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REPORTING CHANGE IN THE RANGELANDS; ACRIS ON TRACK FOR 2007

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ABSTRACT

ACRIS is the Australian Collaborative Rangeland Information System. Here, we describe how ACRIS is progressing towards an information system to report and understand change in the rangelands. This progress is based on reporting activity across pilot regions in 2004-05 and progress currently being made towards a more comprehensive account of change for the entire rangelands. This report will be delivered in late 2007.

INTRODUCTION

ACRIS is the Australian Collaborative Rangeland Information System (see <http://deh.gov.au/land/management/rangelands/acris/index.html>) and its primary purpose is to collate and analyse data that allows reporting of change in Australia's rangelands. To the extent possible, we also want to understand and explain the reasons for reported change. Although we will never have sufficient data to allow comprehensive reporting of biophysical, economic and social domains across all the rangelands, ACRIS is the first attempt at building a systematic picture of the current state of the rangelands and how, where, and at what rate they are changing.

ACRIS operates as a partnership of state, Northern Territory and Australian Government agencies with an interest in the rangelands. Its activities are guided by a management committee of representatives from these partner agencies. The Natural Heritage Trust (NHT) provides funding support to assist agencies with their reporting and also supports a small management unit that includes the Desert Knowledge Cooperative Research Centre.

ACRIS AS AN INFORMATION SYSTEM

The emphasis for ACRIS is on the "IS" part of the acronym, i.e. the information system. ACRIS does not, and will not, have the resources to perform additional monitoring to accurately report the extent of, and reasons for, change. Nor is it a data warehouse. Rather we rely on relevant state, NT and Australian Government agencies to contribute data and information as part of their service or regulatory functions. However, with the assistance provided by current NHT funding, ACRIS is using targeted investment to fill some data gaps.

The ACRIS Management Unit collates available data, conducts further analyses (meta-analysis) as appropriate and reports results (Fig. 1). We expect that regional Natural Resource Management groups will contribute relevant data where possible and use ACRIS information products to assist their reporting on regional resource condition targets.

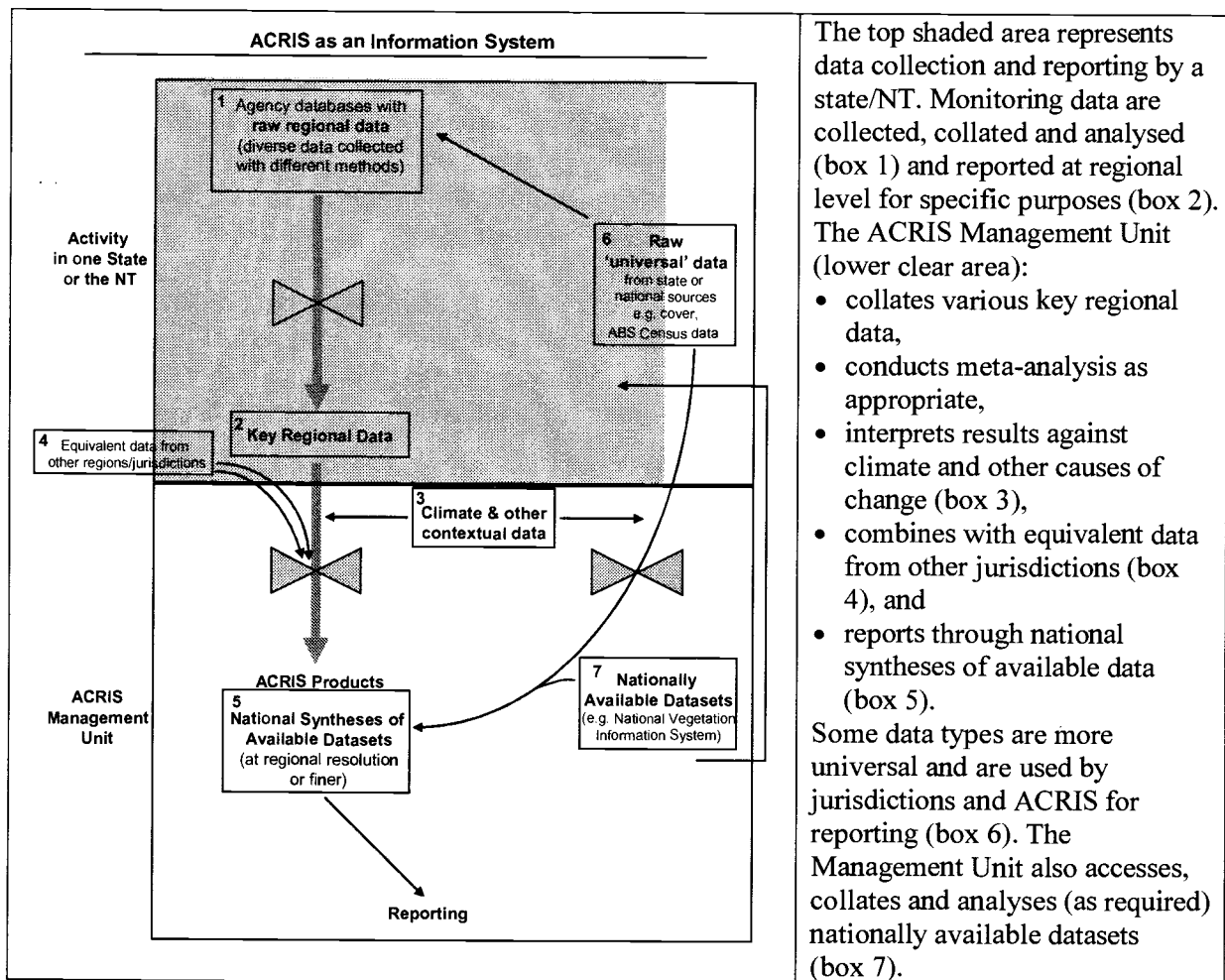


Figure 1: Stylised representation of ACRIS as the information system for reporting change in the rangelands

PROGRESS WITH ACRIS REPORTING

Pilot Regions

The critical first stage for ACRIS was testing the quality of our information and our capacity to combine it into a national picture. We tested the reporting system across five pilot regions (Gascoyne Murchison, WA; Gawler Bioregion, SA; Darling Riverine Plains Bioregion, NSW; Desert Uplands Bioregion, Queensland; and Victoria River District, NT) addressing five focus questions. Results and reporting success are summarised in the brochure *ACRIS Reporting Change in the Rangelands* (available at <http://deh.gov.au/land/management/rangelands/acris/index.html>). We found that for the period ~1992-2003:

- critical stock forage has generally improved,
- the density of native plant species was stable in most areas,
- landscape function was mostly stable although it decreased in some areas during periods of poor rainfall,
- clearing in two regions has decreased cover but other components of cover have remained generally stable, and
- analysis of Australian Bureau of Statistics census data shows that communities living in the rangelands are becoming less diverse and this may result in a reduced capacity for change. Separate to these national data, some regional data show that individual regions are adapting to change.

A comprehensive national synthesis (Bastin et al. 2005) sits behind these highly summarised results. This synthesis was built from individual pilot-region reports, four of which are accessible from the ACRIS web site and several are presented at this conference. The national synthesis includes a confidence estimate on responses to questions (based on spatial coverage and relevance of available data to the question) and comments on our ability to undertake more complete reporting across all of the rangelands.

2007 Reporting

We are now working towards a report in 2007 for the entire rangelands, that documents recent change (~1992-2005) for a number of themes based on component products of those themes (Table 1). This report has been requested by the Audit Advisory Committee and Natural Resource Programs and Policy Committee, both of which are joint Australian – State/NT government policy committees.

Table 1: Themes, products and information sources for 2007 reporting by ACRIS

Theme	Products	Supplier
Indicators of landscape or ecosystem change	Change in landscape function Information on vegetation cover, plant density Regional resource condition assessments	Rangeland states & NT as available
Indicators of sustainable management	Management of the pastoral estate (mainly forage quality) Add to national photographic sequence Components of total grazing pressure Fire record – extent, frequency & timing of fire Dust Storm Index	Rangeland states & NT as available Aussie-GRASS, UQ, WA Department of Land Information, Griffith University
Indicators of biodiversity change	Land cover change – particularly satellite data ground sources as available (species richness etc) Regional biodiversity surveys as available complemented by national data (e.g. the National Vegetation Information System, NVIS)	SLATS, AGO/ERIN, State/NT monitoring programs, States/NT, Aust Govt Dept Env & Heritage
Indicators of sustainable water management	Largely based on distribution of waterpoints (<i>we presume that rangeland surface & ground water resources will be reported as part of the national water initiative</i>)	States/NT where possible (parts of SA, WA, NT)
Indicators of social & economic change	Sustainable management derived from changes in land values, land use etc	States/NT. Audit – land use and tenure
Indicators of the importance of climate variability	Seasonal characteristics (mainly as context to assist with interpreting results of above) - regional rainfall histories - satellite-derived images of seasonal quality Aussie-GRASS simulations of pasture growth and vegetation cover	States/NT, Bureau of Meteorology, Rainman, SILO, ERIN NDVI images Aussie-GRASS (Qld Dept Nat Res, Mines & Water)

Reporting is occurring through a formal work plan with each contributing agency. The Australian Government is providing some financial assistance to most contributing State and NT agencies via NHT funding administered by the Desert Knowledge Cooperative Research Centre. The Management Unit is coordinating reporting activity, disseminating national products (e.g. fire, dust, Aussie-GRASS) to state & NT partners for their reporting and assisting individual jurisdictions where it can. It will also build a national synthesis of change from the data and information products provided by contributing agencies.

Indicative results – fire

Examples of fire extent for two years supplied by the WA Department of Land Information are shown in the upper panels of Fig. 2. For much of the central and northern rangelands, fire behaviour is partly driven by antecedent rainfall (lower panels, Fig. 2). These results are preliminary at this stage, but indicate the type of reporting ACRIS will do. As interpretations for various regions by jurisdictions become available, we will build a more integrated product of fire extent, intensity and frequency across the rangelands from the available record.

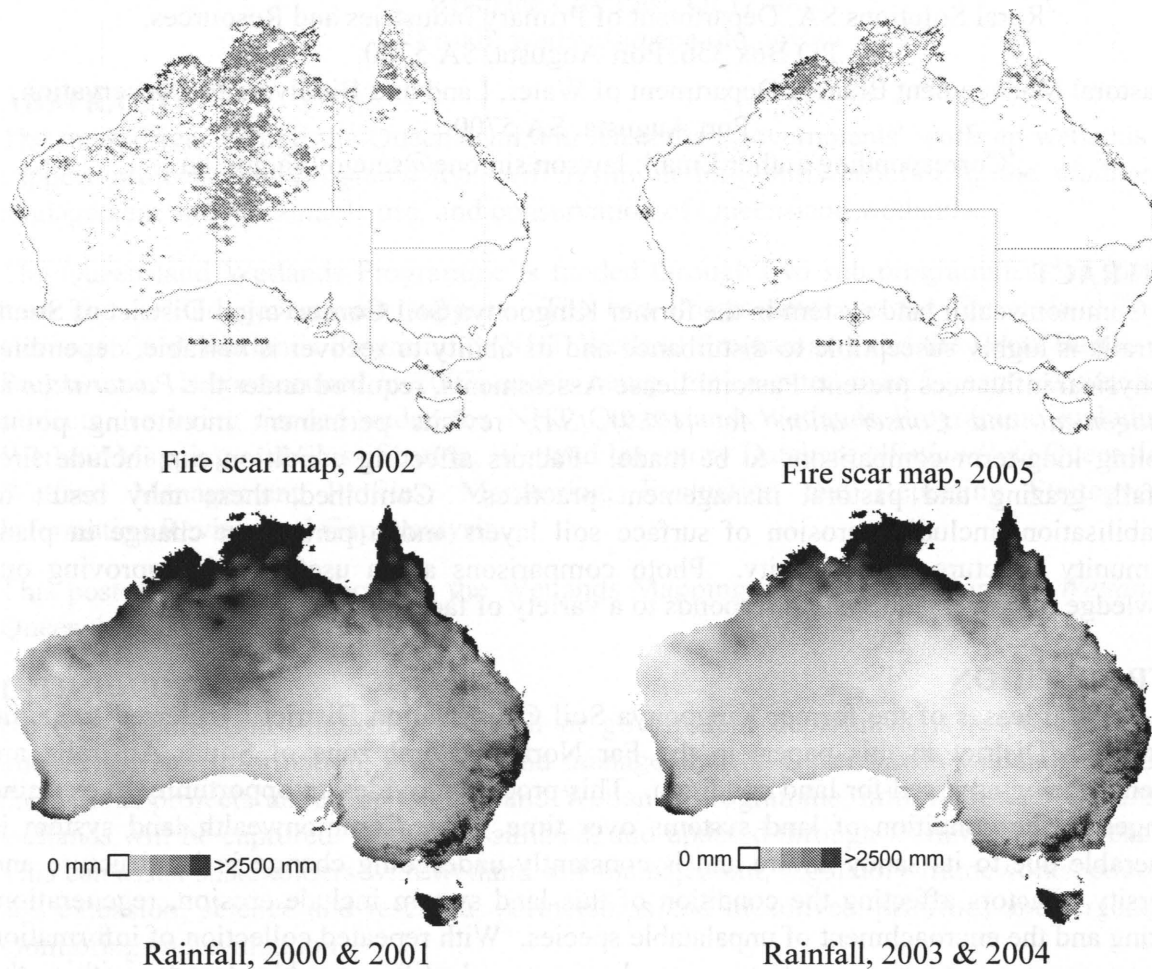


Figure 2: Annual area burnt in 2002 and 2005 (upper panels) and cumulative rainfall for each of the preceding two calendar years (lower panels). Rainfall surfaces compiled from the QDNRM SILO Climate Data Time Series.

REFERENCES

Bastin, G. and members of the ACRIS Management Committee (2005). Australian Collaborative Rangeland Information System: Reporting Change in the Rangelands, National synthesis of reports from pilot regions. Report to the Australian Collaborative Rangeland Information System (ACRIS) Management Committee. CSIRO Alice Springs. 156 pp. (available at <http://deh.gov.au/land/management/rangelands/acris/publications-products.html>)