A New Reserve for the Mt Lesueur Area

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In May last year, the Western Australian State Government announced a proposal to create a major new nature reserve in the area to the north of Jurien. It will be named the Mt Lesueur Nature Reserve and will be vested in the Western Australian Wildlife Authority. The announcement represents the culmination of attempts over the past 20 years to have this important area set aside for the conservation of flora and fauna.

The earliest proposals for the creation of the reserve came from the Western Australian sub-committee of the Australian Academy of Science Committee on National Parks. The sub-committee's recommendations that a reserve be created over the area were reiterated by the Conservation Through Reserves Committee in 1974 and subsequently endorsed by the Environmental Protection Authority (1976) and State Cabinet. However, until last year, no further action was taken because of the complexity of land use conflicts over the area.

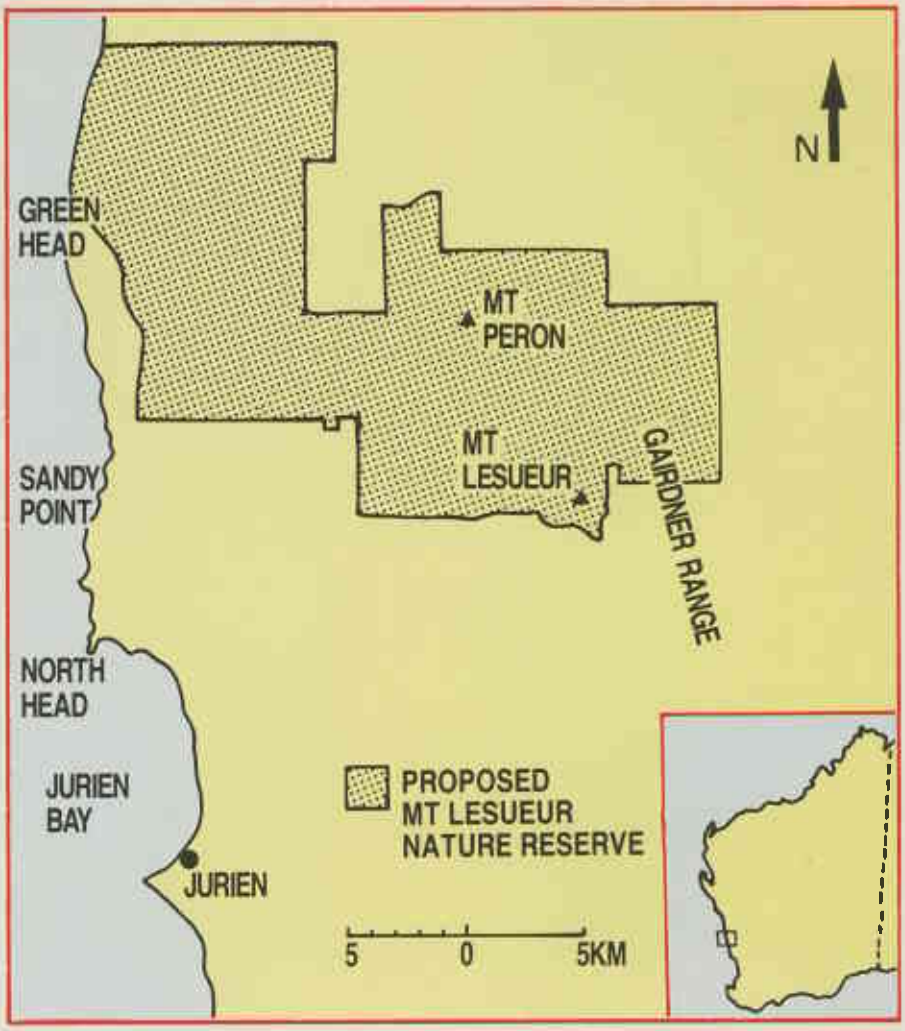
The Mt Lesueur—Cockleshell Gully area proposed for reservation includes one of the more interesting and spectacular parts of the landscape in the northern kwongan (the Irwin Botanical District). It is an area where the ancient sedimentary rocks have been broken up and distorted by a series of major faults with their surfaces partially lateritized. Patterns of drainage lines have further dissected the country. Mt Lesueur itself is the highest feature (313m elevation) of the area and this hill is a near circular mesa formed as a result of dissection and erosion and capped by hard laterite. As well, the area includes a fossil shore line equivalent to the Darling Scarp, a remnant from a time when the sea level was about 100m higher than at present. To the west are sand dunes and swamps similar to those of the Swan Coastal Plain near Perth.

The vegetation of the area is mainly kwongan or shrublands as is typical of much of the Northern sandplain region. These shrub communities are very rich in plant species, having up to 80 different species in a 100m^2 quadrat. Most of the shrubby species are less than 1m tall so the country has a very open appearance. Patches of mallee are common too. For example, Jarrah occurs as a shrub mallee only 1m tall on the southern slopes of Mt Lesueur. The occurrence of Jarrah at Mt Lesueur is of considerable scientific interest as it represents the extreme northern limit

of its distribution and there is a gap of over 100km between this and the next stand of jarrah to the south. The proposed reserve features woodlands of several different types, mainly in the sandy valleys and drainage lines with heavier soils. Species of trees in the woodlands include *Eucalyptus accedens, E. calophylla, E. erythrocorys, E. haematoxylon, E. rudis, E. todtiana and E. wandoo, Banksia attenuata and B. menziesii.* The woodlands are important, particularly for tree-hole nesting birds such as cockatoos and corellas, because there are good stands of old trees together with some regeneration to maintain the supply of tree hollows, and there is also an abundance of food resources present (e.g. marri fruits and flowers of dryandra species).

The rich flora of the proposed reserve includes many species which are of special conservation interest. It is estimated that the total flora exceeds 600 species and of these 7 are gazetted rare and over 50 additional species have very restricted distributions being generally confined to the Jurien-Eneabba area. Mt Lesueur has been studied in detail and 286 species have been found on the top and slopes of the mesa. Twenty-three of the Mt Lesueur species are rare or restricted and a further 20 undescribed species are likely to be categorised similarly when the appropriate taxonomic research is undertaken. Twenty-six species are more generally confined to the wetter, forested region to the south as described for jarrah and the Mt Lesueur populations represent extreme outliers.

The presence of so many species of special interest in the Mt Lesueur–Cockleshell Gully area and their patterns of distribution provide evidence that the area has been a refuge where species have been able to persist while nearby populations became extinct as the climate became drier over the past 5 000 years. As well, the particular combination of climatic factors (including micro-

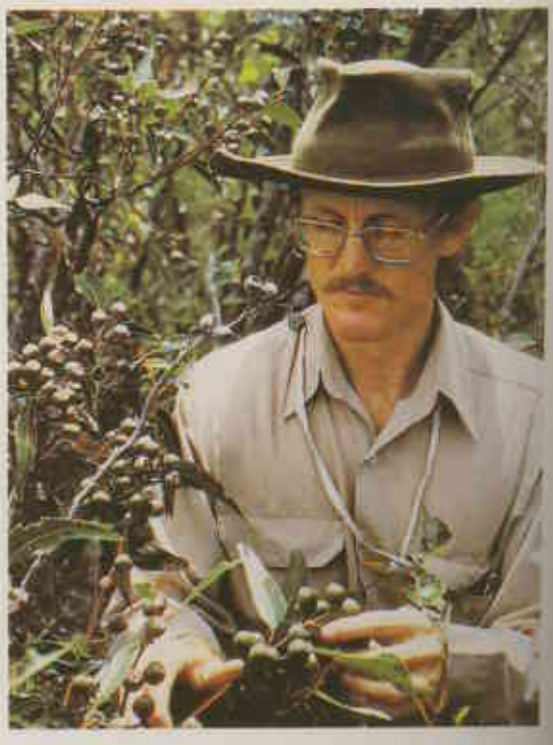


▼ *Calytrix tenuifolia.*

▲ A feature of the proposed reserve is a series of major fault lines that have broken up and distorted the underlying ancient sedimentary rocks. Mt Lesueur is in the background.

◀ *Pimelea* spp.

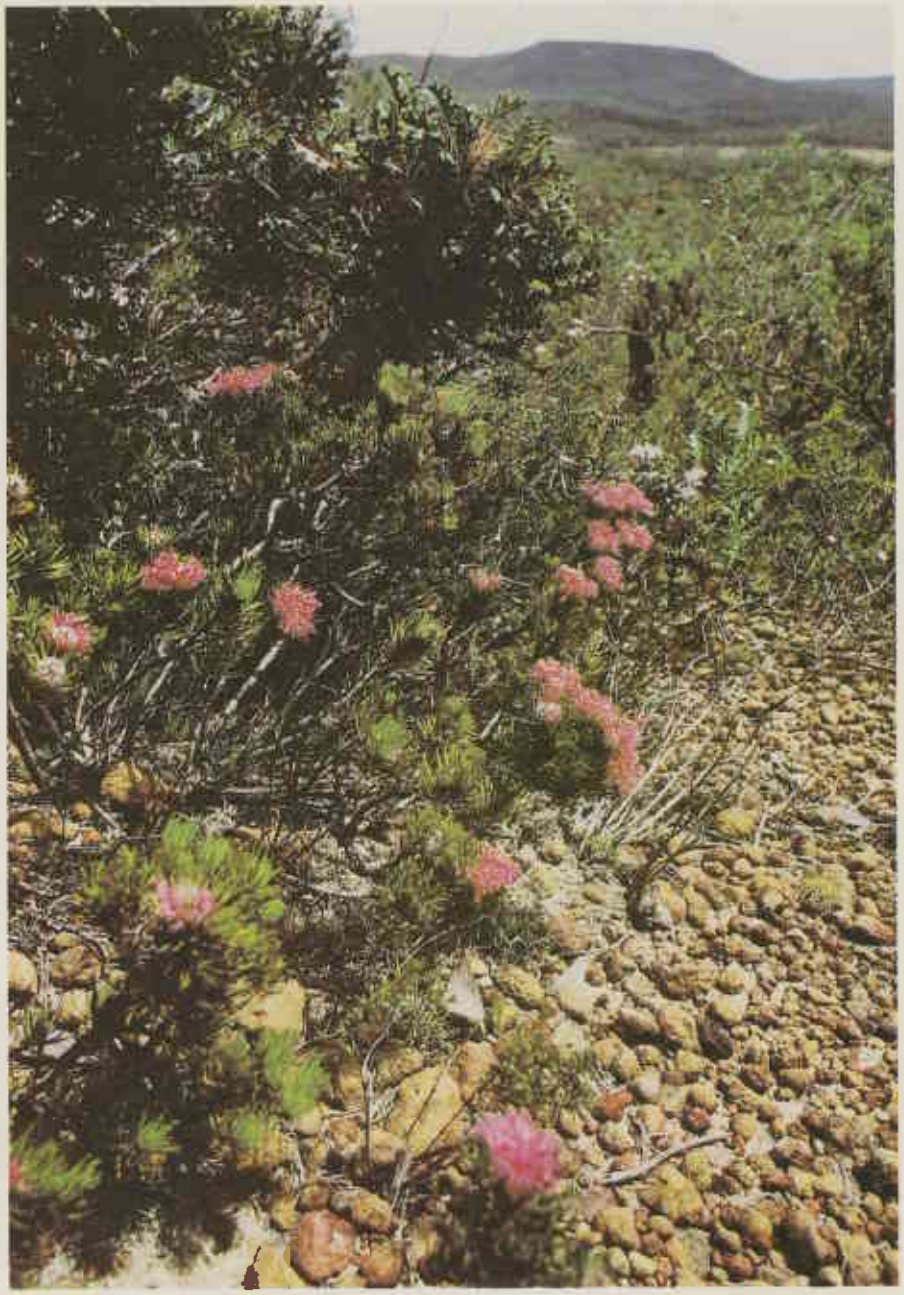
▼ The northern-most known population of Jarrah *Eucalyptus marginata* occurs around Mt Lesueur where it grows as a stunted mallee in contrast to the tall trees found further south.



climate) and the dissection of the terrain has facilitated speciation in plants so the area is indeed important for nature conservation.

The Western Australian Museum conducted a survey of the fauna of a portion of the proposed reserve in 1973-74 as part of its survey of some wheatbelt reserves. They found the area to be rich in birds (146 species), particularly in heath dwelling species, and in frogs and reptiles (48 species) with many species at the limit of their ranges. Only nine species of native mammals, including three species of Dunnarts *(Sminthopsis)* were reported whereas it was known from the study of owl pellets in a nearby cave that the mammal fauna has been much richer in the past few thousand few thousand years. Woylies *(Bettongia penicillata)* and several small species of native rodent were among those animals which had been present in the past. The changes probably result from the general decline in rainfall from the mid-Holocene, effects of sea-level change on habitat availability particularly for sand-dune dwelling species and, more recently, the impact of European colonization including changes in fire regime and the introduction of cats and foxes. From the mammal point of view, the proposed reserve is of value because it is one of the few places in Western Australia where the extant fauna can be compared with a recent fossil assemblage.

Once the reserve is declared, staff at the Western Australian Wildlife Research Centre will move quickly to complete survey work and then to draw up a management plan. The area has been considerably disturbed over the past 20 years due to the lack of management. Surveys for petroleum, coal and mineral sands have created a web of tracks, many of which have eroded badly. As well, adjacent farmers have been concerned about the lack of proper fire planning. It is to be hoped that these management issues can be resolved through the impending planning process with input from interested citizens and organisations.



▲ The pink flowers of *Melaleuca trichophylla* fill the foreground with Mt Lesueur in the distance.

▶ A massed display of *Verticordia acerosa*

▼ Black Kangaroo Paw *Macropidia fuliginosa*