internal report 459

World Wetland Day

2003: Tropical wetlands

Presentations on tropical wetlands: 31 January, Townsville, and 8 February, Darwin, 2003

CM Finlayson

June 2003

Supervising Scientist

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June 2003

Contents

Tropical wetlands: Presentation made at the Wetlands Forum, a part of the North Queensland Wetlands Festival, Townsville, 31 January 2003

Tropical Wetlands

Max Finlayson

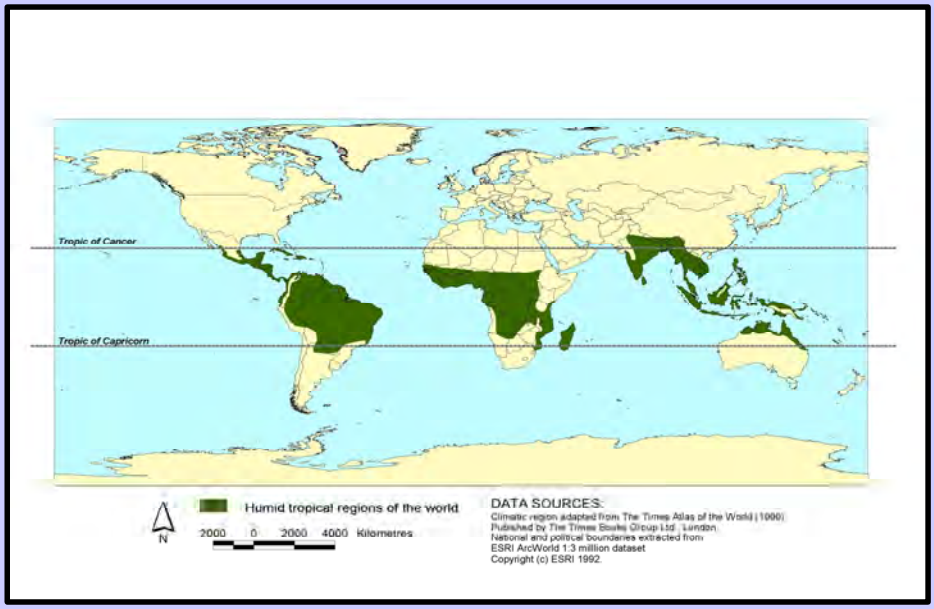
National Centre for Tropical Wetland Research

Darwin, NT

Tropical Wetlands

- **Distribution and extent**
- **Wetland services**
- **Major pressures**
- **Integrated framework**

Distribution and extent



Distribution and extent

- **Inventory incomplete, inaccurate, inadequate, outdated**

Global wetland area (km^2)

• S America	4 150 000
• N America	2 420 000
• E Europe	2 290 000
• Asia	2 040 000
• Africa	1 220 000
• Oceania	36 000
• W Europe	29 000
Total	**12 770 000**

Wetland types - area (km^2)

• **Freshwater – global**	**550 000**
• Freshwater – S Amer	1 520 000
• Freshwater – Africa	350 000
• **Swamps – global**	**1 100 000**
• Swamps – Okavango	1 600 000
• Swamps – Zambia	750 000
• Swamps – Amazon	700 000

Wetland area (km^2) - Australia

• Qld	11 453 560
• SA	4 100 290
• NT	2 912 790
•NSW	2 171 740
• WA	2 056 250
• Ext Terr	1 090 580
•Vic	395 100
•Tas	20 830
• ACT	670
Total	**24 201 210**

Mangrove / coastal salt flats

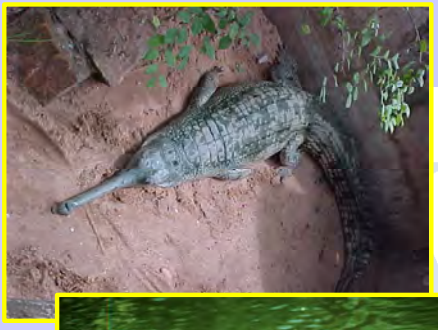
Freshwater grasslands

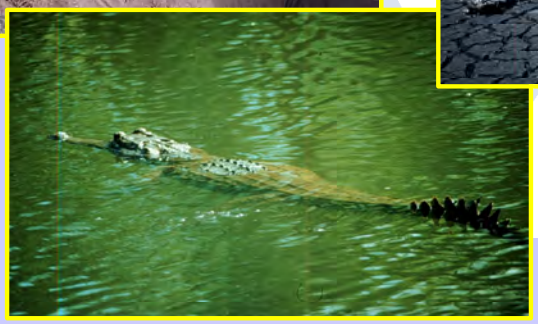
Freshwater flooded forests

Lakes – shallow /deep

Inland salt lakes

Wetland biodiversity





Wetland biodiversity

Wetland biodiversity

Wetland biodiversity

Wetland biodiversity

Wetland services

Provisioning

Goods produced or provided by wetlands

Food
Freshwater
Fuel wood
Fibre
Biochemical
Genetic materials

Regulating

Benefits derived from regulation of wetland processes

Climate regulation
Disease control
Flood control
Detoxification

Cultural

Non-material benefits obtained from wetlands

Spiritual
Recreational
Aesthetic
Inspirational
Educational
Communal

Supporting

Services that maintain the conditions for life on earth

Soil formation, Nutrient cycling, Pollination

Wetland services - provisioning

Wetland services - provisioning

Wetland services - regulating

Wetland services - cultural

Wetland services - cultural

Managing Mimosa pigra
U Minh Thuong National Park Vietnam

Major pressures

Invasive species

Physical modifications

Hydrological modification

Over harvesting

Pollution

Invasive species

Physical modification

Urban development

Hydrological modification

Overharvesting

Pollution

Climate change

Combined causes?

Extent of loss & degradation

54 % loss USA – 80% drainage

35% loss Mexico – agriculture

30 % loss Finland – peat/forestry

90% loss New Zealand – agriculture

60 % loss Europe – agricult/drain

27% loss Asia – agriculture

Extent of loss & degradation

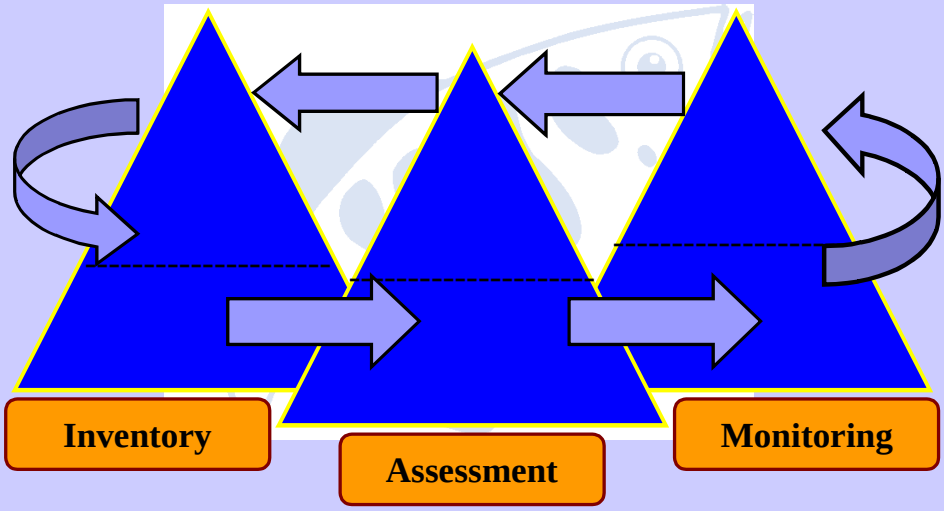
Victoria – 27% loss

South Australia – 89% loss

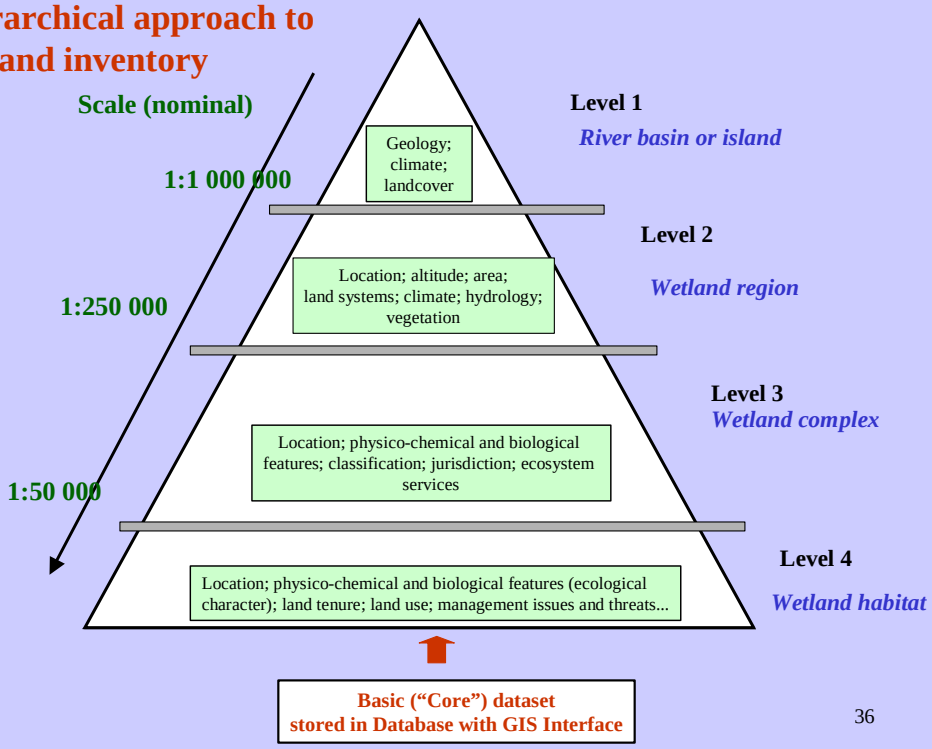
NSW – coastal – 60% loss

Extent of degradation - unknown

Integrated model – inventory, assessment & monitoring



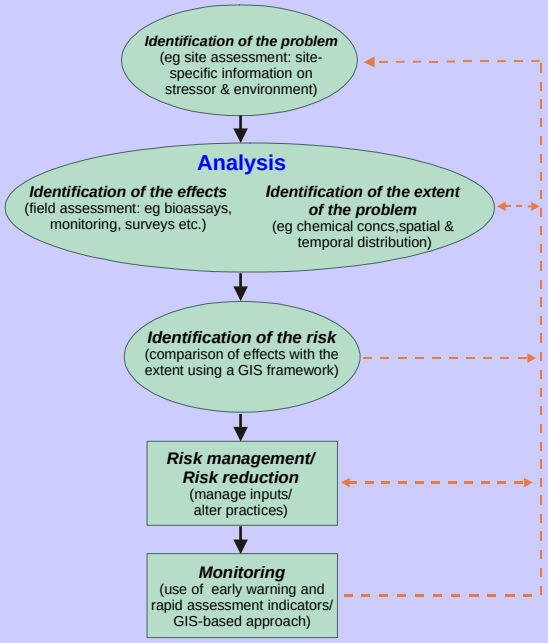
Hierarchical approach to wetland inventory



36

The Risk Assessment Framework

(modified from van Dam *et al.* 1999; Ramsar 2000)



Thank you

Tropical wetlands – habitats and biota: Presentation made at 'Wetlands in Litchfield Shire' public forum and field trip, Darwin, 8 February 2003

Tropical Wetlands in Northern Australia: their value and future

Max Finlayson, Peter Bayliss, MariaGrazia Bellio & John Lowry

National Centre for Tropical Wetland Research

Darwin, NT

Distribution and extent

- **Inventory incomplete, inaccurate, outdated**
- **Effective inventory data collation and analysis still needed**
- **Standard procedures available for data collation and storage**

Escarpment

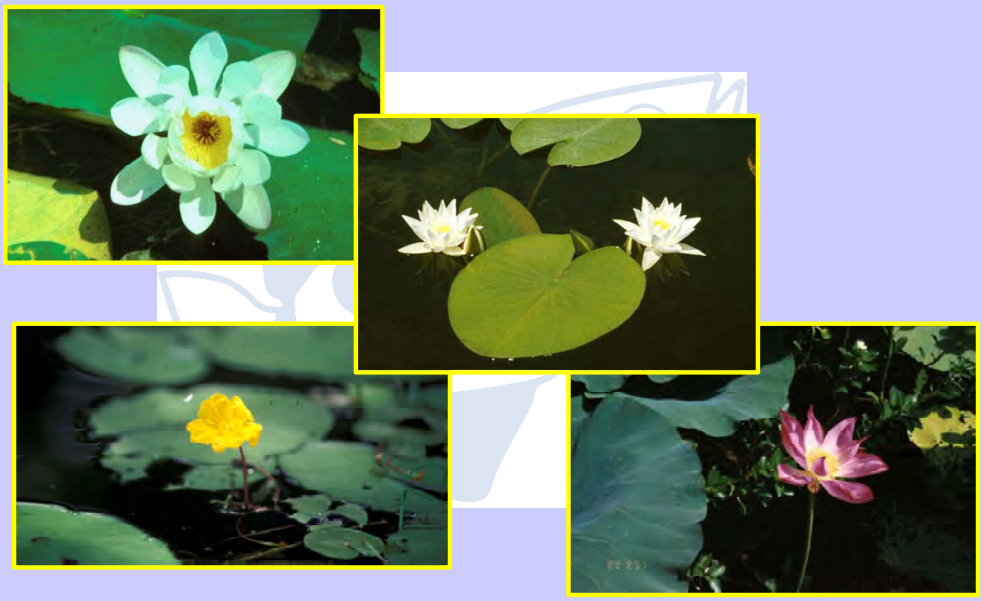
Freshwater flooded forests

Mangrove / coastal salt flats

Freshwater grasslands

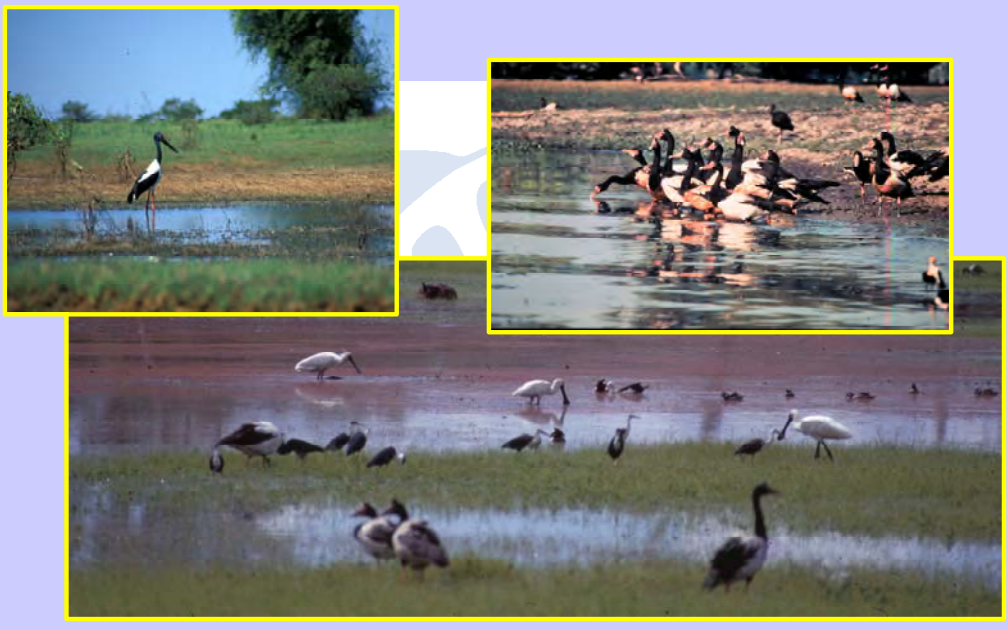
Floodplains

Wetland biodiversity



Wetland biodiversity

Wetland biodiversity



Wetland biodiversity

Wetland biodiversity

Thank you

Tropical wetlands – services and pressures: Presentation made at 'Wetlands in Litchfield Shire' public forum and field trip, Darwin, 8 February 2003

Tropical Wetlands: services & pressures

Max Finlayson

National Centre for Tropical Wetland Research, Darwin, NT

Environmental Research Institute of the Supervising Scientist
James Cook University
Northern Territory University
University of Western Australia

Wetland services

Provisioning

Goods produced or provided by wetlands

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Freshwater
Fuel wood
Fibre
Biochemical
Genetic materials

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Benefits derived from regulation of wetland processes

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Wetland services - provisioning

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Wetland services - provisioning

Wetland services - regulating

Wetland services - cultural

Major pressures

Invasive species

Physical modifications

Hydrological modification

Over harvesting

Pollution

Invasive species

Physical modification – agriculture, drainage, canalisation, irrigation

Urban development

Hydrological modification

Overharvesting

Pollution

Climate change - salinisation

Combined causes?

Thank you