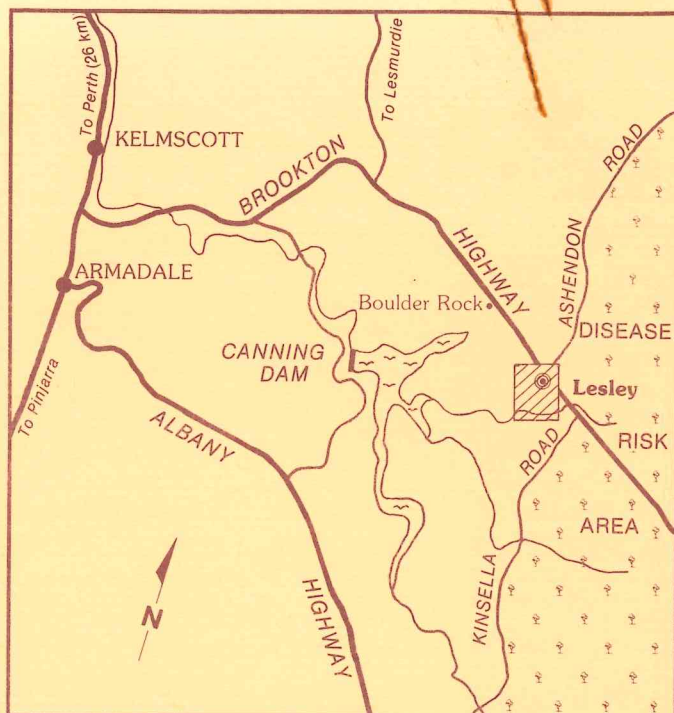


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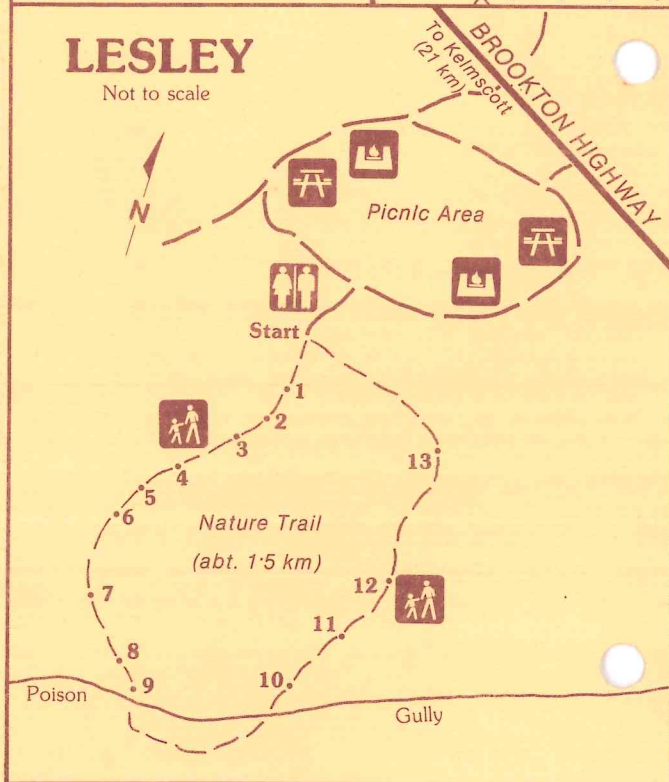
Department of Biodiversity,
Conservation and Attractions

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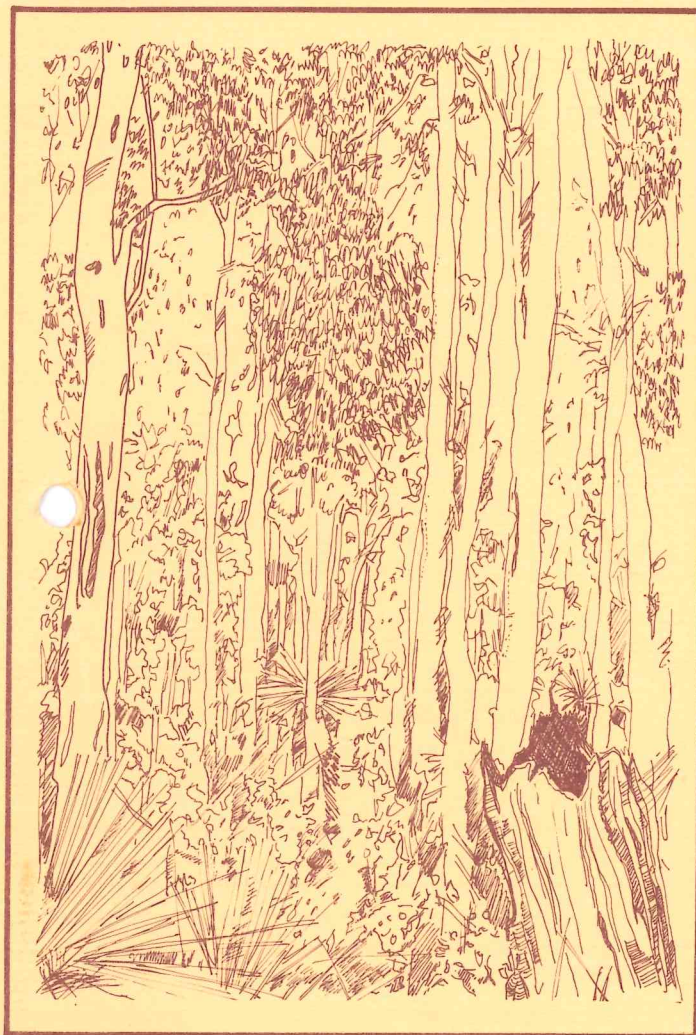


LESLEY

Not to scale



WELCOME TO THE DALE FOREST



WELCOME TO THE DALE FOREST AND LESLEY NATURE TRAIL

There is an increasing public appreciation and interest in our State's forests. Each year, many thousands of people visit them seeking the pleasures and adventures which they offer, and a knowledge and understanding of the forests themselves — how they grow, develop and change, what they produce and how they are managed.

This trail and the adjoining picnic area have been developed by the Forests Department for your use and enjoyment. Features of interest along the trail, which are described in this guide, are indicated by numbered pegs.

Please help to maintain the trail by not picking wildflowers or damaging vegetation in any way.

A forest is a complex biological community and, like any group of living organisms, is in a continual state of change. To the casual observer, the jarrah (*Eucalyptus marginata*) forest of the Darling Range may appear to remain virtually unchanged from year to year, but Nature is never static and there is a continual progression as new replaces old. Left untouched, the jarrah forest would most likely continue to provide trees in perpetuity. However, the trees in a virgin forest, by virtue of their age, are not always of commercial value to man. Their large size also hinders the development of younger, more vigorous trees.

There are a variety of reasons for managing the forest resource, the principle objective being to ensure that the State's forests continue to fulfil the community's needs for a wide range of forest products. In a sense, forest management is simply an attempt to improve on what Nature has already provided. By using proven techniques, the forester can channel Nature's energy into forms more productive to man.

The forester therefore attempts to create conditions that favour the more vigorously growing trees. In the jarrah forest, the removal of individual trees creates small openings. It is in these openings that the jarrah life cycle is renewed. Following the first winter rains in May and June, seed that has fallen from the nearby trees begins to germinate. As many as 1 million young seedlings per hectare may develop, but normally less than 1% of these survive past the first and second summers due to intense root competition, the activity of natural parasites and the dry, hot summer climate.

Those seedlings which do survive consolidate their position by the formation of a swelling at the base of the plant known as a lignotuber. This woody structure, which is an organ of food storage and regeneration, is of great importance because of the store of living buds it contains. If the aboveground portion of the seedling is destroyed by fire, mechanical damage or other agencies, this reservoir of buds enables the renewal of the shoots of the plant.



Stop 1

In jarrah, a small lignotuber develops in the first year, but the growth of the seedling is slow and takes the appearance of a low, multi-stemmed shrub (Stop 1). As growth continues over a several year period, the lignotuber becomes larger and the tree produces a single vigorous stem known as a dynamic shoot (Stop 2). Once this stage is reached, which may be as long as 20 years or more, depending on environmental factors, the jarrah seedling commences a period of more rapid growth and eventually develops into a small sapling (Stop 3), unless subject to damage by insects or severe frosts.

A second way in which many of the eucalypts, including jarrah, may regenerate is by coppice shoots (Stops 4 & 5). These shoots arise from dormant buds at the base of the tree trunk and are stimulated when the tree is cut down. Left to develop, the shoots will eventually grow into small trees. In time, the original stump may rot away, leaving a tell-tale ring of "offspring" as evidence of where the parent tree once stood.

As a tree approaches maturity, it slackens off in growth and over time begins to slowly decline. This process can take up to several hundred years in the case of jarrah, a relatively slow-growing species in comparison to other eucalypts. In fact, it is not uncommon for individuals to exceed 500 years of age. In a managed forest, some of these veterans are removed and utilised to make room for more vigorous young trees. All ages of trees are represented in the jarrah forest, so that as mature trees are removed for milling into timber, others are available to replace them.

Not all trees, even those of the same species, develop into a form useful to man. Some may develop large, heavy

limbs and crooked trunks while others may have been damaged by intense wildfires or insect attack. Such defective or poorly formed trees are termed "culls" (Stop 6) and are also removed as part of the management programme, although some individuals are frequently retained to provide food and shelter for wildlife. In earlier times, the common method of disposing of such trees was by ringbarking (Stop 7). In this operation, the outer living wood of the trunk, through which water and nutrients are transported, is girdled and the tree eventually dies. The younger or better formed trees surrounding the ringbarked individual are then able to take advantage of the additional growing space and the reduction in competition for moisture and nutrients.

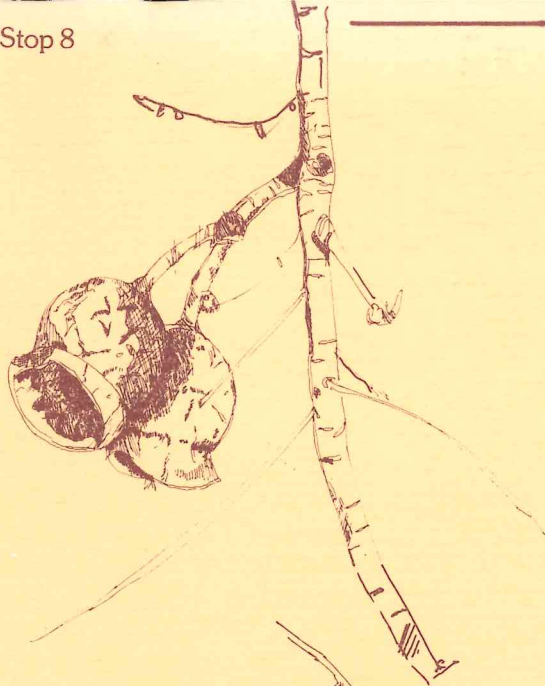
Similarly, the growing space between younger trees of a similar size and age can be increased by removing some individuals to provide increased area for those which remain. Foresters refer to this operation as thinning. Providing a tree has sufficient room to develop, it will eventually grow into what is known as a crop tree. Examples of future crop trees can be viewed further along the trail at Stops 12 and 13.

Another tree which grows in association with jarrah throughout the southwest is marri or red gum (*Eucalyptus calophylla*), which is readily identified by its characteristic large fruit commonly referred to as honkey nuts (Stop 8). A member of the group of eucalypts known as the bloodwoods, marri timber is of relatively low commercial value for sawn timber due to the prevalence of gum (kino) rings and pockets. However, the timber can be converted into excellent pulp for paper making, and marri is an excellent source of honey. Its shapely form and large dense crown make it a valuable shade tree on many southwest farms.

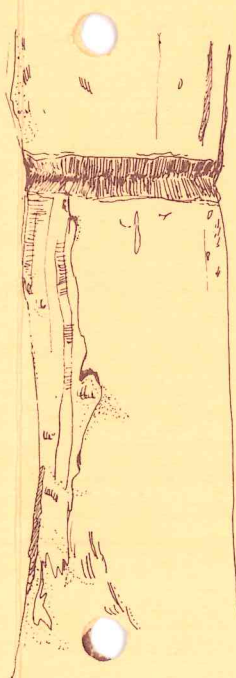
Not all areas of the forest are equally suited or capable of growing trees. As the trail meanders downslope towards the stream, notice how the forest becomes much more open, with some areas supporting only small shrubs (Stop 9). Here the soils are very shallow, as indicated by the large areas of exposed rock. In environments such as this, trees are often unable to obtain sufficient moisture and nutrients to sustain themselves. In their place, other plants such as the blackboy (*Xanthorrhoea preissii*), are able to establish a foothold and grow, due to special adaptations to drought.

Apart from jarrah and marri, there are a number of other tree species which are to be found in the forest areas near Perth. One of these, W.A. blackbutt, or yarri (*Eucalyptus patens*) grows in moist areas along creeks and rivers and produces durable timber for construction and decorative uses. Similar in appearance to jarrah, blackbutt can be distinguished from that species by its bluish-green leaves, which are longer and narrower than jarrah, and the fibrous, deeply-fissured bark of mature specimens. At Stop 10, the trail passes through the remnants of a large blackbutt. Several small saplings can be seen near this point – can you identify them?

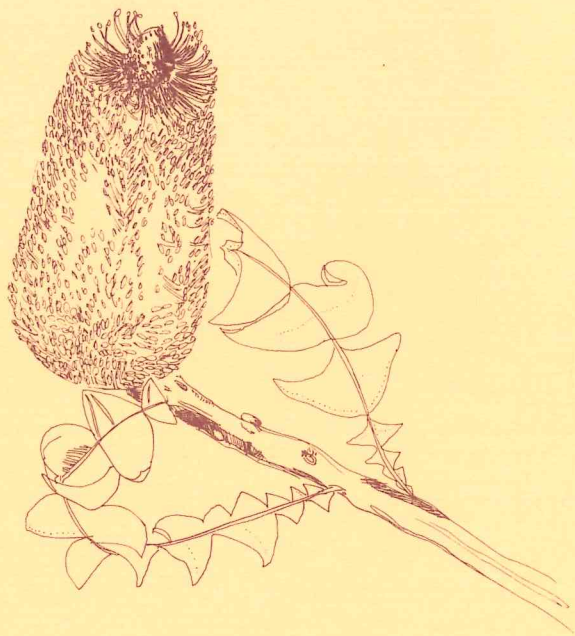
Stop 8



Stop 7



Stop 10



Stop 11

Yet another tree found growing in the understorey of the jarrah forest is the bull banksia (*Banksia grandis*). Its yellow candle-shaped flowers, large woody cone, serrated leaves and gnarled growth habit make it an attractive member of the forest community (Stop 11).

Of no commercial value, it is one of the species of plants most susceptible to the soil-borne fungus, *Phytophthora cinnamomi*, commonly referred to as jarrah dieback. The dead banksias which can be seen in the vicinity of Stop 10 have not been killed by dieback however, but by a severe wildfire which burnt over this area of forest in 1977.

Further along the trail at Stop 12, an old wooden survey marker can be seen. These reference points were established during the initial assessment and mapping of the forest earlier this century. Licensed surveyors and other experienced men were employed to lay down a network of theodolite traverses and these provided the framework upon which to map and classify the forest. This work was started in 1920 and by the end of that decade, over 800 000 ha had been surveyed.

As you complete the walk back to the picnic area, see how many of the features and aspects discussed in this pamphlet you can observe. We hope your visit has been an enjoyable one. Any comments or questions you may have pertaining to this area are welcomed and should be directed to the Forests Department, Jarrahdale. (Tel: (095) 255 177 or 255 004).

PLEASE NOTE: As illustrated on the accompanying map, the trail crosses a small stream known as Poison Gully. The stream and surrounding forest are situated within the Canning River watershed and its water flows into Canning Dam. Canning Dam, along with other hills reservoirs, produce approximately 75% of Perth's domestic water needs. The water in these reservoirs is of a high quality requiring only minimal treatment before it is supplied to the public.

We are very fortunate to have water of this quality so close to our city and it is up to all of us to protect this valuable resource. You can help in this endeavour by observing and obeying all signposted regulations covering the use of and access into water catchment areas. If you are unsure as to whether or not a stream is within the catchment area, please do not hesitate to contact either the Forests Department or Catchments Section of the Metropolitan Water Board for advice and assistance in planning your activity.

