

Management of Lake Gregory

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BACKGROUND

Lake Gregory and part of the Sturt Creek system near the lake are included within the Lake Gregory Pastoral Lease, which is held by the Aboriginal Land Trust for the Mulan Aboriginal Community. Management of the lake is ultimately the prerogative of the Mulan community but, because the Department of Conservation and Land Management regards Lake Gregory as one of the most important conservation areas in Western Australia, the Department would like the opportunity to influence management practices at the lake.

My original involvement with the Lake Gregory area was as an officer of the former Forests Department. One of our programs involved encouraging Aboriginal communities to plant trees around their settlements. Many seedlings were distributed to both the Lake Gregory (Mulan) and nearby Billiluna communities. Species concentrated on were hardy natives and some exotic fruit trees.

WATER LEVELS

At that time (1981) the level of the lake was not particularly high. The water level rose dramatically in the 1982/83 wet season and appeared to reach its highest level for many years. There is evidence from the vegetation, particularly bands of *Eucalyptus microtheca* beyond the 1982/83 flood level, that previously levels may have been even higher. However, this was probably many years ago. Many *Eucalyptus camaldulensis* along the creeks near the lake, some of which were about 20 years old, were killed during the 1982/83 flood by long inundation (? 18 months). It is unlikely that they had been inundated for long periods previously, suggesting it was at least 20 years since the lake previously flooded to this level. Some *E. microtheca* lower in the lake profile died as a result of earlier, less extensive flooding. These tree deaths show the extreme

variability in water levels that occur around the lake. This variability and its timing is the single most important environmental factor to be taken into account when management of the area is considered.

@BODY1IND = I hope that we can get some idea of actual dates, levels and periodicity of previous flood events to give us some idea of the kind of lake system we, the Mulan community and the Department of Conservation and Land Management, will be trying to conserve. It would be even better to get a prediction of future levels.

VEGETATION

Tree species around the lake include *E. microtheca* and *Acacia* aff. *tephrina*, which grows (or grew) in quite extensive stands. Both species were common before the flood of 1982/83 but all *A. aff. tephrina* and those *E. microtheca* that were near the lake were killed at this time.

Acacia aff. *tephrina* (live and dead trees) were used extensively for waterbird nesting while inundated after the 1982/83 flood but there has been no regeneration, which brings me to cattle.

CATTLE

My recollection of 1981 is that cattle occurred around the margin of the lake but not in very high numbers. However, they appeared to increase dramatically after the flooding of 1982/83. This was largely a result of concentration as the lake expanded and the area of 'lakeside' habitat was reduced (a mini 'Operation Noah' to rescue cattle stranded on the islands created by rising floodwaters around the lake was put into place during this flooding) and also increased breeding as the result of the favourable conditions.

Few cattle have been mustered for sale and little effective cattle management appears to have been carried out on the pastoral lease in recent years. Estimates of stock on the station for the 1987 year

were around 12 000 units. A fairly high proportion of these would have been around the lake. The cattle eat the vegetation around the lake margins and have even been observed feeding on vegetation of some kind in chest-deep water. Regeneration of shrubs and trees after the 1982/83 flood was minimal as a result of cattle grazing. Seeds germinated following rainfall events, only for the small plants to be eaten.

MANAGEMENT

Options for management of the area for conservation purposes appear to revolve around excluding cattle from the lake margins in at least some areas. This is also a desirable aim from the cattle management point of view and is an outcome desired by at least some of the traditional owners of the area. I have spoken to the Lake Gregory Pastoral Lease's pastoral

advisor who indicated that he is planning to erect block fences and water points away from the lake to spread the cattle load over more of the property rather than concentrating it around the lake. He was interested in my suggestion that additional block fences should be erected that extend into the lake to exclude cattle from at least some of the major creek entrances. He is seeking the support of the Department of Conservation and Land Management and other relevant authorities for this project.

Preliminary approaches have been made to the Department of Primary Industry and Energy in Canberra who feel that the project could fall into their funding guidelines. I have sought advice from the Department of Agriculture to establish guidelines for fencing that will hopefully accommodate stock management as well as conservation needs.