

Landscapes

*of
the*

South West



**ECOLOGICAL
CONNECTIONS**

Ecological Society of Australia Conference,
Fremantle, Western Australia, 26 Sept - 1 Oct 1999



Ecological Society of Australia Annual Conference ESA99
Post-Conference Tour
Landscapes of the South West

Saturday, 2 October 1999 to Tuesday, 5 October 1999

Tour Leaders: Angus Hopkins and Kristina Lemson

The geographic focus of the tour is the South West and Agricultural Regions of Western Australia. During the tour we will visit a range of typical and interesting ecosystems and ecological communities including those where there are important management issues to be considered.

The tour will travel from Perth south along the coast to Bunbury (Leschenault Inlet) and then traverse inland through the jarrah forest to Manjimup. From there, the tour will inspect areas of karri forest and travel through a variety of forest types to the south coast at Walpole and on to Albany. The tour will visit Two Peoples Bay Nature Reserve east of Albany which is renowned for its rare birds and mammal species and its scenic beauty, then on to the Porongorup and Stirling Ranges and thence to Katanning. From Katanning the focus of attention will change to the issues of nature conservation and land and water degradation in the Agricultural Region, commonly known as the wheatbelt. Main stops will be at Dongolocking where a landscape-scale restoration planning project has been concluded, and Lake Toolibin where major works are in place to prevent destruction of the lake ecosystem from rising groundwater with a high salt load. The final stop will be in Dryandra Forest - a large remnant in the wheatbelt with a particularly interesting fauna.



Fig. 4 Botanical provinces and districts in the South-West according to Beard (1980), with boundaries established by vegetation mapping.

ESA Post-Conference Tour October 1999

Landscapes of the South West

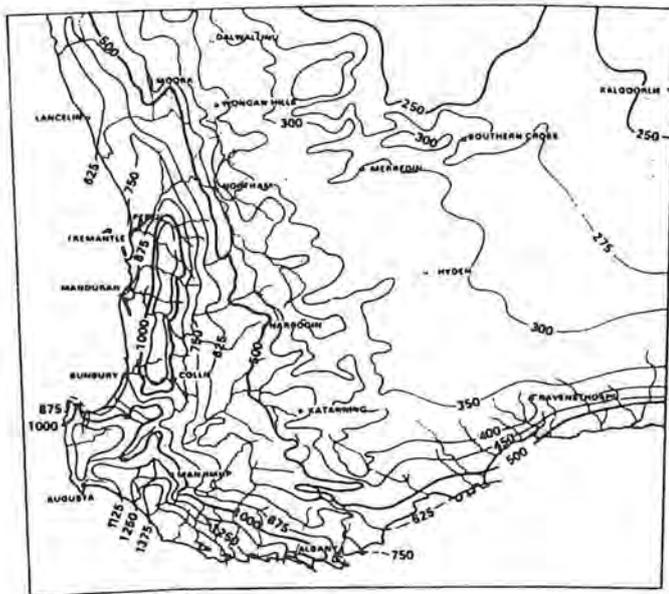


Fig. 6 Rainfall map of the Swan area from Commonwealth Bureau of Meteorology, 1962. The isohyets are for mean annual rainfall in millimetres.



Fig. 8 Climatic zones according to the Bagnouls and Gausson (1957) classification, based on the average number of dry months per annum.

Day 1 Saturday, 2 October 1999 Perth - Manjimup 320 km

8.45 Depart Fremantle

9.20 - 9.40 View the thrombolites (a form of stromatolites) at Lake Richmond

Briefing from Anne and Bob Goodale

11.30 - 12.30 Coastal woodlands and shrublands on calcareous soils of the Swan Coastal Plain, Yalgorup National Park

Yalgorup National Park is primarily composed of virgin woodland dominated by *Eucalyptus gomphocephala* (tuart) and *E. marginata* (jarrah) with smaller trees of *Agonis flexuosa*, *Banksia grandis* and *B. littoralis*. Other interesting plants include *Acacia pulchella*, *A. saligna*, *Clematis pubescens*, *Hardenbergia comptoniana*, *Hibbertia hypericoides*, *Jacksonia thesioides*, *Logania vaginalis* and *Xanthorrhoea preissii*.

Coastal heath on the calcareous dune sand can also be seen here too. Prominent species here include *Acacia littorea*, *Eucalyptus decipiens*, *Grevillea thelemanniana*, *Hakea prostrata*, *H. trifurcata*, *Melaleuca acerosa*, *Petrophile serruriae* and *Trymalium ledifolium*.

LUNCH

1.15 - 1.30 Inspect the mangroves of Anglesea Island, Leschenault Inlet (Bunbury)

This is a small relict population of the mangrove *Avicennia marina*, probably a survivor from the climatic optimum 10-6,000 years BP. Fringing vegetation of *Sarcocornia*, reed beds and salt-water couch grass can also be seen.

2.15 - 2.40 Jarrah forest near Kurrup

This forest of *Eucalyptus marginata* and *Corymbia calophylla* (jarrah and marri) is characteristic of this region. Understorey plants likely to be flowering include *Acacia browniana*, *Dryandra nivea*, *Hakea lissocarpha*, *Hibbertia hypericoides*, *Mesomalaena tetragona* and other Restionaceae. *Bossiaea linophylla*, *Hakea prostrata*, *Mirbelia dilatata* and *Xanthorrhoea preissii* may also be present.

3.00 - 4.00 Small Tree Farm near Balingup

Here we will have a presentation from Andrew Thamo, owner of the business.

5.00 Arrive Manjimup.

Day 2 Sunday, 3 October 1999 Manjimup - Albany 250 km

8.45 Depart Manjimup

9.30-10.30 Karri forest, Warren National Park (Toilets available).

The Dave Evans tree was developed in 1988 as a tourist venue, to replace the Gloucester Tree in Pemberton. The Gloucester Tree was an original fire lookout tower. Outstanding trees on high points were selected and turned into lookouts by being climbed, laddered, lopped and having a cabin built on the top which was manned during the fire season. Aircraft surveillance is now used instead.

Karri trees (*Eucalyptus diversicolor*) are only able to grow on particular soil types and are therefore restricted to the regions around Pemberton and Manjimup, and further restricted to pockets as far south as Denmark and the Porongorups. The understorey of the karri forest is interesting because it contains many soft-leaved plants and others of less marked sclerophylly than is normal in Western Australia. Conspicuous plants likely to be in flower are as follows: *Acacia urophylla*, *Chorizema quercifolia*, *Hibbertia cuneiformis*, *Hovea elliptica*, *Opercularia volubilis*.

Other species not in flower include *Albizia lophantha*, *Allocasuarina decussata*, *Clematis pubescens*, *Eragrostis curvula*, *Macrozamia reidleyi*, *Persoonia longifolia*, *Pteridium aquilinum*, *Stylidium rhynchangium*, *Trymalium spathulatum*.

10.30-11.00 Travel through Warren National Park.

12.30-1.30 Karri/red tingle forest, Valley of the Giants. (Toilets available)

Giant tingle trees (*Eucalyptus jacksonii*) and another species *E. guilfoylei*, associate with or replace karri in this part of the south coast forest which has the highest rainfall, about 1500mm/annum. Together with some other restricted species it seems probable that they are the survivors from a period of more abundant rainfall.

Typical mid and understorey species in this region include *Acacia pentadina*, *Chorilaena quercifolia*, *Leucopogon verticillatus*, *Pimelea clavata* and *Tremandra stelligera*.

LUNCH

2.30-3.00 Beach and coastal dunes at William Bay. (Toilets available)

Most of the vegetation is developed on a mantle of recently consolidated sand which is a little weathered and poor in nutrients. When burnt it does not regenerate rapidly. The climax appears to be low woodland of *Agonis flexuosa* but this is rarely seen locally because fire reduces the trees to a sort of mallee form scattered in kwongan-type heath plants. The heath becomes dominant on slopes facing the sea due to the action of wind and spray. Some interesting examples of dwarfing can be seen in *Banksia grandis*, usually a forest tree reduced to 1m tall. Close to the sea *Scaevola crassifolia*, *S. nitia*, *Olearia axillaris* and *Senecio elegans* form thickets. Further inland the shrubland includes *Acacia decipens*, *Adenanthos cuneatus*, *A. sericeus*, *Andersonia simplex*, *Anigozanthos flavidus*, *Anthocercis viscosa*, *Casuarina humilis*, *Dryandra sessilis*,

Hakea elliptica, *H. oleifolia*, *H. prostrata*, *Hibbertia cuneiformis*, *Melaleuca acerosa*, *Olax phyllanthi*, *Pimelea clavata*, *Senecio lautus*, *Spyridium globulosum* and there is a large reed *Loxocarya flexuosa*.

4.30 Arrive in Albany

Tour of townsite and harbour.

Day 3 Monday, 4 October 1999 Albany - Katanning 325 km

8.45 depart Albany

9.15-11.00 Two Peoples Bay Nature Reserve

The Two Peoples Bay Nature Reserve was established as a nature reserve following the rediscovery there of the Noisy Scrub Bird (*Atrichornis clamosus*) in December 1961. In November 1994, Gilbert's Potaroo (*Potorous tridactylus gilbertii*) was also rediscovered. Other fauna of special interest are also known to occur. The reserve incorporates a wide variety of habitats including islands, coast, rocky headlands and lakes. Over 600 species of vascular plants have been recorded.

A briefing will be provided by Alan Danks.

12.15-2.00 Outlier of karri forest at Porongorup Range

This range is formed of a series of granite domes 12km long and 3km wide. It is the most massive granite outcrop in the State. The summits are in many cases quite bare or covered with lichens, herbaceous plants and scattered shrubs. Lower down, a belt of *Eucalyptus cornuta* and *E. megacarpa* leads into extensive karri forest (*E. diversicolor*) on the lower slopes. This species here is an outlier, 100km east of its main range.

Two species are known to be endemic to the range, *Hibbertia bracteosa* and *Villarsia calthifolia*. They tend to occur above 400m altitude on granite rocks.

3.45-4.45 Species-rich shrublands and woodlands on Stirling Range (Bluff Knoll)

The Stirling Range is a highly eroded remnant of sedimentary rocks of the Proterozoic age dated at >1340 million years. These consist of quartz sandstone at the base overlain by phyllite and muddy sandstone, and are up to 910m thick, dipping gently to the south. Such rocks may once have covered much of the interior plateau.

5.30 arrive Katanning

Day 4 Tuesday, 5 October 1999 Katanning - Perth via Narrogin 280 km

8.45 depart Katanning

9.45-10.00 Lake Dumbleyung

This lake is salt but permanent, an unusual combination. Until Lake Argyle was filled by the Ord River Dam in the Kimberly, this was the largest body of permanent water in Western Australia. Sir Donald Campbell broke the World Water Speed Record here on Dec. 31st, 1964. The lake level varies very considerably with rainfall cycles, as it has no outlet. At low levels, sandbanks with dead tree stumps are exposed.

10.45-1.00 Dongolocking landscape reconstruction planning project.

Briefing from Brett Beecham

LUNCH

1.30-2.15 Lake Toolibin remnant seasonal freshwater lake

Briefing from Amanda Smith

3.15-4.00 Dryandra Reserve

meet with Gary Luck

6.30 arrive Perth.