Chapter 12

SIGNIFICANCE OF THE LESUEUR AREA

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Abstract

The Lesueur Area is an area of world, national, State and regional nature conservation significance. It has all the characteristics of an important conservation reserve and is the most important nature conservation area in the northern kwongan. Its major characteristics are uniqueness of many geological, landform, and biological attributes, biodiversity, representativeness for the more common components of the northern kwongan flora and fauna, very high nature conservation values and scenic grandeur. Its size is not large for an important conservation reserve and, desirably, it should be larger. There are currently seven national parks and Class A nature reserves in the northern kwongan, totalling only 107 460 ha. The Lesueur Area includes a wider range of ecosystems than any other existing or proposed conservation reserve in the northern kwongan. Reservation of the area as a conservation reserve should have the highest priority.

12.1 INTRODUCTION

The Lesueur Area is an area of world, national, State and regional nature conservation significance.

It has all the characteristics of an important conservation reserve and is the most important nature conservation area in the northern kwongan (Irwin Botanical District), which lies near the west coast between Shark Bay and Moore River.

The major characteristics of Lesueur are:

1. **Uniqueness.** Covers the most species-rich area of the northern kwongan, and includes an exceptionally high number of locally endemic species of plants (Figure 5.3), as well as vegetation associations that do not occur elsewhere. Includes comparatively high numbers of relict species and species at the limit of their geographic range, both plants and animals. Includes the most rugged terrain, which is of high scenic appeal, in the northern kwongan. Includes unique area of complex-faulted Triassic and Jurassic sedimentary rocks and associated soils. Includes northern tip of Bassendean Sands.

2. **Biodiversity.** Very rich in species of vascular plants and vertebrate animals (especially birds and reptiles). Indications that it is very rich in species of invertebrate animals. A special attribute of Lesueur is the very high turnover in plant species across the landscape, even within the same soil types.

3. **Representativeness.** Includes nine landforms, each with different floras and faunas, representative of much of the northern kwongan.

4. **Very high nature conservation values.** As well as attributes mentioned under the above headings, includes vegetation associations and species (including endangered species) not protected by other existing or proposed reserves. Includes the upper portions of catchments of four drainage systems. Only one known current infection with *Phytophthora* spp., and that is some distance from the area of highest nature conservation values.

5. **Scenic grandeur.** Includes arguably the most rugged scenery and spectacular viewsheds between Perth and Kalbarri. Includes rich kwongan vegetation with colourful wildflower displays for most of the year, especially in the spring.

6. **Size.** At 27 500 ha, the Lesueur Area is not large for an important conservation reserve; desirably it should be larger. If a conservation reserve for the Lesueur Area was to be designed without any consideration for existing land tenure, it would include most of the area between Nambung National Park, Badgingarra National Park, Alexander Morrison National Park and South Eneabba Nature Reserve. However, much of this area is now freehold and cleared for farming. This does not mean that the Lesueur Area is not extremely valuable; it reinforces the need to retain as much as possible of this larger area in nature conservation reserves.

Table 12.1

Physiographic regions (after Playford et al. 1976) and vegetation systems (after Beard 1976, 1979) of existing and proposed national parks and nature reserves (2 000 ha) in the northern kwongan between Moore River and Dongara.

Name	Area (ha)	Physiographic Region(s)	Vegetation System(s)
A. Existing national parks and Class A nature reserves			
Nambung NP	17 490	Coastal Belt, Bassendean	Guilderton Bassendean
Drovers Cave NP	2 680	Coastal Belt	Jurien
Badgingarra NP	13 120	Arrowsmith	Lesueur
Alexander Morrison NP	8 510	Arrowsmith, Dandaragan	Tathra, Lesueur, Marchagee
Tathra NP	2 930	Dandaragan	Tathra
Watheroo NP	44 510	Dandaragan, Yarra Yarra	Marchagee, Warroo
Pinjarrega NR	18 220	Yarra Yarra	Marchagee
TOTAL	107 460		
B. Existing Class C nature reserves			
Wanagarren NR	11 070	Coastal Belt	Guilderton
Nilgen NR	5 510	Coastal Belt	Guilderton, Jurien
Namming NR	5 430	Bassendean	Bassendean
Mt Adams Rd NR	6 610	Coastal Belt	Illyarrie, Eridoon
"Beekeepers Rd" NR	2 685	Eneabba Plain	Eridoon
South Eneabba NR	5 980	Arrowsmith, Eneabba Plain	Tathra, Eridoon
Watto NR	2 890	Dandaragan	Tathra
Boothendarra NR	2 075	Dandaragan	Lesueur
Capamaura NR	3 590	Yarra Yarra	Marchagee
TOTAL	45 840		
C. Existing "other"# conservation reserves.			
Lake Logue R	4 840	Coastal Belt, Eneabba Plain	Illyarrie, Eridoon
Beekeepers R	65 000*	Coastal Belt	Cliff Head, Illyarrie
Sthn Beekeepers R	10 850	Coastal Belt	Guilderton, Jurien
TOTAL	80 690		
D. Proposed national parks and nature reserves.			
Lesueur NP (P)	27 500	Coastal Belt, Bassendean, Arrowsmith	Guilderton, Illyarrie, Cliff Head, Jurien, Bassendean, Gairdner, Lesueur
Mt Adams NR (P)	13 250	Arrowsmith	Tathra
Arrowsmith NR (P)	10 000	Eneabba Plain	Eridoon
Coomallo NP (P)	10 500	Arrowsmith	Lesueur
Badgingarra NP	2 660	Arrowsmith	Lesueur
TOTAL	63 910		

Reserves that include the purpose "conservation of flora and/or fauna", but which are not vested
* Estimated area after Lesueur National Park is created.
NP - national park, NR - nature reserve, R - reserve
(P) - proposed reserve, not proclaimed

There is a narrow corridor between Lesueur and the 2 680 ha Drovers Cave National Park and it adjoins the coastal Beekeepers Reserve (65 000 ha, not all contiguous); however, neither of these possess any upland areas.

12.2 WORLD CONTEXT

The World Conservation Strategy (WCS) (IUCN 1980) is based on three objectives:

1. To maintain essential ecological processes and life-support systems.
2. To preserve genetic diversity.
3. To ensure the sustainable utilization of species and ecosystems.

In this context Lesueur is of international importance with respect to the second objective, and contributes to the other two.

There are few other places in the world where such a rich assemblage of plants and animals exists and such a high concentration of local endemic plants has been documented. Obviously, nowhere else in the world provides an opportunity to conserve local endemics such as *Banksia tricuspis* and other species listed in Table 5.6. Moreover, Lesueur contains the majority of known populations of many other geographically restricted species (Appendix 2). It also contains an unusually high number of plant and animal populations at the limits of their known ranges.

12.3 NATIONAL CONTEXT

The National Conservation Strategy for Australia (NCSA) (Anon. 1984) endorsed the WCS and added a further objective:

- To maintain and enhance environmental qualities.

Lesueur meets this objective.

As pointed out above, Lesueur is of national importance because of its numerous conservation reserve attributes.

12.4 STATE CONTEXT

The State Conservation Strategy for Western Australia (SCSWACC 1987) further develops the WCS and NSCA and lists Key Strategies for Western Australia. The Strategy states "The major goals and priority actions listed in the NCSA (paras 25-35) have direct relevance to Western Australia. Hence they should be applied positively and energetically in this State." Additional aspects considered of particular importance to Western Australia are set out below.

These include, under the major heading "managing for sustainable yield while protecting life support systems" two points of relevance to this report:

- Prevent further decline in species and genetic diversity in Western Australia.
- Adequately protect and manage representative areas.

Clearly, declaration of the Lesueur Area as a conservation reserve and prevention of degradation of its values are essential to meet the above.

In comparison with other parts of the State, the Lesueur Area is rich in plant, mammal, bird and reptile species (Table 12.2). Many species are confined to the Lesueur Area or to Lesueur and nearby areas and can only be conserved in their natural ecosystems in Lesueur (e.g. Table 5.6). Many other Lesueur species require reserves at various parts of their geographic ranges in order to conserve all their genetic variability.

The vast majority of Western Australian plant and animal species can not survive on farmed land. Intensive horticulture and husbandry are required to maintain the genetic diversity of species outside natural ecosystems and it is economically unviable to carry out such procedures in such a species-rich area as Lesueur. Even within natural ecosystems, management is often required to maintain genetic diversity or prevent extinction of certain species.

By far the most important and economically cost-effective strategy used in Australia (and most of the world) to preserve genetic diversity is to reserve areas of land and water as national parks or other conservation reserves. Such reserves are not created only to preserve the unusual or unique (although this may be a contributing reason for their creation), but to prevent the decline of the common and representative species of a region.

The Lesueur Area lies at the centre of one of three nodes of extraordinary species richness and endemism in the south-west of the State. The other two nodes are the Stirling Range National Park and the Fitzgerald River National Park, both of which are infected with *P. cinnamomi* as well as several other *Phytophthora* species.

While major parts of the Stirling Range are beyond recovery the Fitzgerald River National Park, which contains only a few widely scattered infections, can be protected from further spread of the disease. The recently released dieback management plan for the park recommends the closure of several catchments to all entry other than on foot (Moore *et al.* 1989).

Table 12.2

Comparison of number of species recorded in Lesueur and other conservation areas.

Reserve Name	Area (ha)	Vascular Plants	Mammals (ex bats)	Birds	Reptiles
Lesueur NP (P)	27 500	821	11	124	47
Kalbarri NP	186 100	-	-	174-	50
East Yuna NR	1 720	-	5	59	34
Toolonga NR (P)	235 500	-	5	61	31
Wandana NR	26 000	-	5	68	41
South Eneabba NR	5 980	429+	-	-	-
Sthn Beekeepers R	10 850	-	4	56	11
Karroun Hill NR	309 700	-	6	64	24
North Karlgarin NR	5 190	-	9	67	22
Durokoppin NR	1 030	-	6	61	26
Tutanning NR	2 130	663	9	-	33
Dryandra Forest	5 000*	-	13	100	-
Dragon Rocks NR	32 100	-	12	59	19
Stirling Range NP	115 700	1 201	-	-	-
Lake Magenta NR	94 170	-	5	98	31
Fitzgerald R NP	242 800	1 748	22	184	41

- comprehensive surveys not carried out or data not available

+ number of species within study area of about 2 000 ha, not all within reserve

* approximate area of bushland in main block

NP = national park, NR = nature reserve, R = other reserve

(P) = proposed reserve

Quarantine is an extremely effective preventative measure for this disease. It also allows time for the development of techniques to eradicate spot infections when they first appear.

The uplands in the Lesueur Area appear to be free of the disease, and will remain that way if properly protected. A dieback management plan for CALM's Moora District has been prepared and will provide regional support for a specific protection plan for the proposed park.

12.5 REGIONAL CONTEXT

The northern kwongan region has some existing and proposed national parks and nature reserves. Those between Moore River and Irwin River are listed in Table 12.1, which also shows the physiographic regions of Playford *et al.* (1976) and vegetation systems of Beard (1976, 1979) that they include (see Figure 1.1 for location of reserves and Figure 3.2 for physiographic regions).

The total area of the seven existing national parks and the single Class A nature reserve is 107 460 ha; the area of the nine Class C nature reserves is 45 180 ha; the area of the three other reserves with conservation in their purpose is 80 960 ha and the area of the four proposed reserves is 60 750 ha. For comparison, the area of Fitzgerald River National Park is about 243 000 ha. Only the first category, national parks and Class A nature reserves, has the highest level of protection from disturbance, since, under current Government Policy, only this category of reserves cannot be mined except with Parliamentary approval. This policy will have a legislative basis if currently proposed amendments to the Mining Act are passed.

Table 12.1 shows that, even at the gross level of physiographic regions and vegetation systems, the Lesueur Area includes a wider range of ecosystems than any other existing or proposed reserve in the northern kwongan. However, as described in this report (Chapter 4), it is clear that considerable complexity exists within vegetation systems, and that plant species composition changes rapidly within a system, and even within one soil type. Therefore, the fact that one system occurs in more than one conservation area does not mean that the two areas protect the same species or associations. When considering physiographic regions, it is clear that Playford *et al.*'s (1976) Arrowsmith Region is a combination of geological and landscape types, with the Gairdner Range being particularly different from the remainder.

Because of the complexity of species distribution and association in the northern kwongan it is clear that many nature conservation reserves well-dispersed across the region are needed to approach adequate conservation by reservation. Burgman (1988) has shown that, for the Roe Botanical District of the southern kwongan, reserves need to be placed closer than 15 km apart to adequately conserve the variation in the flora. The northern kwongan figure is likely to be even smaller (Griffin *et al.* 1983).

The Lesueur, Arrowsmith and Coomallo areas were all recommended for reservation by the EPA following the CTRC reports. All have been endorsed by State Cabinet, but have not been declared, mainly because of mining concerns. The other proposed reserve, Mt Adams (Griffin *et al.* 1982), is also in abeyance, again because of mineral resource concerns. Furthermore, one of the existing reserves, South Eneabba Nature Reserve, is being mined for mineral sands, and another, Lake Logue Reserve, is likely to be mined in future.