

Executive summary

The Alligator Rivers Region (ARR), which includes Kakadu National Park (KNP), is one of Australia's most highly valued landscapes, with the Park having been declared a World Heritage area. It is also one of the most studied regions of Australia resulting in the accumulation of a very large body of knowledge. Despite this large knowledge base, natural resource managers of the region seldom have all the information they need to make informed decisions, and there remain uncertainties in data.

This report provides a compendium of spatial data currently available to assess ecological risks to the seasonally inundated floodplain of Magela Creek. The datasets represent the natural assets and character of these wetlands, and some of the regional threats to them arising from multiple and diffuse landscape-scale sources. Under these broad criteria, information has been collated specifically for the landscape-scale ecological risk assessment study of the floodplain conducted by the Environmental Research Institute of the Supervising Scientist (*eriss*), for which this is a supporting document. The identified data sources also provide a valuable resource for KNP and ARR land managers generally.

The ecological risk assessment project's aims were to quantify risks to the natural assets of the Magela wetlands arising from non-mining sources and from Ranger mine (based on measurement criteria to assess impacts to KNP World Heritage Values). This will enable risks from different sources to be assessed in context, with a broader objective to facilitate optimum decision making for managing risks to WHVs in Kakadu generally. In order to provide an objective assessment of risks, the analyst needs to communicate the relevant uncertainties in the information used for the assessment and, in this context, the assumptions, confidence in interpretation, and uncertainties of datasets used in these analyses.

This compendium provides an assessment of the state of knowledge for spatial risk assessment of the Magela Creek floodplain and, to a lesser extent, the ARR. Datasets are evaluated in context of their utility to provide suitable measurement endpoints for monitoring and ecological risk assessment. Evaluations are based on the ability of a dataset to provide repeatable measurements within acceptable levels of accuracy and precision, and at suitable scale(s), to measure both the risks to natural assets and the success of risk reduction strategies. Metadata reports for each dataset are provided in accordance with the Spatial Information Council of Australia and New Zealand.

It has also been an aim to prompt discussion as to how monitoring information for ecological risk assessment might be improved through contrasting the utility of existing data against identified limitations. While any monitoring endpoint will have intrinsic limitations, the quality (and utility) of the data can often be improved upon implementation of appropriate standards. Sometimes representative endpoint data do come from different sources where inconsistent collection methods are apparent and in these cases differences need to be accounted for and reconciled where possible.

Ongoing improvement of systems that support efficient management, retrieval, and analysis of information for risk-assessment reporting is considered critical to the long-term adoption of ecological risk assessment as a routine decision support tool for land managers in the region. Information access for participatory natural resource management under a GIS framework will be further enhanced through appropriate training at all levels in the data management and analysis cycle. Reporting is arranged under the headings: Environmental assets; Environmental threats; and Environmental characteristics – the basic framework developed for the ecological

risk assessment. Datasets have also been arranged in a GIS under this framework and have been made available to KNP managers.

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