
REVIEW OF KARST HAZARDS IN THE WANNEROO AREA, PERTH, WESTERN AUSTRALIA

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Perth Cities Project**



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This report was produced as part of Geoscience Australia's graduate program

February – June, 2003

EXECUTIVE SUMMARY

Within the Perth region, a karst belt lies 5 km inland from the coast and stretches for approximately 24 km in a north-west to south-east direction (Figure 2.1). This area comprises one main geological unit; the Tamala Limestone surrounded by residual sands formed from the erosion of the limestone.

The Tamala Limestone is a porous rock prone to solution by weakly acidic water such as groundwater and rainfall. These waters circulate through cracks and pores within the limestone aiding the Carbonic acids in these waters to remove the calcium carbonate from the limestone by solution. This process is known as karst weathering.

There are many distinctive landform features that define karst terrains including: sinkholes (dolines), caves, dry valleys, tube structures, vaults and solution flutes.

Known karst hazards in Wanneroo include; holes developing on private property, a rock fall, exposed caves with inappropriate coverings, and roads and houses built over caves and pinnacles. These hazards pose a risk to the community as personal, structural and environmental damage may occur.

A karst hazard map of the Wanneroo area, Perth, W.A, has been developed as numerous lakes, caves and sinkholes exist. Increased housing developments and the subdivision of land pose a threat to the Wanneroo rural community as education regarding karst terrains is limited.

There are numerous ways of minimising the risk of karst hazards and they include education, completing geotechnical reports and placing warning signs, fences and barriers in cavernous areas. The subdivision of land should rely on karst knowledge as well as a karst hazards database.

The karst hazard map and report are intended to provide regional karst awareness within the Wanneroo Local Government Area and to promote the need for proper karstic documentation, hazard management and prevention measures. The information provided is only a start to the documentation process and does not include all karst features, as approximately 750 caves exist in the Yanchep and Wanneroo region. A Karst Hazard brochure has also been developed to educate communities within Australia about the risk of living on karst terrains.

ACKNOWLEDGEMENTS

I would especially like to thank Lex Bastian for his time, support, knowledge and generosity in aiding the development of this report.

As well as Lex, I would also like to thank Bob Gozzard, from the Geological Survey of Western Australia for inputting his invaluable knowledge of karst terrains. The time you both took to show me karst hazards around Perth, W.A. was greatly appreciated.

A thank-you goes to Phil Calley and Phil Thompson from the Wanneroo Council. The provision of information about Wanneroo and karst concerns was highly valued.

Lastly, I would like to thank Anita Dwyer, Justin White and Kane Orr for their recommendations and support throughout this project.

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