Paper 3

The Flora of Lake Gregory

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INTRODUCTION

Lake Gregory is a well-known name among natural scientists and is the type locality for several plant species described by Ferdinand von Mueller. However, except for the early collections made for von Mueller and a survey in 1979 by the former Department of Fisheries and Wildlife (now Conservation and Land Management) (George and Mitchell 1983; McKenzie *et al.* 1983), no botanical work has been done at the lake.

This paper summarizes the very limited floristic information that exists and documents in a preliminary way the reduction in area of live trees over the past 40 years.

RIPARIAN VEGETATION

In 1979 Lake Gregory was almost dry and there was a wide (1 km at south-eastern part of Mulan Lake) band of samphire inside the lake margin, in which *Halosarcia halocnemoides tenuis* was dominant and *H. indica leiostachya, Cressa cretica, Eragrostis dielsii, Morgania floribunda, Sida rohlenae* and *Swainsonia* sp. also occurred (McKenzie *et al.* 1983). The same species were recorded in 1988.[1]

At the edge of the lake the samphire belt intergraded with a belt of 4-6 m high *Acacia* aff. *tephrina* trees. Beneath the trees the ground flora included *Eragrostis dielsii, H. halocnemoides tenuis, Salsola kali* and *Trianthema triquetra*. The *A.* aff. *tephrina* around Mulan Lake in 1979 appeared to be a regenerating stand; mature stands occurred around Bulbi Plain. Some tall dead *A.* aff. *tephrina* occurred in the samphire belt around Mulan Lake (McKenzie *et al.* 1983).

McKenzie *et al.* (1983) reported a transition to spinifex (mostly *Triodia pungens*) beyond the *A.* aff. *tephrina* belt. *Eucalyptus microtheca, A.* aff. *tephrina* and *Hakea ?suberea* trees occurred among the spinifex. Farther from the wetland there were low dunes that supported the spinifexes *Plectrachne schinzii* and *Triodia pungens* and a variety of grasses, herbs and shrubs.

The vegetation around Djaluwon Creek differed from that around the lake areas. It was much denser, especially away from Mulan Lake, and consisted of *E. camaldulensis, E. microtheca, A. holosericea* and *Grevillea striata* trees, *Melaleuca glomerulata* and *M. lasiandra* shrubs and the grasses *Eulalia fulva* and *Cenchrus ciliarus*. The sedge *Cyperus dactylotes* also grew on parts of the creek bank (McKenzie *et al.* 1983).

AQUATIC VEGETATION

There is no published information about the aquatic flora of Lake Gregory but visitors to the lake when water levels have been low have noticed a mat of dried aquatic vegetation on the ground and some *Myriophyllum* sp. was collected in March 1988.[2] Photographs of the lake suggest macrophytes would grow extensively at times and that species of *Ruppia* probably occur there. Photographs of the lake also show extensive algal blooms (probably *Cladophora* sp.) and it is likely that Characeae occur there.

VEGETATION CHANGE

Using aerial photography from 1953, 1971 and 1988 we attempted to map changes in the riparian vegetation around Mulan Lake and Lera Water-hole over the last 35 years (Figs 3.1-3). Comparison of the

1 S.A. Halse and G.B. Pearson, Department of Conservation and Land Management (unpublished data).

2 S.A. Halse and G.B. Pearson, Department of Conservation and Land Management (unpublished data).

extent of the tree belts around the lake is complicated by the different scales of the three sets of photography and the difficulty experienced delineating the boundary of the 'wetland' area. Nevertheless, there was an obvious reduction in extent of trees between 1953 and 1971 (cf. Figs 3.1 and 3.2). Because we included tree belts outside the wetland boundary in the 1988 assessment (Fig. 3.3), at first glance the extent of trees appears to have increased between 1971 and 1988. In fact, all the tree belts present *within the wetland boundary* on the eastern and north-western sides of the lake in 1971 had disappeared by 1988. There was also a reduction in the extent of trees on the western side of the lake, especially around Lera Water-hole.

Visitors to the lake in the last few years have confirmed the results of the analysis from aerial photographs: they have reported that the extensive thickets of trees around the south-eastern and north-western parts of Mulan Lake, the eastern side of Lera Water-hole and around Salt Pan Creek died as a result of 1982 floods and have not regenerated.

Although there is no unequivocal evidence it appears that cattle, and perhaps horse, grazing is the reason there has not been regeneration of trees from seedlings. The 1988 aerial photography shows extensive cattle tracks on the shore of the lake, which suggests that grazing pressure is intense.

REFERENCES

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McKenzie, N.L, Burbidge, A.A., George, A.S. and Mitchell, A.S. (1983). Environment *In* Wildlife of the Great Sandy Desert, Western Australia (ed. by A.A. Burbidge and N.L. McKenzie). Western Australian Wildlife Research Bulletin No. 12, pp. 7-37.

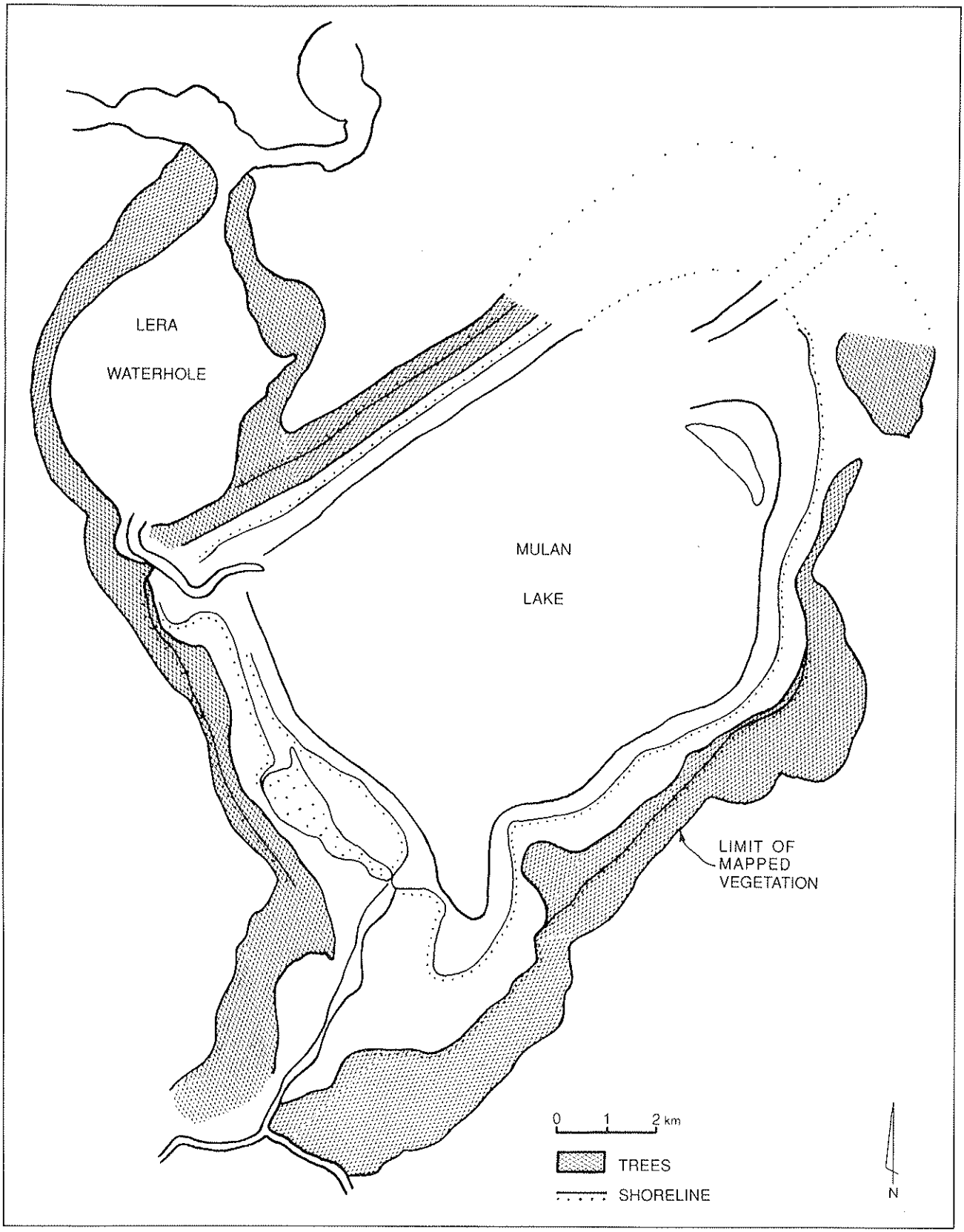

Figure 3.1

The extent of trees around Lake Gregory in 1953 (based on 1:50 000 aerial photographs). The lake was dry in 1953 but some obvious vegetated 'shore-lines' around the edge of the lake are marked.

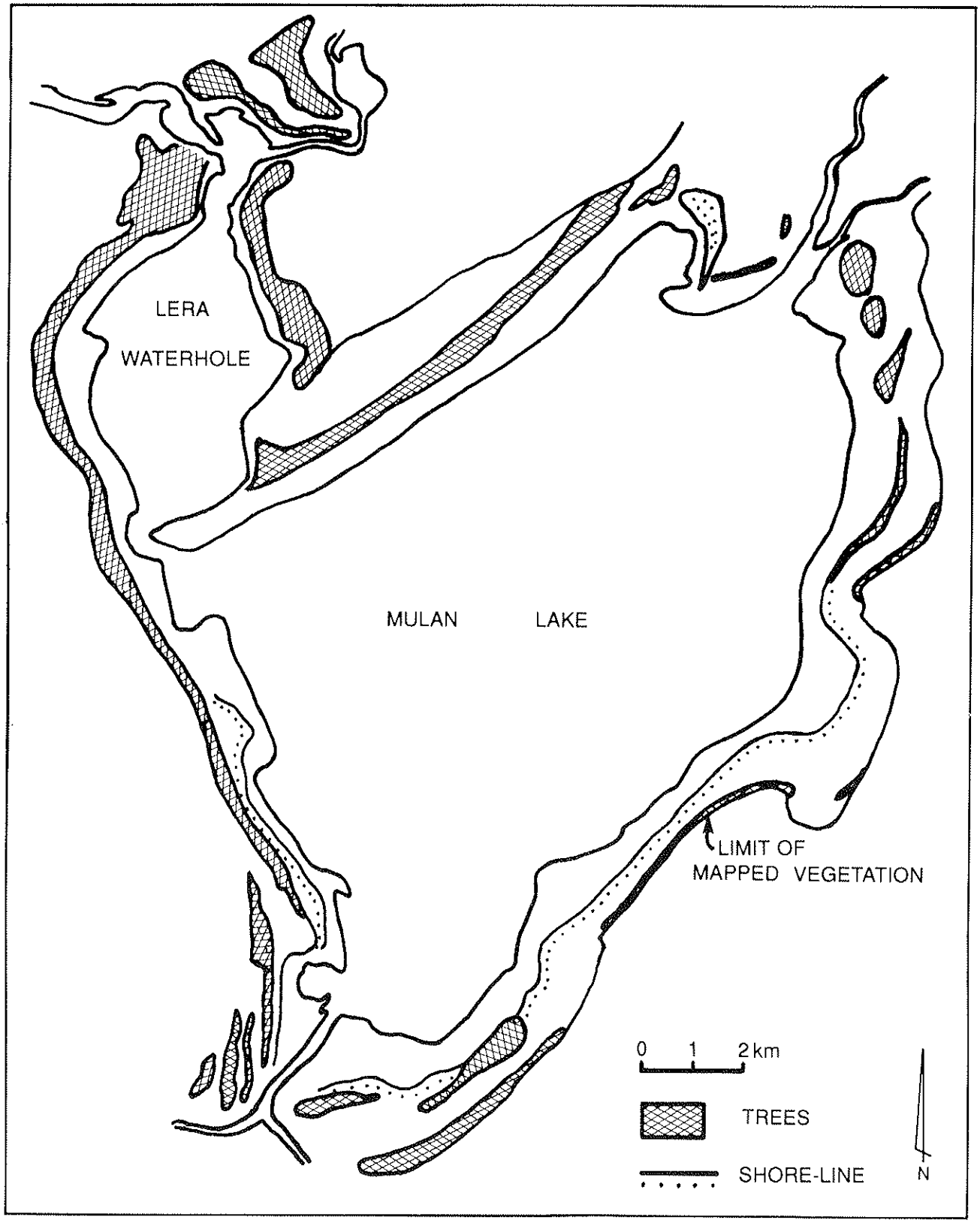

Figure 3.2

The extent of trees around Lake Gregory in 1971 (based on 1:86 100 aerial photographs). The inner line indicates the 1971 water level, some obvious 'shore-lines' outside this are also marked.

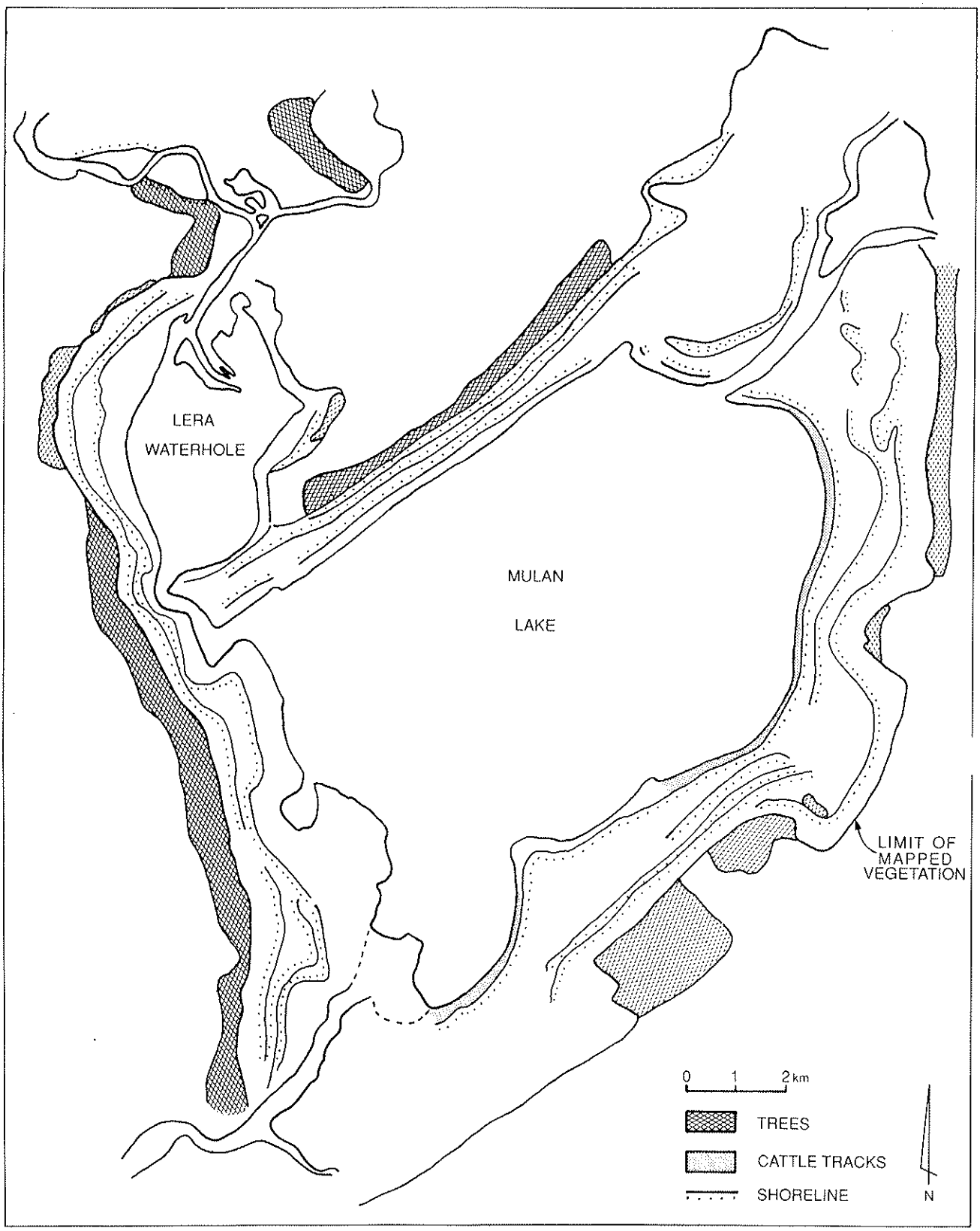

Figure 3.3

The extent of trees (including those beyond the wetland boundary) around Lake Gregory in 1988 (based on 1:25 000 aerial photographs). The inner line indicates the 1988 water level, some obvious 'shore-lines' and areas with extensive cattle tracks are also marked.