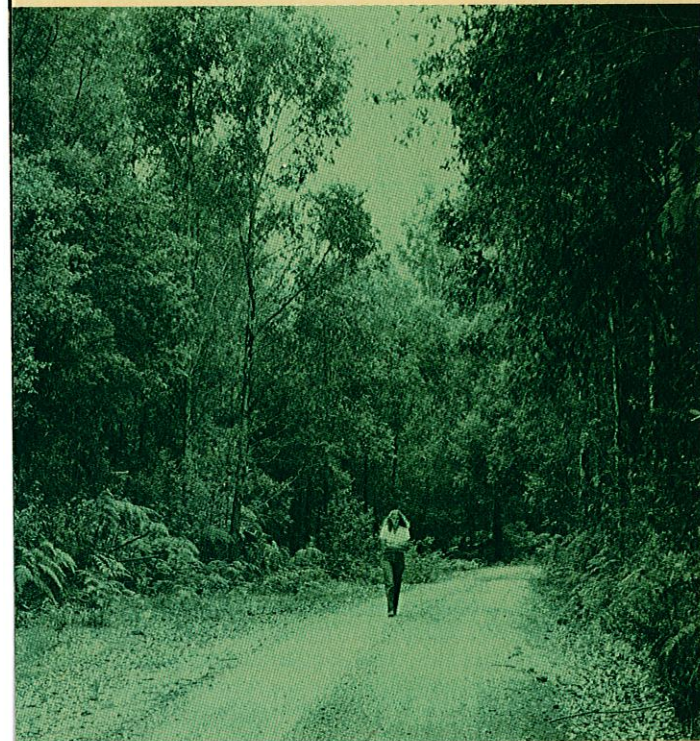
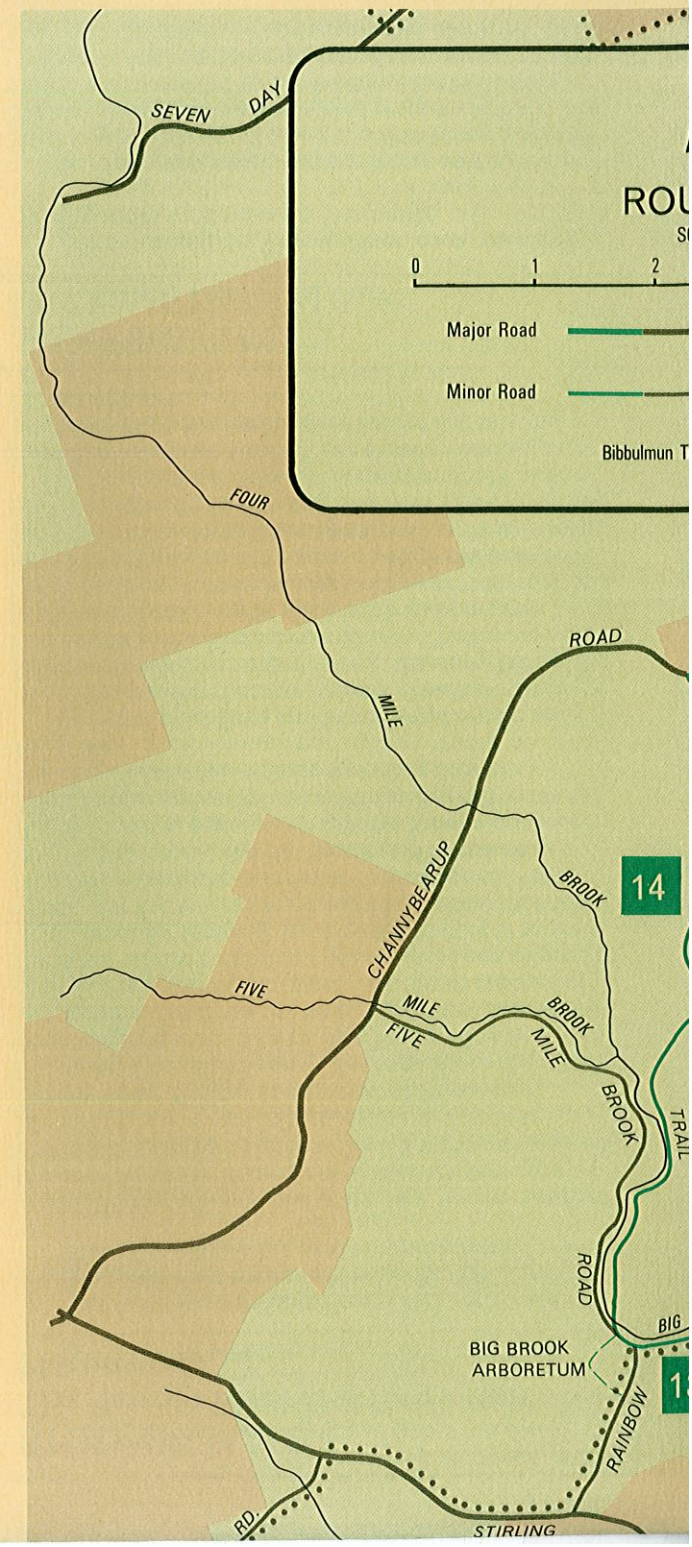
This magnificent forest is part of the Pemberton National Park system. It comprises over 1,000 ha of virgin karri and karri-marri stands together with a superb section of the Warren River.

There are numerous sites for picnicking and barbecuing available in this National Park. It is recommended that you explore the Maidenbush and Heartbreak Trails as these provide some superb views and forest experiences.

STOPPING PLACE 11. Treen Brook State Forest

Continue along Old Vasse Road to the sealed Vasse Highway. Turn right and head back towards Pemberton.

This fine regrowth forest was regenerated following logging operations in the 1930s. You may be interested to compare this beautiful young forest with the sapling regeneration on Callcup Road (Stopping Place No. 8). The Forests Department has



young seedlings grow quickly after germination thrusting up to the open sunlight above. Natural selection occurs and the weaker saplings are soon suppressed and killed by the more dominant ones. The Forests Department utilises this otherwise wasted resource of the weaker saplings. The trees are removed in a thinning operation. Further on in the tour you will see the results of some of the early experimental thinning operations.

STOPPING PLACE 9. Clearfelled Area

Continue along Callcup Road until you reach a recently regenerated area and Stopping Place No. 9.

This area is typical of karri forests which have been clearfelled for timber then regenerated using the "Seed Tree System." In this system, forestry officers walk over each area of forest before logging operations begin and select and mark three to five "seed trees" on each hectare. The seed trees are retained to serve as the parents of the new forest and are chosen for the excellence of their form and the large amount of seed available in their branches. The rest of the trees in the area are cut down and taken to the mills. Trees which are not suitable for sawmilling because of size or quality are used for producing paper pulp.



these areas at the corresponding stage of its life. Careful management and protection ensures the development of attractive and productive regrowth forests like this one.

Karri forests are subject to regular periodic "prescribed burning" once they pass the sapling stage at age 12-15 years. "Prescribed burning" refers to the deliberate, controlled burning of the forest under carefully selected weather conditions. The purpose of prescribed burning is to reduce the accumulations of fuel (bark, leaves and twigs) which gather on the forest floor. This burning reduces the fire hazard, ensuring that if a fire starts in the forest on hot, dry windy days in summer (as often happens, either as a result of lightning, or man's carelessness), it will find little fuel to burn in and therefore cause only a minimum of damage to the forest and neighbouring farms and communities.

Research has shown that plants and animals of the forest are not destroyed by periodic prescribed burning, as might be imagined by looking at a freshly burned area. Most species, in fact, need periodic fire to rejuvenate their habitat. Western Australian forest plants and animals appear to have evolved in an environment in which fire has always been a natural factor.

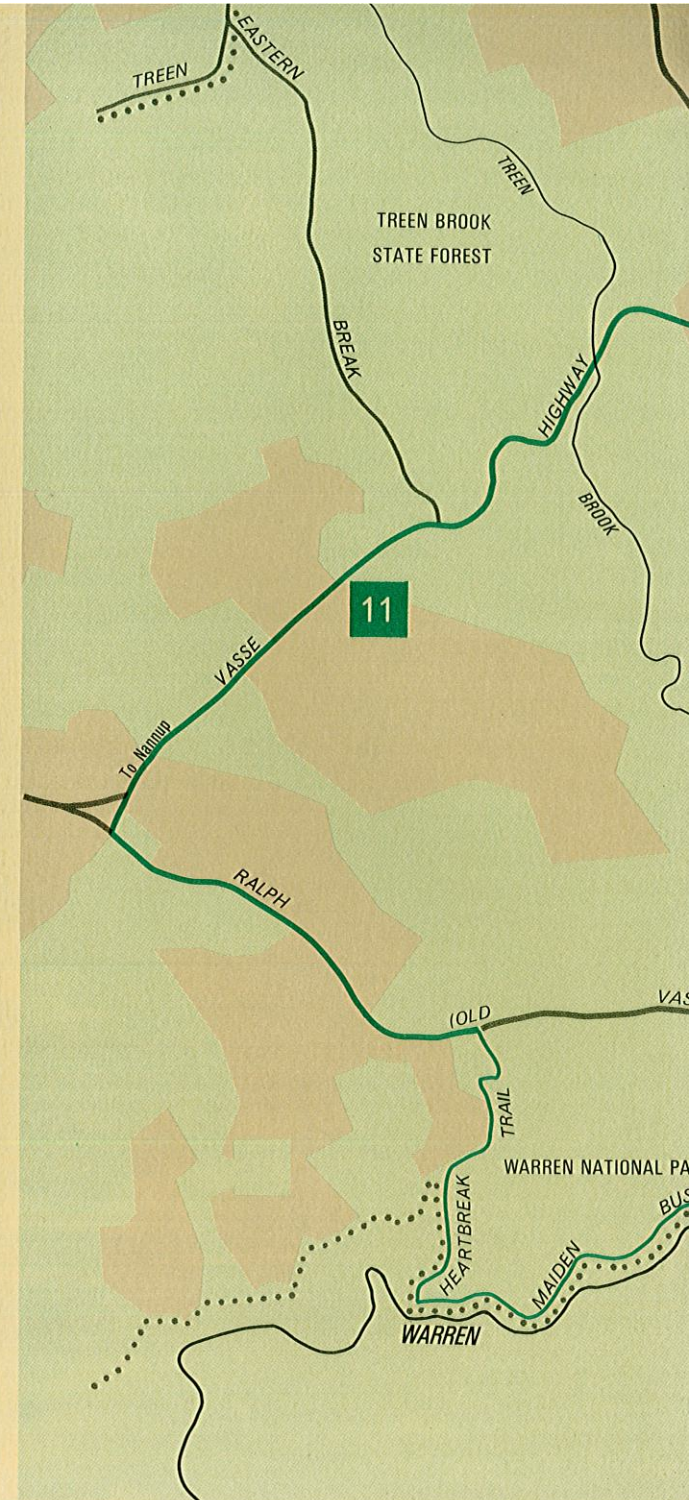
STOPPING PLACE 12. Big Brook Forest and the Rainbow Trail

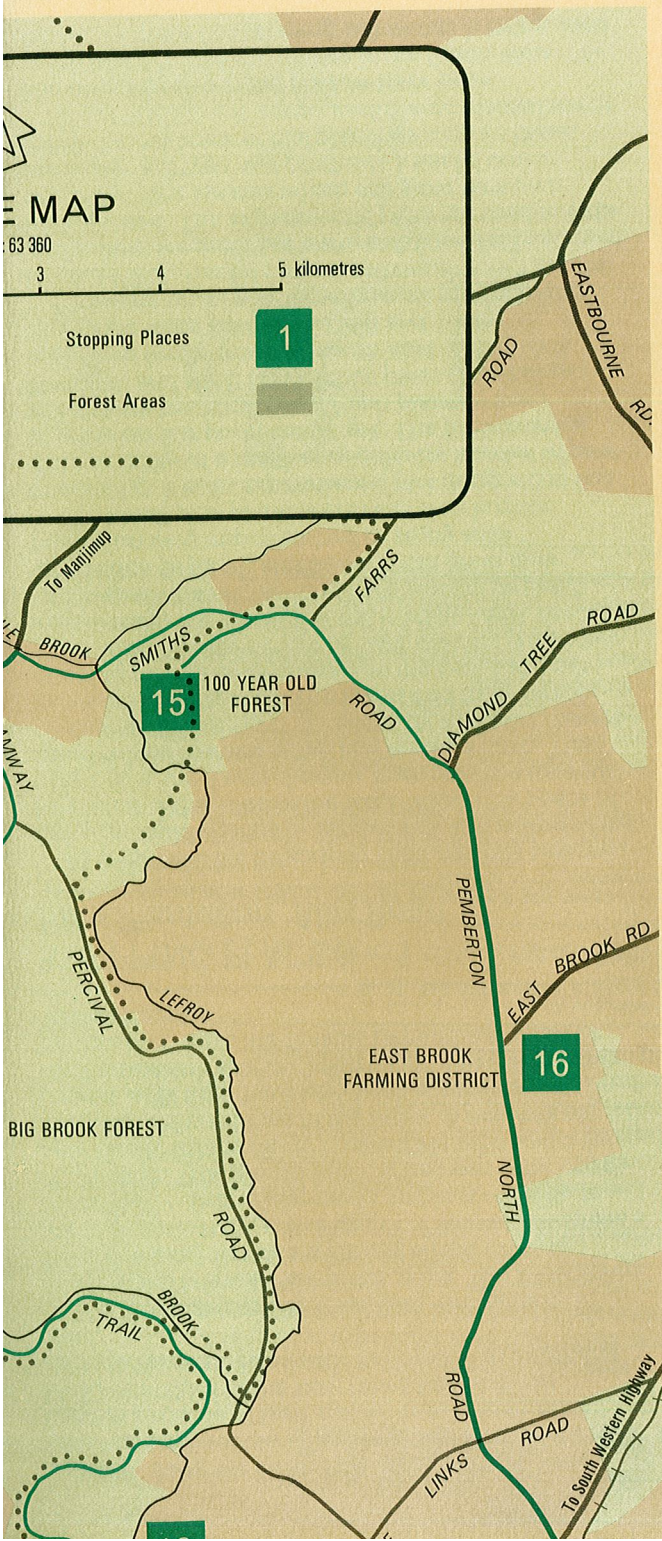
Return to Pemberton along the Vasse Highway. Turn left at the road leading out of town to the Caravan Park and Trout Hatcheries. Follow the signs to the Rainbow Trail.

The Rainbow Trail is a scenic forest drive which follows the route of an old logging tramway used in the 1920s for hauling logs from Big Brook Forest to Pemberton Mill. Lefroy Brook and Big Brook run beside the trail providing pleasing views of pools and rapids.

Following logging, Big Brook Forest was regenerated by the seed tree regeneration system previously described (see Stopping Place 9). The germination year for the new regrowth stand was 1930. Compare this forest with the saplings which started life in 1972 and 1982 along Callcup Road, and with the young regrowth stands which started in 1940 in Treen Brook State Forest.

Big Brook Forest is an excellent example of a "working" multiple use forest, providing fresh water, recreation, plant and wildlife habitat and timber for community needs.





STOPPING PLACE 13. Big Brook Arboretum

Follow the Rainbow Trail to its junction with Tramway Trail. Detour left through Big Brook Arboretum – which is clearly signposted.

The Big Brook Arboretum is an experimental plantation (see notes for Stop 6) established in the early 1930s to test the potential in W.A. of a number of introduced tree species. Species name boards, a signposted walk trail and picnic/barbecue facilities have been provided for your convenience.

The arboretum is growing on the site of a former forest settlement. There were once houses, bush camps and a workmen's boarding house, together with stables, and horse and bullock paddocks in this area. The bush workers who lived here were engaged in the logging operations which occurred in nearby forests during the 1920s. Also of note is that the Duke of Gloucester, then Governor-General of Australia, camped at this spot in 1947 after inspecting foresters at work on a new fire lookout tree near Pemberton. The tower later became known as the Gloucester Tree.

All that remains today to recall the presence of those original inhabitants at Big Brook is a climbing rose bush, the old pine trees and the remnants of a buffalo grass lawn, no doubt lovingly planted by one of the women-folk living in the camp.

STOPPING PLACE 14. Tramway Trail

Continue through the arboretum to House Brook Road. Turn right, then left over the bridge onto Tramway Trail. This track winds through the heart of Big Brook Forest out to Channybearup Road.

Along the Tramway Trail are many fine stands of karri which were established after clearfelling operations of the 1920s. These beautiful young forests are already well over 60 m tall and growing strongly. Some thinning operations have been carried out near route marker 14. These were some of the first thinning experiments to be undertaken in the karri forest.

Thinning removes the smaller trees which would otherwise die through natural competition. By doing this the growth of the remaining trees is promoted. The small diameter thinnings are used for tile battens for roofing, for plywood, and for paper manufacture. Several thinning operations may take place during the life of the forest.

Only one hundred years after Mr. Lefroy's clearing and cultivation, an impressive forest of karri again grows on this site. A hundred years is a short period in forestry terms, so this area is a prime demonstration of the productivity and natural regenerative powers of the karri forest. While it is impossible not to mourn the cutting of the virgin forest, all can take heart from the sight of this regrowth and be sure that similarly regenerated forests will be equally beautiful and useful.

STOPPING PLACE 16. The Eastbrook Farming District

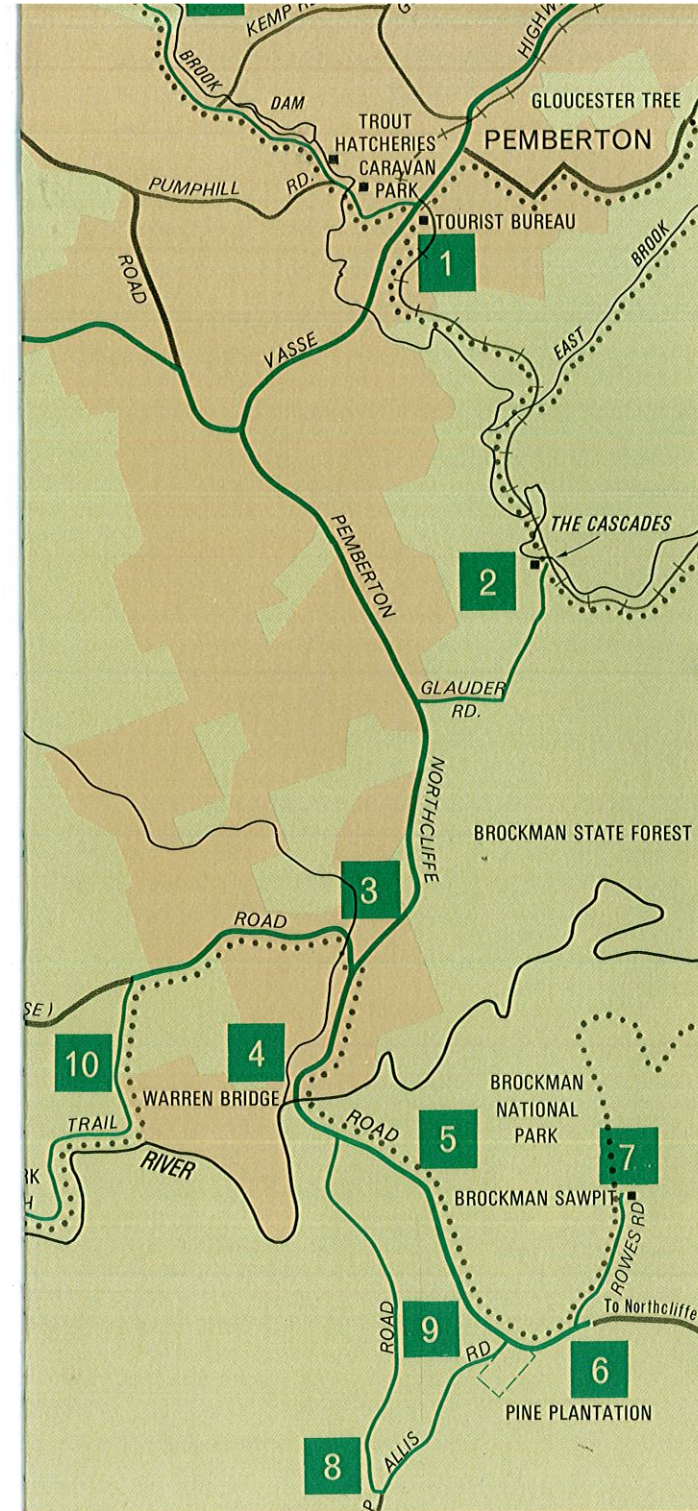
Retrace your path back from the "100 Year" Forest to Ross Smith Road and turn right towards Pemberton. On reaching the bitumen North Pemberton Road, turn right again. This road leads back to the Pemberton townsite and the end of your forest tour.

As you drive through the farmlands along the North Pemberton Road it is interesting to reflect that less than eighty years ago this area was covered by prime karri forests. When the Pemberton sawmill was built in 1913, this area provided the first logs for its saws. A network of timber railways and "whim" tracks (along which bullocks would drag their loads of logs) criss-crossed the hillside as the pioneer bush workers harvested the timber from the forests. By 1920, the area was cut-out and the newly created Forests Department began to plan for regeneration measures to regrow the karri stands.

But their plans were never carried out, for in 1920 the Premier, Sir James Mitchell, started his famous Group Settlement Scheme, a grandiose plan to settle ex-soldiers and British migrants on to dairy farms which the settlers would carve out of the forest lands of the South-West.

And so "The Eastbrook," along with other vast areas of virgin karri forests near Pemberton, Manjimup and Northcliffe (which were also allocated for group settlement), were abruptly excised from the proposed forest estate: and the ringbarking, clearing and fencing began.

As many predicted, the Group Settlement Scheme ran into severe problems from the outset. To begin with, few people had really appreciated the massive problems of clearing the karri forest, for it must be remembered that there were no bulldozers in those days. Everything was done by hand. Roads were few and of poor quality and often impassable to the horse and cart in winter time. Crops failed due to inadequate knowledge of soil nutrition. The settlers themselves frequently were inexperienced farmers, and totally dismayed by the dreadful conditions under which



The Big Brook Karri Forest is a classical demonstration of the "multiple use" concept in forest management which is practised by the W.A. Forests Department. Here one can see the production of pure water (through the protection of forests on the catchments of the Big and Lefroy Brooks), the production of timber (cycles of cutting and regeneration spread over many years), the provision of recreation (through the establishment of scenic drives, picnic areas, interpretative signs and brochures, walking and horse trails) and the promotion of environmental conservation (through the maintenance and protection of native forests and the native plants and animals which inhabit them).

STOPPING PLACE 15. The "100-Year" Forest

At the end of the Tramway Trail, turn right on to the Channybearup Road. Follow this for approximately 1 km and then turn right on to Ross Smith Road and follow the signs to the "100 Year" Forest.

This is a most interesting area both from an historical and forestry context.

Although it may seem hard to imagine, this area on top of the hill was once a small farm. It was selected and cleared by Mr. De'Coursey Lefroy, a member of one of the great Western Australian pioneering families. Lefroy came to the area sometime in the mid-1860s, cleared the mighty virgin karri forest and planted a wheat crop. He built a house nearby and a small water powered flour mill down on the Lefroy Brook (named after him) off Channybearup Road. Only remnants of the stone foundations of the mill exist today, but an excellent photograph of the mill survives and is displayed in the Pemberton Museum. A few crumbling bricks and stones mark the site of Lefroy's cottage.

Lefroy, like other early settlers had incorrectly assumed that the red loamy soil on which the huge karri trees grew was very fertile. In fact, it requires trace elements and superphosphate to make it grow any crop other than karri trees. Lefroy's wheat crop failed and in the early 1870s he abandoned his farm and left the district. Following a fire in 1875, the surrounding karri forest seeded and a new "wheatfield," this time of tiny karri seedlings, germinated.

The site was then forgotten until it was rediscovered by forestry officers on survey work in 1916. By this time the karri regrowth was thirty-one years old; its value was obvious, and the area was subsequently dedicated as State Forest.

they were forced to work and live and the seeming impossibility of ever covering their debts and making a good living. By the early 1930s when the Great Depression struck, hundreds of group settlement farms were abandoned and those who remained either found work at the Pemberton sawmill, or joined logging gangs in the bush; others merely subsisted on the farm, living on what they could grow for themselves.

Many hearts and backs were broken in the early days of group settlement in the karri forest. Only the toughest and most resilient survived.

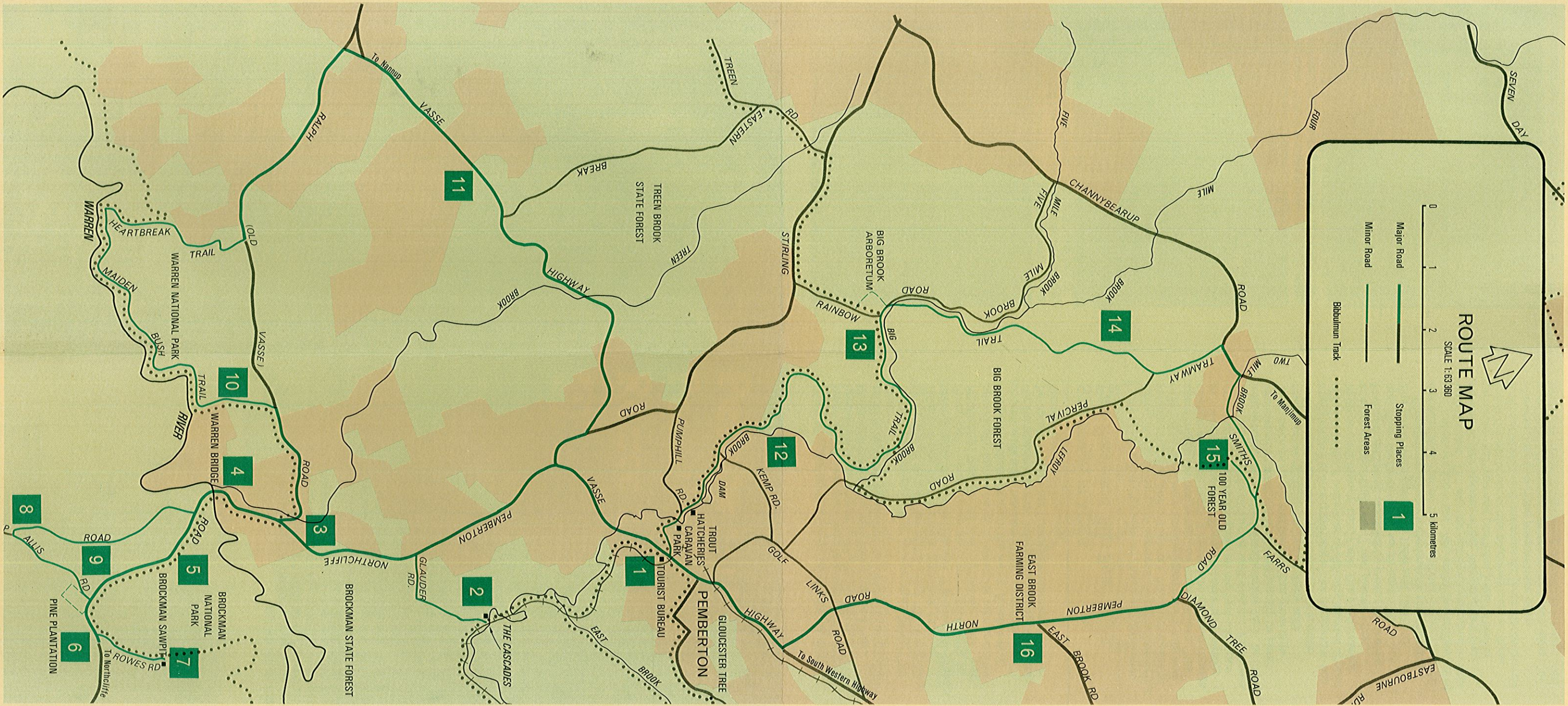
The prosperous picture these rural areas present today is in stark contrast to the gloomy days of the 1920s and 1930s. After World War II a perceptible change came over the scene. Bulldozers and gelignite became available. More hardworking migrant families from southern Europe took up the old blocks and began to transform them with their boundless energy. On the older, established blocks a new generation of sons and daughters were now working the land. Potato farming grew in importance, carefully regulated by a marketing board, which saw to it that growers far distant from the Perth market were ensured of sales and good returns for their produce. As well, the gradual change-over from dairying to beef production revitalised the farming community.

Today the Eastbrook area is one of the most prosperous and productive farming areas in the district. Only a few remnant karri trees along the road verges and ringbarked stags in the paddocks remain to remind one of the towering forests which once blanketed the area. It is instructive for forester and tourist alike to view this scene and then reflect back on the forest areas seen earlier on this tour. The remaining forests represent one of the great resources of our State and only if they are carefully husbanded will they continue for ever to produce those things which only forests can produce: pure water, timber, bush recreation and preservation of our heritage of native plants and animals.

This is the job and challenge facing today's foresters.

Further Reading

The Forests Department has produced many publications which describe and explain different aspects of forests and forestry operations in Western Australia. Most of these are available free from Forests Department offices and tourist bureaux. Others about more specific issues are available for a small price. These include, "Conservation of the Karri Forest," "Guide to the Bibbulmun Bushwalking Track" and "Forest Fire Management in Western Australia."



ROUTE MAP

SCALE 1:63 360

0 1 2 3 4 5 kilometres

Major Road

Minor Road

1

Stopping Places

Forest Areas

Bibbulmun Track