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Wetland research in the Australian wet-dry tropics

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WETLAND RESEARCH IN THE AUSTRALIAN WET-DRY TROPICS

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Presented by Abbie Spiers at the Annual Symposium of the Australian Institute of Biology, held at the Northern Territory University, Darwin, 11 July 1998.

Theme: 'Biology in the wet-dry tropics: still wet behind the ears?'

WETLAND RESEARCH IN THE AUSTRALIAN WET-DRY TROPICS

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Rivers, billabongs, seasonally flowing streams and floodplains are wetlands. So are mangrove forests, coastal salt flats and man-made dams or sewage ponds. With such a broad definition the wet-dry tropics are literally awash with wetlands! These wetlands are highly productive and support plants and animals, big and small, numerous and not so numerous.

Wetlands are also important to people. Australia's indigenous Aboriginal people have strong cultural ties with wetlands. People hunt and gather food on the wetlands, and many wetland plants and animals are depicted in Aboriginal art. Tourists from Australia and elsewhere value these wetlands. Pastoralists graze cattle on the floodplains during the dry season. Wetlands also act as a buffer zone in the case of tidal surges and flooding.

However, these wetlands face a number of increasingly serious threats. These include: invasion by exotic plant species; damage from feral animals; drainage, vegetation clearance and development; saline intrusion and rising sea levels; inappropriate or altered fire regimes; inappropriate pastoral practices; potential impacts from mining; decreased water quality; and interruption of natural flow regimes.

We have a particular interest in wetland research, and in making research results available to managers in a form that will assist them in their management planning. In the wet-dry tropics there are large information gaps, where the information base needed for effective wetland management is not available. We conduct research to fill these gaps, using internationally recognised procedures. The program is divided into three broad areas:

- Understanding the ecology of wetlands
- Identification and assessment of threats to wetlands
- Provision of advice on the wise use, protection and restoration of wetlands

These goals and research activities overlap and reflect the complex, interactive nature of wetland management. We are keen to develop partnerships and demonstrate that research can play a greater direct role in ensuring protection and effective management of wetlands. These partnerships involve other research and land/water management agencies and, importantly, local wetland owners, users and managers.

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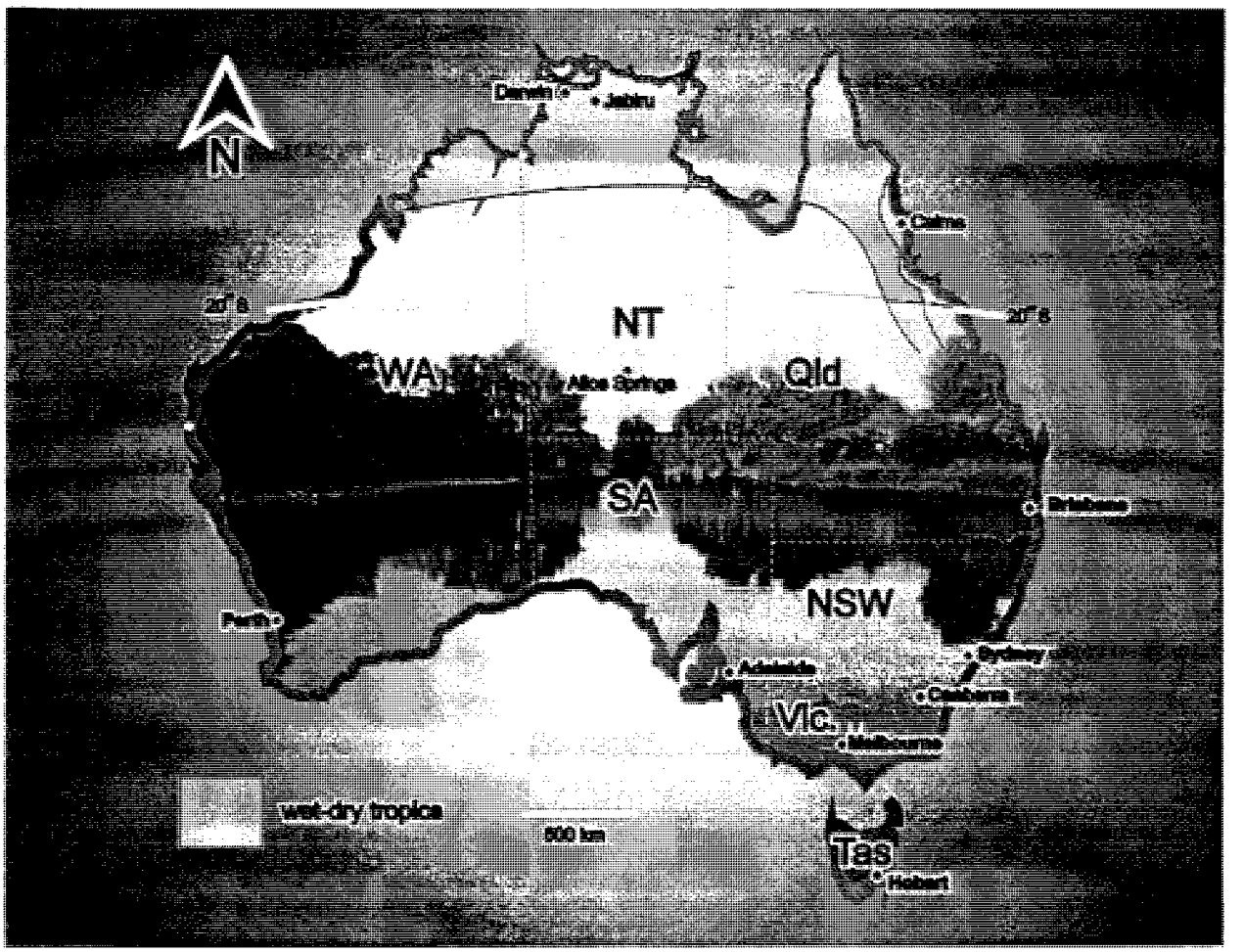
WETLAND RESEARCH IN THE AUSTRALIAN WET-DRY TROPICS

- Wet-dry tropics of Australia
- Wetlands
  - Importance of wetlands
  - Threats to wetlands
- *eriss* wetland research

WET-DRY TROPICS OF AUSTRALIA



WETANDS OF THE WET-DRY TROPICS

- Rivers
- Billabongs
- Floodplains
- Waterfalls
- Mangrove forests
- Coastal salt flats
- Estuaries
- Seagrass beds
- Man-made dams, sewage ponds

THE IMPORTANCE OF WETLANDS

To flora and fauna

- support biodiversity
- refuge areas in the dry season

To people

- Lifestyle, culture
- Pastoralism
- Fishing
- Tourism
- Buffer zones
- Water supply
- Flood protection

THE IMPORTANCE OF WETLANDS

Worldwide

- maintain biodiversity and ecological processes
- buffer against global climate change
- provide values and benefits to people

International treaties

- Ramsar Convention for Internationally Important Wetlands
- Convention on Biological Diversity
- Bonn Convention on Migratory Species

THREATS TO WETLANDS

- Inappropriate management
  - ponded pastures
  - altered fire regimes
- Pest species
  - weeds, feral animals
- Physical modification
  - drainage, mining
  - interruption of flow regimes
- Global climate change

eriss WETLAND RESEARCH

Wetland Protection and Management Program

To conduct research and provide information for the conservation and sustainable development of wetlands in tropical Australia

– multi-disciplinary

– holistic

– three broad areas

1. DESCRIPTION OF THE ECOLOGICAL CHARACTER OF WETLANDS

- develop techniques to classify wetlands
  (*eg draft national inventory protocols*)
- enhance the collection of ecological/ sociological information
  (*eg land use history*)
- identify/quantify the value and role of wetland components, processes, functions and attributes
- develop data and information management systems to assist wetland managers
  (*eg GIS and bibliographic*)

2. RISK ASSESSMENT AND RESTORATION OF WETLANDS

- develop and apply a risk assessment framework for assessing impacts of threats to wetlands

  (*eg herbicides*)

- develop and refine techniques for assessing the extent of threats, including mining

  (*eg rapid testing*)

- develop criteria and standards for assessing the extent of threats to wetlands

  (*eg water quality standards*)

3. MONITORING OF CHANGES

- develop procedures to monitor and assess the extent of changes to wetlands

  (*eg vulnerability to climate change*)

- collate information/provide advice on management planning and implementation of wetland monitoring programs

  (*Aboriginal wetland surveys*)

- develop procedures to assess and audit the effectiveness of wetland management actions and planning processes

  (*eg coastal monitoring node*)

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- Holistic and multi-disciplinary
- Management-oriented
  - Collaborative partnerships with other research bodies and management agencies
  - Involves local wetland owners, users and managers
- Provides information, advice and scientific leadership at local, national and international levels