

Information Sheet on Ramsar Wetlands

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

1. Date this sheet was completed/updated:

1998

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Designation date

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Site Reference Number

2. Country:

Australia

3. Name of wetland:

Lake Toolibin, Western Australia

4. Geographical coordinates:

Latitude: (approx.) 32° 55'S; Longitude: (approx.) 117° 36'E

5. Altitude:

6. Area:

Approximately 437 ha.

7. Overview:

A semi-permanent lake supporting dense stands of *Casuarina obesa* and *Melaleuca strobophylla* trees. It is the last such lake in south-western Australia in which the vegetation is still viable; it also supports a high diversity of waterbirds and more breeding species than any other wetland in south west Western Australia.

8. Wetland Type:

marine-coastal: A B C D E F G H I J K

inland: L M N O P Q R Sp Ss Tp Ts

U Va Vt W **Xf** Xp Y Zg Zk

man-made: 1 2 3 4 5 6 7 8 9

9. Ramsar Criteria:

1a 1b 1c 1d | 2a **2b** **2c** 2d | 3a 3b 3c | 4a 4b

Please specify the most significant criterion applicable to the site:

10. Map of site included? Please tick **yes** -or- **no**

11. Name and address of the compiler of this form:

Department of Conservation and Land Management
Locked Bag 104
Bentley Delivery Centre WA 6983

12. Justification of the criteria selected under point 9, on previous page.

13. General location:

South West of Western Australia

14. Physical features:

Lake Toolibin is a fresh-brackish wetland that fills from surface run-off. It is almost permanent, containing at least 1 metre of water about 70 per cent of the time but it occasionally dries out and may receive no inflow for a year or two. The maximum depth of water is about 2 metres after which the lake overflows into other wetlands at the headwaters of the Arthur River. Most of the lake is covered in thickets or woodlands of water-tolerant tree species although there is a large open area on the eastern side. The higher ground around the lake supports open eucalypt woodland. There are pronounced undulations or 'gilgai mounds' on the floor of the lake and the trees tend to occur on the mounds.

Two aquatic macrophytes *Potamogeton* sp. and *Lepilaena* sp. grow in the lake. The trees in the thickets and woodlands there are principally *Casuarina obesa* although *Melaleuca strobophylla* is common and *M. laterifolia*, *M. viminea* and *Eucalyptus rudis* also occur. The *E. rudis* trees are found only in open woodlands. The sedge *Chorizandra endodis* is common in parts of the lake.

The fringing woodland around the waterbody consists of *Allocasuarina huegeliana*, *M. uncinata*, *E. rudis* and *Acacia accuminata*. *Eucalyptus loxophleba* forms an open woodland on higher ground.

15. Hydrological values:

The lake is perched above the water table, being filled from surface run-off. The groundwater has become saline and risen to within 1 metre of the lake bed, however, as a result of surrounding farm being cleared and now threatens the health of the vegetation.

16. Ecological features:

Lake Toolibin supports 24 species of breeding waterbird, which is the greatest number for any wetland in south-western Australia. Altogether 41 species of waterbird have been recorded there, which is the highest species richness amongst inland wetlands in the south-west.

In particular, Lake Toolibin is important as a breeding area for Freckled Ducks *Stictonetta naevosa*, which are gazetted 'rare and endangered' under the Western Australian Wildlife Conservation Act, and for large wading birds - Pacific Herons *Ardea pacifica*, White-faced Herons *A. novaehollandiae*, Great Egrets *Egretta alba*, Rufous Night Herons *Nycticorax caledonicus* and Yellow-billed Spoonbills *Platalea flavipes* all breed there. In addition, Lake Toolibin is an important breeding area in south-western Australia for Great Cormorants *Phalacrocorax carbo*, Little Black Cormorants *P. sulcirostris*, Little Pied Cormorants *P. melanoleucos* and Blue-billed Ducks *Oxyura australis*.

Lake Toolibin is the only remaining example in south western Australia of a wetland with extensive thickets of living *Casuarina obesa*. This used to be one of the main types of inland freshwater wetland in the south-west before clearing for agriculture resulted in most inland wetlands becoming saline with the concomitant death of emergent vegetation. In addition, the lake supports extensive stands of *M. strobophylla*, which has a restricted distribution.

17. Noteworthy flora:

See ECOLOGICAL FEATURES.

18. Noteworthy fauna:

See ECOLOGICAL FEATURES.

19. Social and cultural values:

20. Land tenure/ownership:

Lake Toolibin and adjacent land are contained in Nature Reserve 24556 and part of Game Reserve 9617. The reserves are vested in the National Parks and Nature Conservation Authority of Western Australia and managed by the Department of Conservation and Land Management.

21. Current land use:

Two other reserves, the northern part of Game Reserve 9617 and Nature Reserve 27285, abut the Ramsar site on the northern side and these contain wetlands (suffering from varying degrees of salinization) and native vegetation. The reserves are used for nature conservation and duck-shooting. Otherwise, the surrounding land has all been cleared and is used to grow pasture for sheep or is cropped.

22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects:

The salinity of the water in the lake has increased over the past two decades as a result of the catchment area being affected by salinization. The groundwater in the area is saline and the water table (as a result of clearing native vegetation) has risen to within 1-2 metres of the lake bed. The high, saline water table and the saline run-off into the lake from the salt-affected catchment area have had a markedly detrimental effect on the trees in the lake; many have died on the western side.

To prevent this fate overtaking all trees in the lake some urgent remedial management is required. A series of pumps has been installed on the western side of the lake to lower the water table. A tree-planting program is under way in the catchment area. A strip of land has recently been acquired along the western side of the lake from the adjacent farmer and this strip is being planted with trees to help lower the water table through transpiration and reduce the salinity of surface run-off from this side.

23. Conservation measures taken:

The lake is contained in Reserve 24556.

24. Conservation measures proposed but not yet implemented:

Groundwater pumps are being installed to lower saline groundwater levels under the lake to improve the vigour of the vegetation.

25. Current scientific research and facilities:

No research is being conducted at present but there have been recent studies of the hydrology and waterbird values of the lake. Waterbird numbers, salinity, depth and pH are being monitored.

26. Current conservation education:

None.

27. Current recreation and tourism:

None.

28. Jurisdiction:

Government of Western Australia

29. Management authority:

Department of Conservation and Land Management, PO Box 104, Como WA 6152.

30. Bibliographical references:

Bell, D.T. and Froend, R.H. (1990). Mortality and growth of tree species under stress at Lake Toolibin in the Western Australian wheatbelt. *Journal of the Royal Society of Western Australia* 72, 63-66.

Halse, S. (1988). The last lake. *Landscape* 3, 17-22.

Northern Arthur River Wetlands Committee (1987). The status and future of Lake Toolibin as a wildlife refuge. Report WS2. Water Authority of Western Australia, Perth.
