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Aquatic Root Mat Communities of the Leeuwin Naturaliste Ridge

Written by Kim Williams
On behalf of the Leeuwin Aquatic Root Mats Recovery Team

Recovery Team Membership

There has been one change in team composition during 2005, being the retirement of John Blyth from the department.

Current team membership:

Kim Williams	Chair, SW Region Nature Conservation Leader
Anne Wood	Blackwood District Caves Officer
Val English	Species and Communities Branch, A/ Principal Ecologist
Brenton Knott	Invertebrate researcher University of WA
Andrew Storey	Invertebrate researcher University of WA
Robyn McBeath	Augusta Margaret River Tourist Bureau "Cavesworks",
Stefan Eberhard	Science Division
Cahit Yesertener	Hydrologist, Dept of Environment

Summary

Despite a return to average annual rainfall for the winter of 2005 water levels in all four occurrences of the root mat community remained very low or non existent for the 4th consecutive year. The impact of this sustained reduction in water levels on the persistence of the community is not known.

Changing land use and development issues in the Augusta - Margaret River area were brought to the fore with a proposal to establish a blue gum plantation approx 1km to the north of the jewel/easter cave system. Potential impacts on the groundwater resources which may support the ecological community were raised by team members. The proponent increased the width of buffers separating the plantation from the reserves containing the caves.

A rewrite and update of the Interim Recovery Plan was commenced during late 2005. A major focus in the plan will be to improve our understanding and monitoring effort of local hydrological regimes supporting the karst communities and geographic variation in community composition.

During 2005, the Recovery Team continued to provide input relating to conservation requirements of root mat sites into the Capes Parks Management Plan process.

Progress with implementing recovery plan
Interim recovery plan rewrite is likely to broaden the definition and distribution of the communities considered as threatened. The plan identifies that the major threat is from changing hydrological regimes, both natural and human induced. A significant challenge to the recovery of these communities is to improve the extremely poor knowledge of localised groundwater processes, catchments and impacts.

Major actions implemented
Annual monitoring program for water levels in the four caves was maintained.

Team member; Stefan Eberhard released his thesis: Eberhard, S.M. (2004) Ecology and hydrology of a threatened groundwater-dependent ecosystem: the Jewel Cave karst system in Western Australia. PhD thesis Murdoch University. 338 pp. The contents of this thesis is helping to inform the rewrite of the recovery plan.

A project to digitise maps and hydrological notations produced over many years by cavers in the Leeuwin Naturaliste area was commenced.

The summary of results from the trial burn and water monitoring program at jewel - easter cave has been completed. Results shown that under low fire intensity conditions there is limited benefit of undertaking fuel reduction burning to increase water infiltration into the cave system. The Recovery Team made the decision not to repeat trial in other locations.

Update and rewrite of interim recovery plan commenced, and the final version should be completed by mid 2006.

Meeting Success or Failure criteria

Unfortunately with the continued decline in water levels at all occurrences the criteria for failure " ….including the drying up of the streams in any single cave.." has been met. In each case the cause of the declining water levels can not be attributed directly to anthropogenic causes.