

Floodplains

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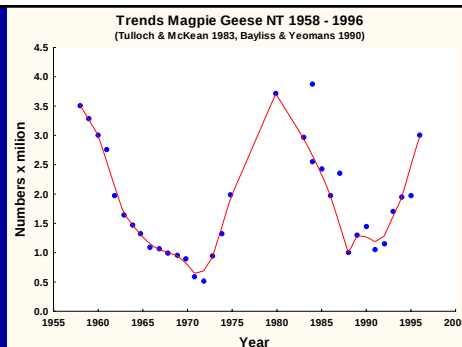
Outline

- Agents of change
 - Climate
 - Feral animals
 - Weeds
 - Fire
- Managing threats
- Knowledge gaps

1. Climate

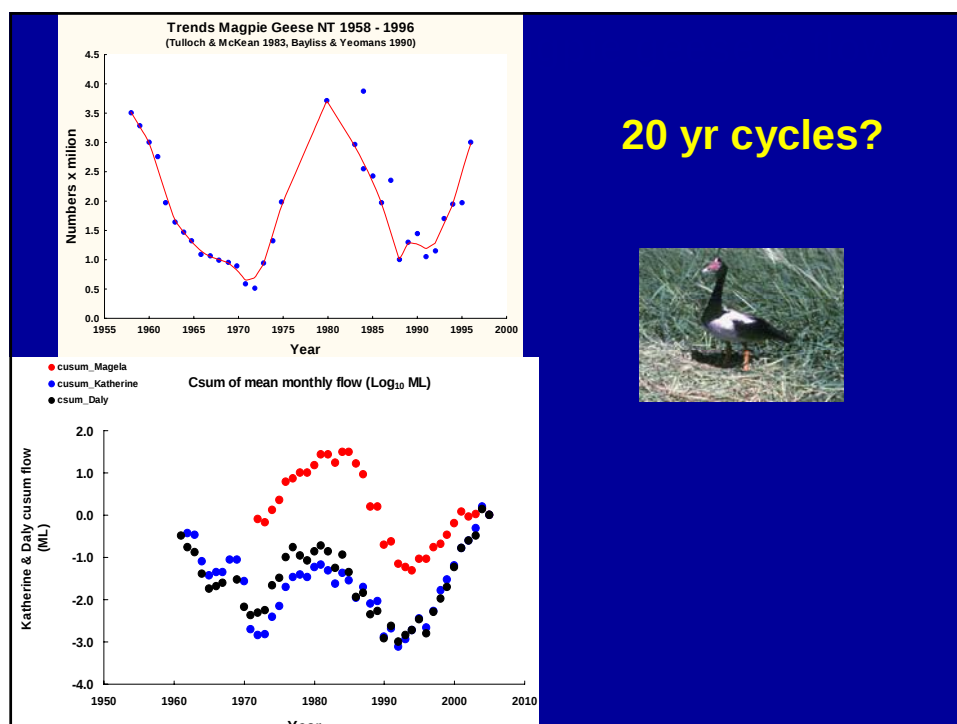
Seasonal rainfall is a major driver of short-term change.

But what about longer-term patterns?



20 yr cycles?





Saltwater intrusion



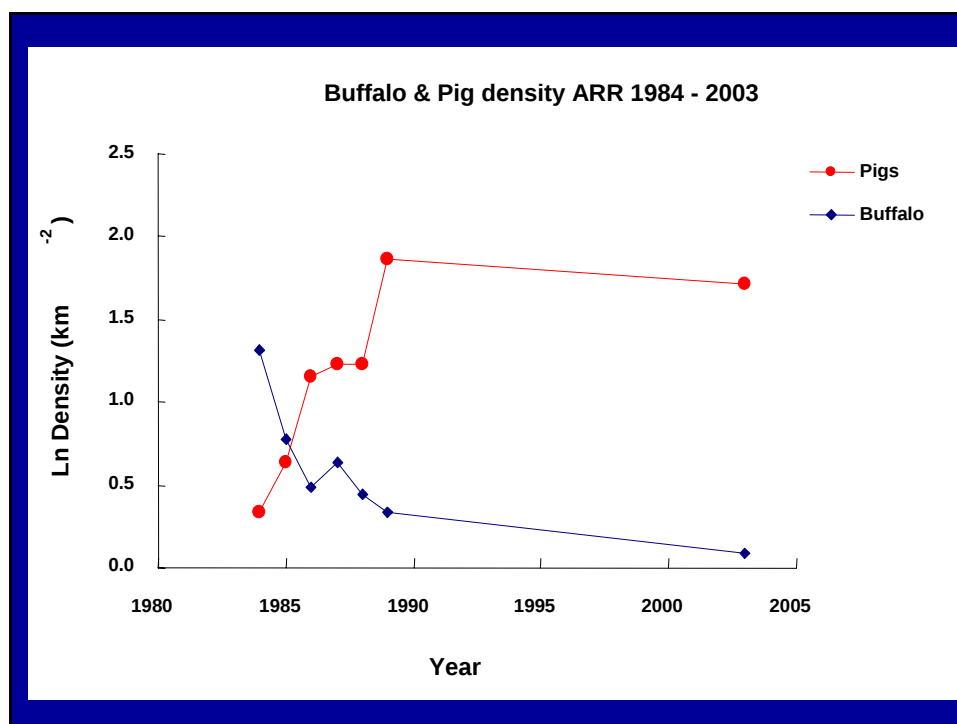
2. Feral animals

Buffalo



Feral pigs





Pigs and habitat change





No Pig, no Goose	= 200 bulbs/m ²
With Goose	= 100 bulbs/m ²
With Goose and Pig	= 50 bulbs/m ²



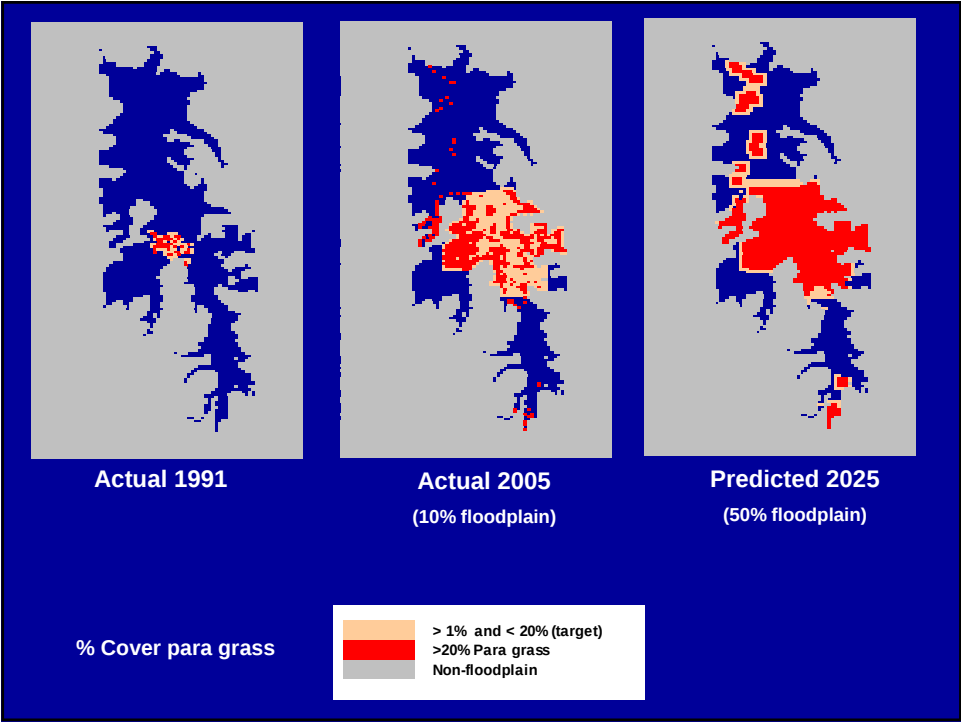
3. Weeds

Mimosa



Salvinia







Impacts of Para grass

Vegetation	Hi
Terrestrial invertebrates	Hi
Birds	Hi
Fuel loads	Hi
Food webs	Med.
Water quality	Med.
Aquatic invertebrates	Lo
Fish	Lo

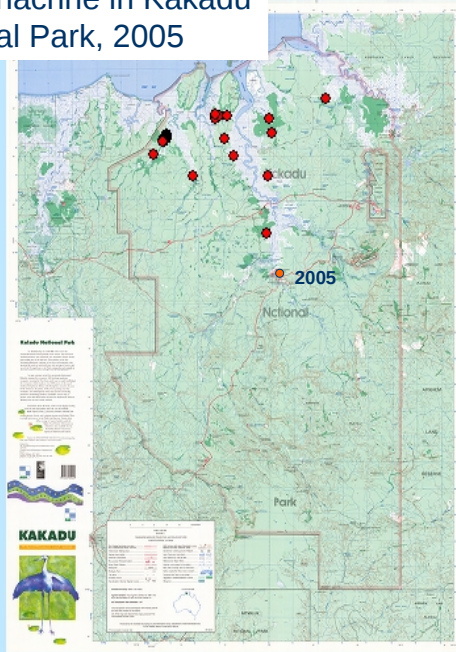
Olive Hymenachne



Olive hymenachne in Kakadu
National Park, 2001



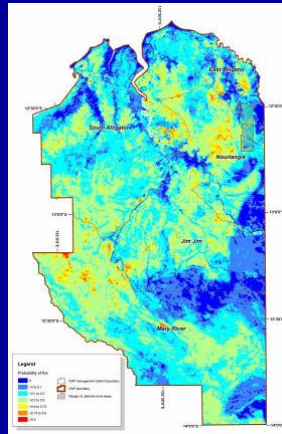
Olive hymenachne in Kakadu
National Park, 2005



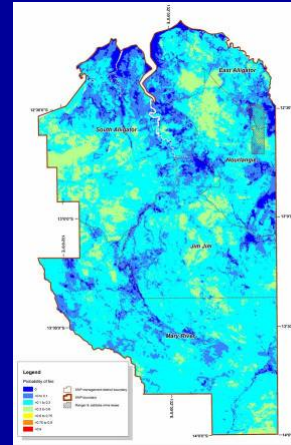
4. Fire

Fire Kakadu

Proportion yrs burnt 1980-2004



Early dry



Late dry

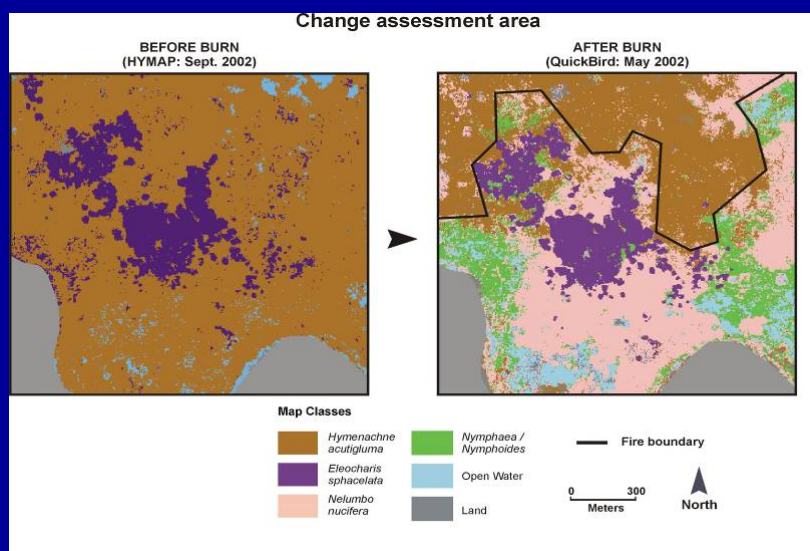
Smoke on the water: Fire Management in the wetlands of Kakadu National Park

Peter Christophersen, Sandra McGregor, Violet Lawson,
Rod Kennett, Peter Bayliss and James Boyden

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Supervising Scientist, CSIRO, Bushfires CRC

Objectives

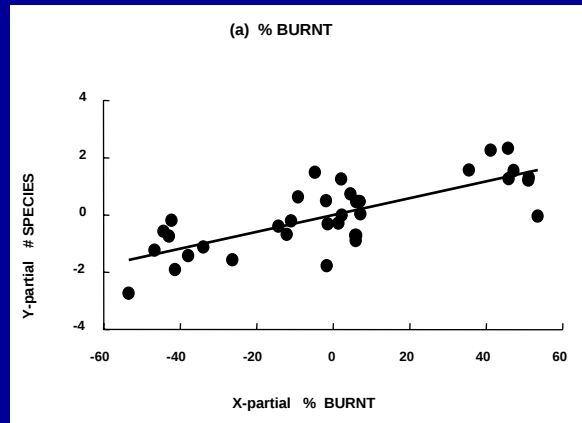
- Reduce dominance of Native *hymenachne* and increase vegetation heterogeneity
- Improve quality of magpie goose feeding and nesting habitat
- Restore cultural values including hunting access
- Demonstrate the importance of fire in managing wetlands
- Understand what burning regime gives the best quality wetland
- Explore effectiveness of different types of imagery for monitoring wetland health and change



Remote sensing results matched ground survey results: no change in *Eleocharis sphacelata*; increase in open water & lillies; & a 75% reduction in *Hymenachne*.

Boggy Plain fire study

Dry season burning of floodplain increases wetland plant diversity when dominated by dense native grassy monocultures (eg *Hymenachne*)



Increased access to floodplain bushtucker



Managing these threats

- Climate
 - Be aware of climatic patterns
 - Predictions for saltwater intrusion, plan to live with it
- Weeds and ferals
 - Decision on management of exotic grasses
 - Prioritise based on a risk assessment
- Fire management
 - Floodplain fire plan across the Park
 - More comprehensive monitoring of fire management
 - Structured approach to getting TO's back onto fire management of floodplains

Knowledge gaps

- Climate
 - Long-term monitoring (e.g. Birds) to confirm patterns in rainfall
 - Consequences of saltwater intrusion, Pros and Cons
- Weeds and ferals
 - Methods & costs of control
 - Post-control management
- Fire
 - Longer term / larger scale consequences of fire regimes
- Conceptual models



