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eriss *research summary*

2008–2009

DR Jones & AL Webb (eds)

Australian Government
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Supervising Scientist

It is SSD policy for reports in the SSR series to be reviewed as part of the publications process.

This Supervising Scientist Report is a summary of the 2008–2009 research program of the Environmental Research Institute of the Supervising Scientist and has been reviewed internally by senior staff and the editors of this volume.

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Preface

The Environmental Research Institute of the Supervising Scientist (***eriss***) is part of the Supervising Scientist Division (SSD) of the Australian Government's Department of the Environment, Water, Heritage and the Arts. ***eriss*** provides specialist technical advice to the Supervising Scientist on the protection of the environment and people of the Alligator Rivers Region (ARR) from the impact of uranium mining. A major part of its function is to conduct research into developing best practice methodologies for monitoring and assessing the impact of uranium mining on water and air (transport pathways) and soil, and on the bushfoods that are consumed by the local indigenous people. This research spans the operational, decommissioning, and post rehabilitation phases of uranium mining in the ARR.

eriss also applies its expertise to conducting research on the sustainable use and environmental protection of tropical rivers and their associated wetlands, and engaging in a limited program of contract research on the impacts of mining elsewhere in the north Australian tropics.

The balance and strategic prioritisation of work within the uranium component of ***eriss***'s project portfolio is defined by Key Knowledge Needs (KKNs) developed by consultation between the Alligator Rivers Region Technical Committee (ARRTC – see ARRTC membership and function in Appendix 1), the Supervising Scientist, Energy Resources of Australia and other stakeholders. The KKNs are reviewed periodically (approximately every three years) to ensure their currency in the context of any significant changes that may have occurred in U-mining related activities and issues in the ARR. The current revision of the KKNs will apply until the end of 2010.

The KKNs comprise six thematic areas based primarily on geographic provenance (Appendix 2). The content of the research programs developed for each of these areas is assessed and reviewed annually by ARRTC in consultation with stakeholder groups.

Not all of the KKN research areas are able to be covered by ***eriss***, since not all of the required disciplines are available within the Institute. To address these particular gaps, collaborative projects are conducted between ***eriss*** and researchers from other organisations, or consultants are commissioned by ***eriss*** and others to undertake specific pieces of work. For example, KKN projects related to detailed hydrogeology or tailings management on the Ranger lease are conducted and reported separately by consultants engaged by Energy Resources of Australia Ltd. A more complete picture of the scope of research work that is conducted by all parties can be obtained by referring to the minutes that are produced for the meetings of ARRTC www.environment.gov.au/ssd/communication/committees/arrtc/meeting.html.

This report documents research projects undertaken by ***eriss*** over the 2008–09 financial year. Much of the monitoring and research work conducted by ***eriss*** is focused on the wet season and its immediate aftermath since it is during this period that the environment is potentially at most risk from past and current uranium mining activities. By way of context the wet season rainfall of 1186 mm for 2008–09 was well below the running average of 1583 mm, with decreasing annual rainfall now having been recorded over each of three successive wet seasons (2006–07, 2540 mm; 2007–08, 1658 mm).

The U-mining-related section of the research summary has been structured under five main headings, consistent with the KKN framework:

1 Ranger – current operations

2 Ranger – rehabilitation

3 Jabiluka

4 Nabarlek

5 General Alligators Rivers Region

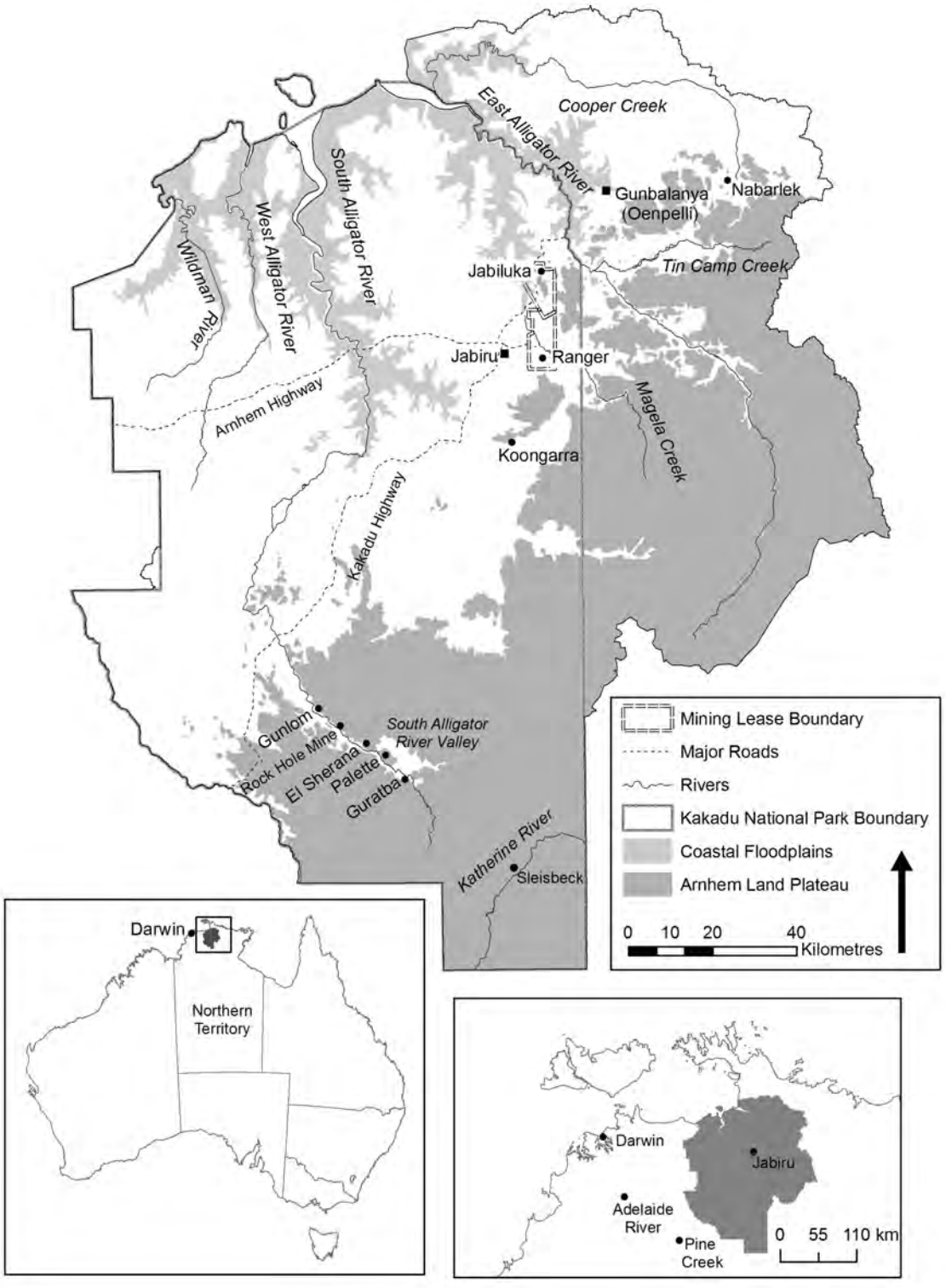
Three maps (following this Preface) provide the regional context for the locations that are referenced in the research papers. Map 1 shows Kakadu National Park and the locations of the Ranger Mine, Jabiluka project area, the decommissioned Nabarlek Mine, and the South Alligator River Valley. A schematic of the Ranger mine site is provided for reference in Map 2. Map 3 shows the locations of billabongs and waterbodies used for the aquatic ecosystem monitoring and research programs for assessing impacts from Ranger mine.

The final section of the report contains summaries of the non-uranium mining related external projects. Commercial-in-confidence projects have been excluded from this compilation.

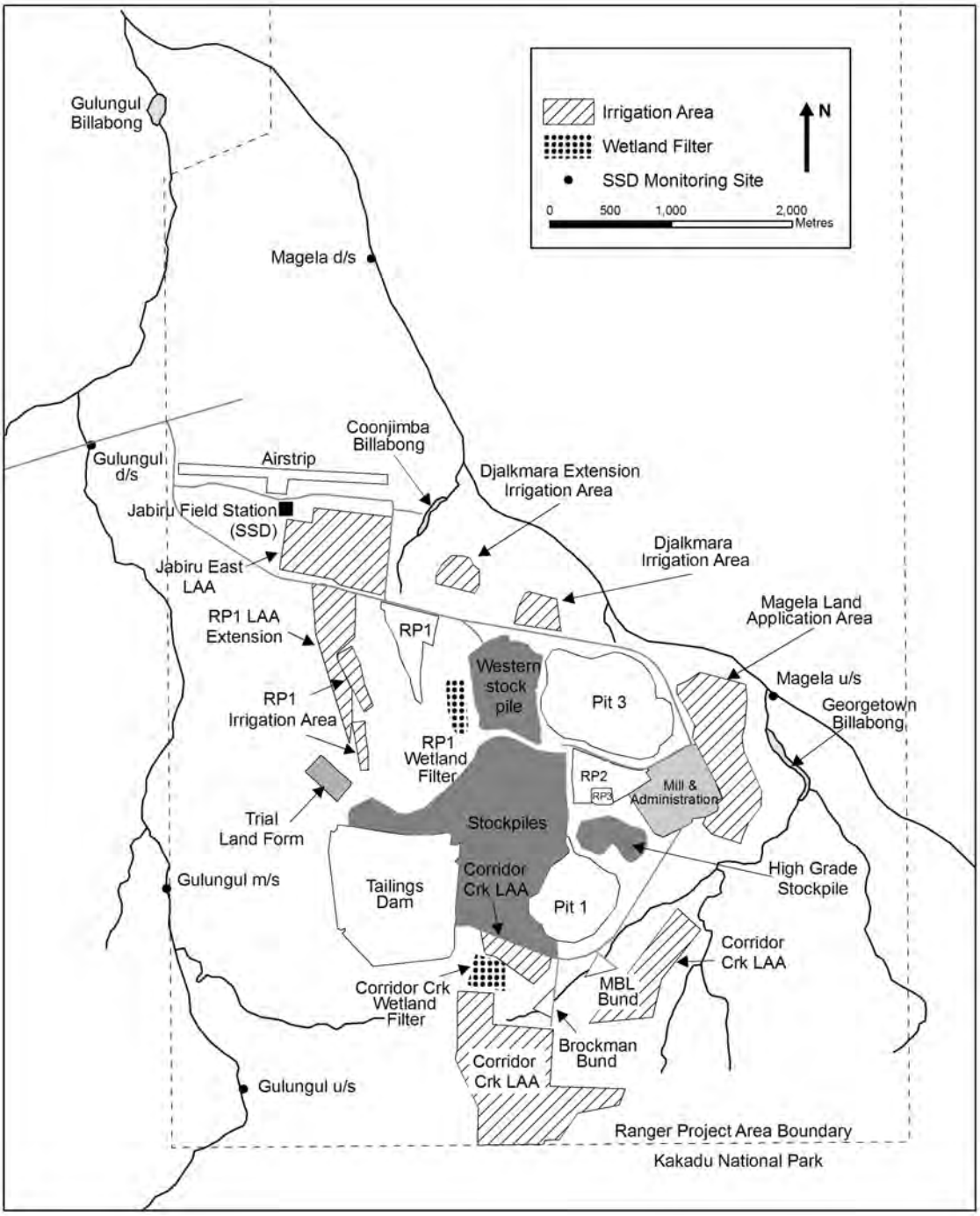
For additional information, readers are referred to the annual publications list (Appendix 3) that details all of the material published, and conference and workshop papers presented by ***eriss*** staff in 2008–09.

Dr DR Jones

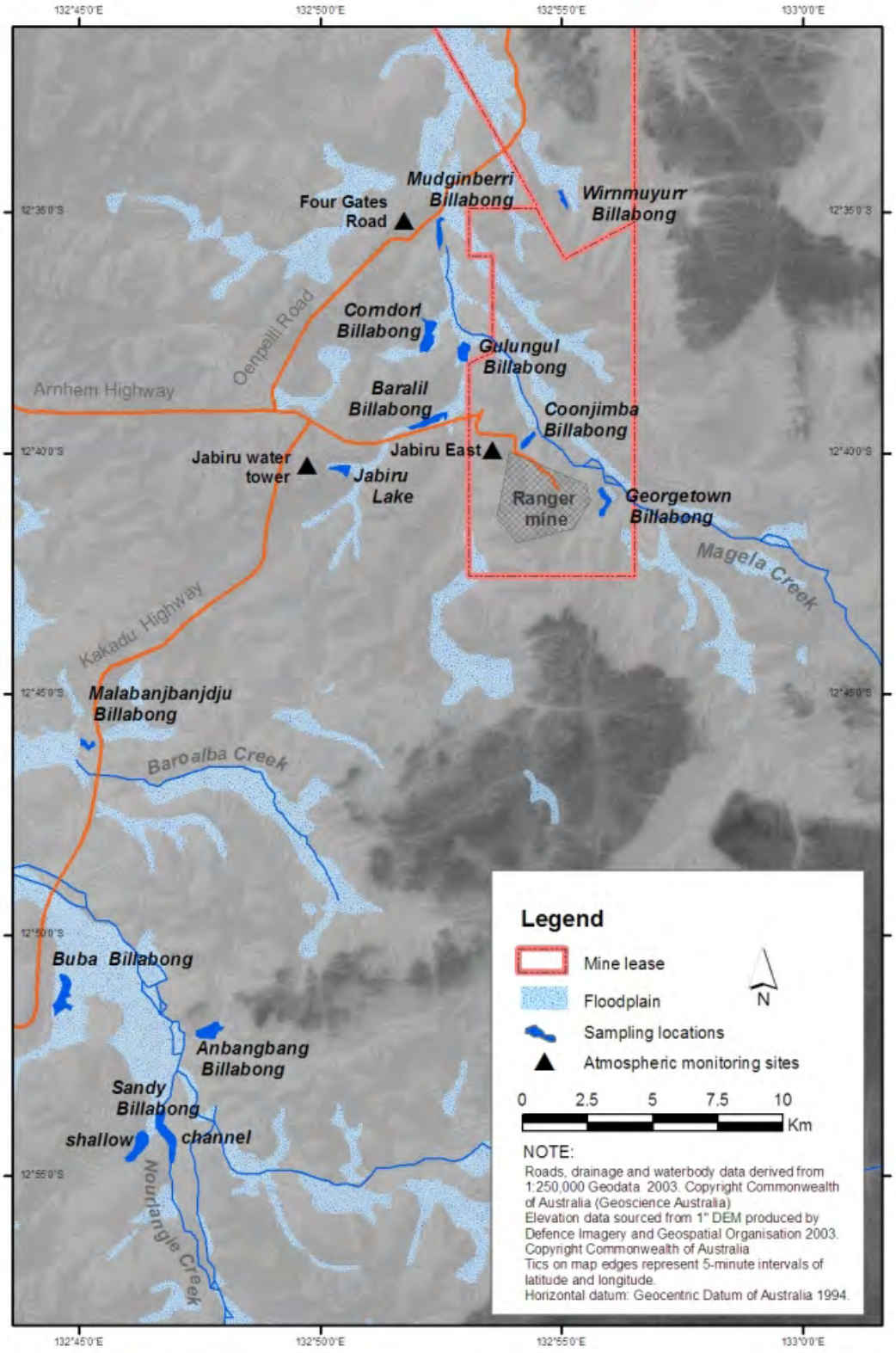
Director, Environmental Research Institute of the Supervising Scientist



Map 1 Alligator Rivers Region



Map 2 Ranger minesite showing adjacent billabongs, creek systems and key water quality monitoring sites



Map 3 Location of waterbodies and atmospheric monitoring sites used in the SSD environmental monitoring programs