Department of Environment and Conservation

*Our environment, our future*

# SUMMARY ANNUAL REPORT

THREATENED SPECIES AND/OR COMMUNITIES RECOVERY TEAM

| PROGRAM INFORMATION | |
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| **Recovery Team name** | TOOLIBIN LAKE RECOVERY TEAM |
| **Reporting Period (Calendar Year)** | **Calendar year 2007** |

**Current membership**

| | Member | Representing |
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| 1. Chair | **Greg Durell, District Manager- Great Southern** | Department of Environment and Conservation |
| 2. EXEC OFFICER | **Marie Strelein, Toolibin Lake Recovery Catchment Officer** | Department of Environment and Conservation |
| 3. | **Taz, Facey group NRM coordinator** | Facey Group |
| 4. | **Audrey Bird, Toolibin Landholder and Chair of the Toolibin Catchment Group** | Landholders |
| 5. | **Roz Thomson, Toolibin Landholder and member of the Toolibin Catchment Group** | Landholders |
| 6. | **John Blyth, Retired** | Community |
| 7. | **Jim Lane, Principal Research Scientist** | Department of Environment and Conservation |
| 8. | **Richard Pickett, Senior Resources Officer** | Department of Water |

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| **Dates meetings were held** | Nil in 2007, currently reviewing the make-up of the Recovery Team and the terms of reference. |
| **One to two paragraph summary of achievements suitable for *WATSNU*** | In January 2007 biannual monitoring of the Lake floor and reserve vegetation took place. "See Ecoscapes report, Vegetation Monitoring of Toolibin Lake and Reserves 2007". In summary the overall number of trees continued to decline however the overall health of remaining vegetation has improved. Soil salinity has decreased with a decrease in the readings taken with the EM38, however it is difficult to state whether this is significant. |

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| | *Casuarina obesa* and *Melaleuca strobophylla* seedlings continue to do well although there has only been a slight increase in numbers.<br><br>Terrestrial tree species in the reserve have declined slightly due to a range of factors including salinity, water logging and drought.<br><br>Groundwater pumping has continued although pumps have been stopped to allow cleaning of the bores and servicing of the pumps.<br><br>A risk assessment analysis was also undertaken to examine the potential impact on the TEC by allowing inflows of less than 5000 mg/l as opposed to the current level of less than 1000 mg/l. A dynamic Monte Carlo simulation model was run and the results showed that as long as the small amount of saline water that was left at the end of the season could be removed from the lake then allowing water with a salinity of up to 5000 mg/l would be beneficial to the TEC. See report, 'Decision Framework For Natural Diversity Recovery Program' April 2007, by Walshe, Jones and Massenbauer. As the North Arthur River did not flow in 2007, this site was not tested.<br><br>Earthworks on a waterway through Dulbining reserve aimed at increasing the flow while reducing the salinity of water making its way to Toolibin Lake also started in 2007. These works are the result of a report on surface water management carried out by the Department of Agriculture and Food on behalf of the DEC - see report Surface Water Assessment for the Toolibin Lake Recovery Catchment August 2004, by Cattlin, Farmer, Coles and Stanton. |
| **List of actions undertaken by Recovery Team (from actions in 'Unwooded Fresh Water Lakes of the Southern Wheatbelt of Western Australia' IRP92 2001-2006)** | **1. Complete earthworks through Dulbining reserve.**<br>**2. Continued pumping of Groundwater.**<br>**3. Catchment Revegetation.**<br>**4. Weed Control.**<br>**5. Rabbit Control.**<br>**6. Groundwater and Surface Water monitoring.** |
| **KEY ACTIONS** | |
| **Action 1** | **Complete earthworks through Dulbining reserve:**<br><br>Completion of the waterway through Dulbining Reserve requires a culvert on Oval road and earthworks between East Drain and Toolibin North Road, a distance of approximately 1 kilometre. This waterway will help to prevent waterlogging within Dulbining Reserve during small flows while still allowing the flooding that would have occurred during large runoff events, effectively re-creating a system closer to that which existed pre-clearing. |
| **Action 2** | **Continued pumping of groundwater:**<br><br>Continued pumping of groundwater and maintenance of the bore network. This will ensure that the recovery criteria of maintaining the watertable below the lake floor at more than 1 metre continues. |
| **Action 3** | **Catchment Revegetation:**<br><br>Continued liaison with landholders to encourage the planting of buffers around important remnant vegetation, corridors between remnant |

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| | vegetation, oil mallee allies and strategic plantings for groundwater and surface water management. This includes planning projects, developing contracts and agreements, and the provision of subsidies.<br>This also includes fencing of remnants and revegetation. |
| **Action 4** | **Weed Control:**<br>Survey and monitor weed invasion in and around Toolibin Lake and the surrounding reserves and undertake control activities where required. |
| **Action 5** | **Rabbit Control:**<br>Continue regular monitoring of rabbit activity in and around Toolibin Lake and the surrounding reserves and undertake targeted control activities. |
| **Action 6** | **Groundwater and Surface Water monitoring:**<br>▪ Continue to monitor groundwater levels in and around the lake and catchment to improve our knowledge of the hydrological system impacting on the lake and the opportunities for management.<br>▪ Continue to monitor surface water quality and quantity to improve our knowledge of the hydrological system and allow sound management of flows. |
| **Criteria for success or failure as described in Recovery Plans or Interim Recovery Plans** | **Toolibin Lake Recovery Plan 1994:**<br><br>**Objective:**<br>The objective of the Recovery Plan is to ensure the long-term maintenance of Toolibin Lake and its environs as a healthy and resilient freshwater ecosystem suitable for the continued visitation and breeding success by the present high numbers and species of waterbirds.<br><br>**Criteria for success:**<br><br>**Biological Criteria:**<br><br>1. No further deterioration is observed in the health of the vegetation of the lake or the reserves.<br><br>2. Successful tree and shrub regeneration in the lake and reserves is established in all vegetation associations.<br><br>3. Based upon available data, the lake supports sufficient species richness and numbers of invertebrates to ensure waterbird food resources.<br><br>4. The numbers and species of waterbird visitation (41 species) and breeding success (24 species) that currently occurs is maintained or improved.<br><br>**Physical criteria:** |

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| | 1. The minimum depth to water table beneath Lake Toolibin and Toolibin Flats in spring, when the lake is dry, should be 1.5m.<br><br>2. The maximum salinity of lake water when the lake is full should be 1,000 mg/l Total Dissolved Salts (TDS).<br><br>3. The maximum salinity of inflow to the lake, measured at the Water Authority gauging station 609 009 on the Northern Arthur River, should be 1000 mg/1 TDS during the winter months when the lake is full.<br><br>4. The lake bed dries periodically by evaporation, on average once every three years.<br><br>5. The levels of nutrients within Lake Toolibin should not cause excessive growths of algae or other aquatic plants, or cause deleterious reductions in dissolved oxygen concentrations in the water. Total phosphorus levels in the water should not to exceed lOOmg/l unless long-term monitoring indicates that this criterion may be modified. |