



ARC CENTRE OF EXCELLENCE  
Coral Reef Studies

Environmental planning for northern Australia:  
fixing some things that are broken, and injecting evidence into  
decision-making

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[www.coralcoe.org.au](http://www.coralcoe.org.au)

# Outline of presentation

Six topics relevant to northern Australia, but also nationally ...

## THINGS THAT ARE BROKEN AND NEED FIXING

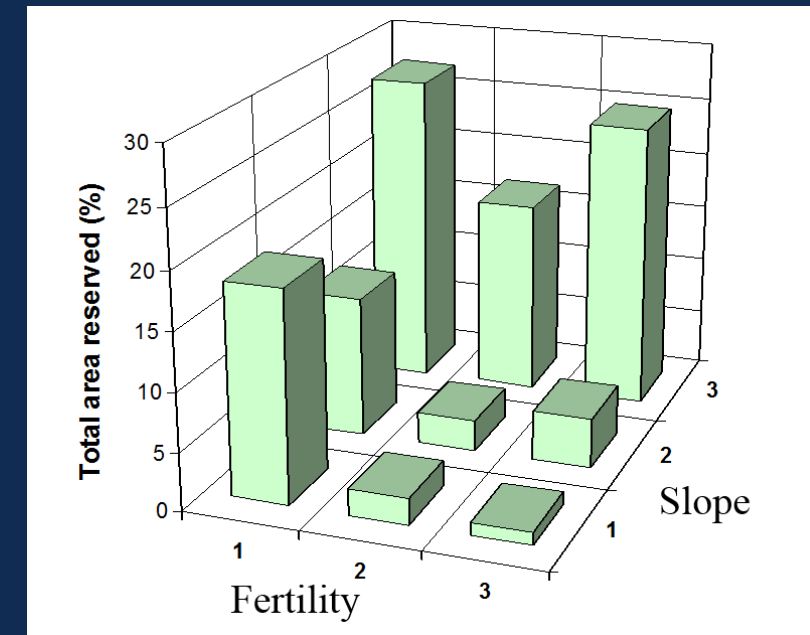
1. Protected area policy
2. Environmental impact assessment
3. Offsets

## TOWARDS EVIDENCE-BASED DECISION-MAKING

4. Land-use change scenarios
5. Multi-objective planning
6. Evaluation of conservation impact

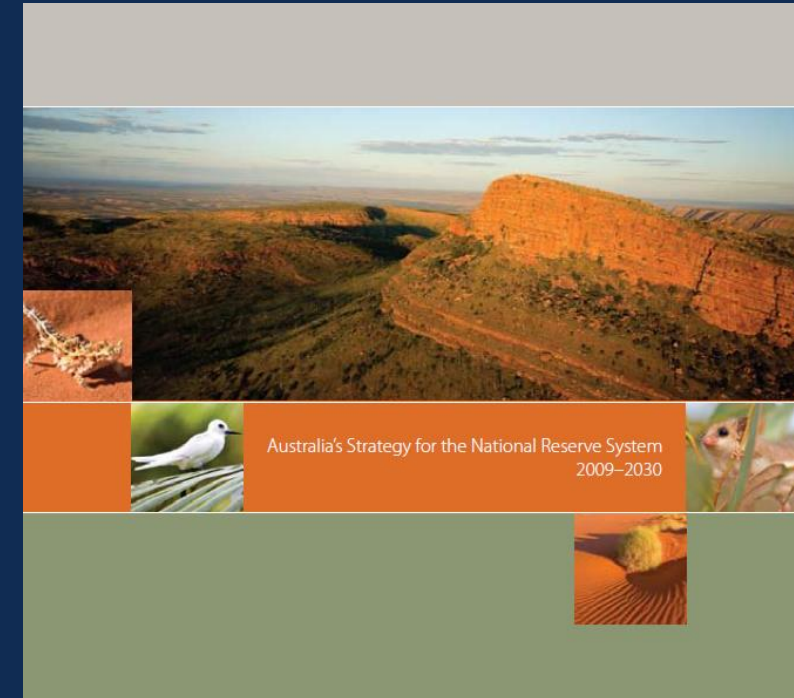
# 1. Protected area policy

- Terrestrial reserves are dominantly “residual” in that they are concentrated in areas with least potential for commercial uses
- Marine protected areas, as they expand, are following the same pattern, most notably in Australia
- Problems with residual protection include:
  - Focusing “protection” on places that don’t need it, while places in need of protection decline further
  - Risk of “reserve fatigue” before we can place protected areas where they are most needed
  - Shifts the onus of biodiversity protection to off-reserve measures, which are not secure



# 1. Protected area policy

- Protection gravitates to residual areas for political expediency in the face of commercial interests and a largely undiscerning electorate
- The role of policy is to constrain that tendency so that protected areas make a real difference to conservation outcomes
- Protected area policy peaked in the late 1990s in Australia, and has since been watered down progressively
- Look at the quantitative targets for the National Reserve System:
  - Expand the system to cover 125 million ha
  - Comprehensiveness: include examples of at least 80% of the number of regional ecosystems in each IBRA region
  - Representativeness: include examples of at least 80% of the number of regional ecosystems in each IBRA subregion
- These targets are not only counterproductive, but sufficiently vague to allow almost anything to happen



## 2. Environmental impact assessment

Comments here based on recent work on the EIA process as it relates to the Great Barrier Reef, but the ideas are generally applicable

### Conservation Letters

A journal of the Society for Conservation Biology

Open Access

#### POLICY PERSPECTIVE

### Enhancing the Value and Validity of EIA: Serious Science to Protect Australia's Great Barrier Reef

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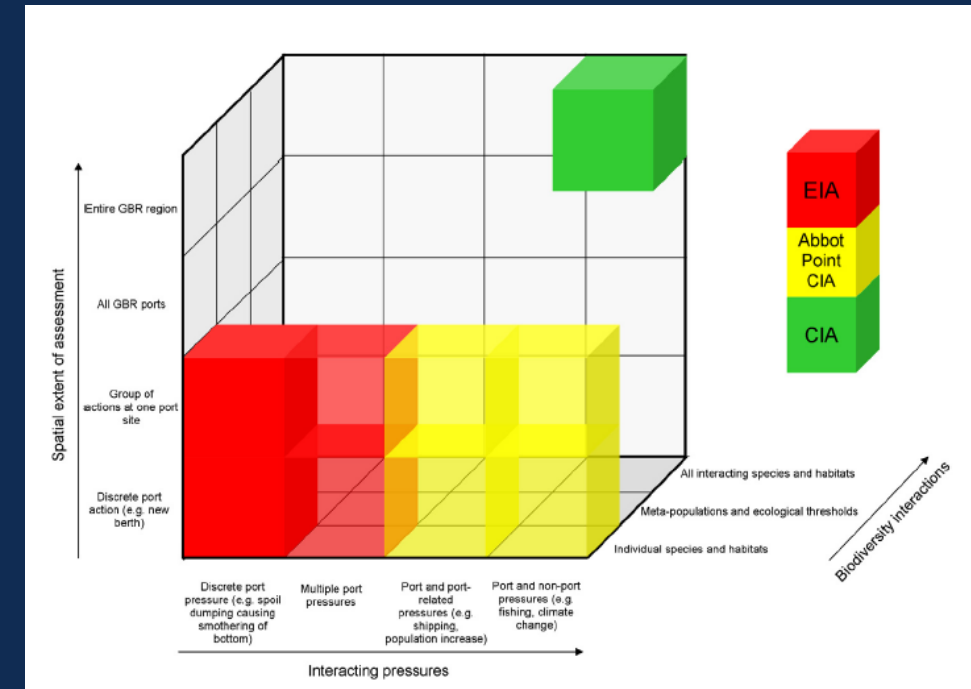
ELSEVIER

Viewpoint

Guidelines  
Impact

## 2. Environmental impact assessment

- The EIA process in the GBR (and elsewhere) is broken
- One of the main problems is the piecemeal approach: a region can die by a thousand cuts, while EIAs are done for a sequence of developments, which are approved one by one
- Attempts at cumulative impact assessment remain primitive, but they don't need to be



# 3. Offsets

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## Effective marine offsets for the Great Barrier Reef World Heritage Area



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# 3. Offsets

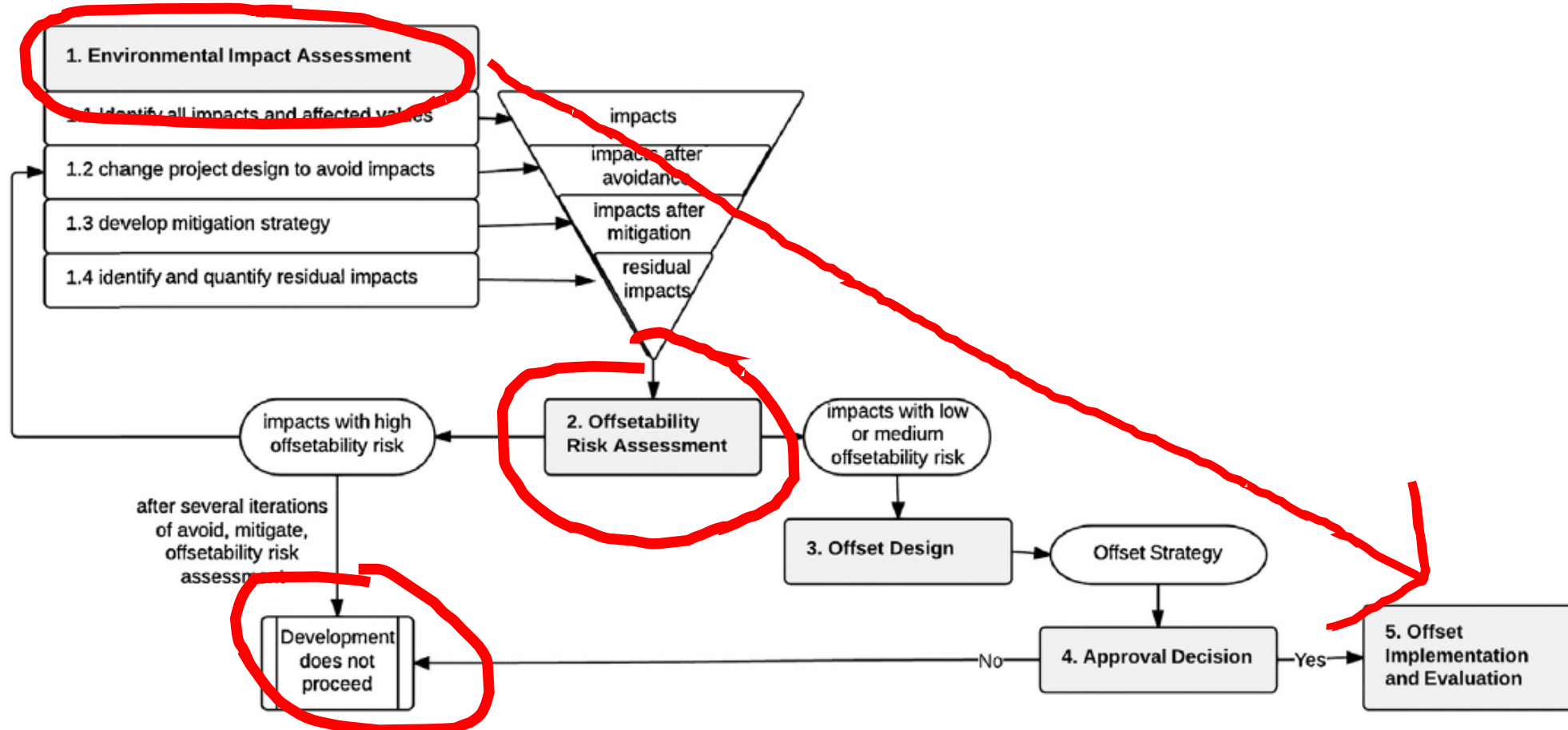
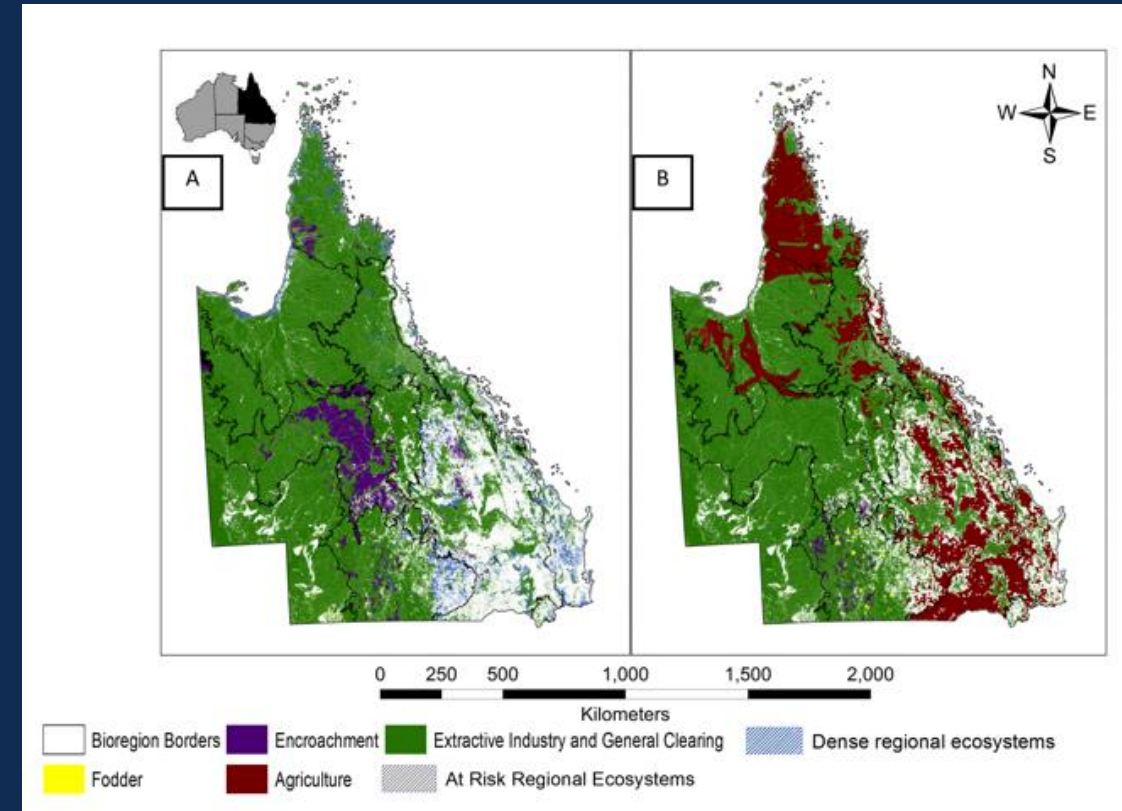


Fig. 2 – Effective offsets require several processes to be completed correctly and in sequence: 1. environmental impact assessment, 2. offsetability risk assessment, 3. offset design, 4. approval decision, and 5. implementation and evaluation.



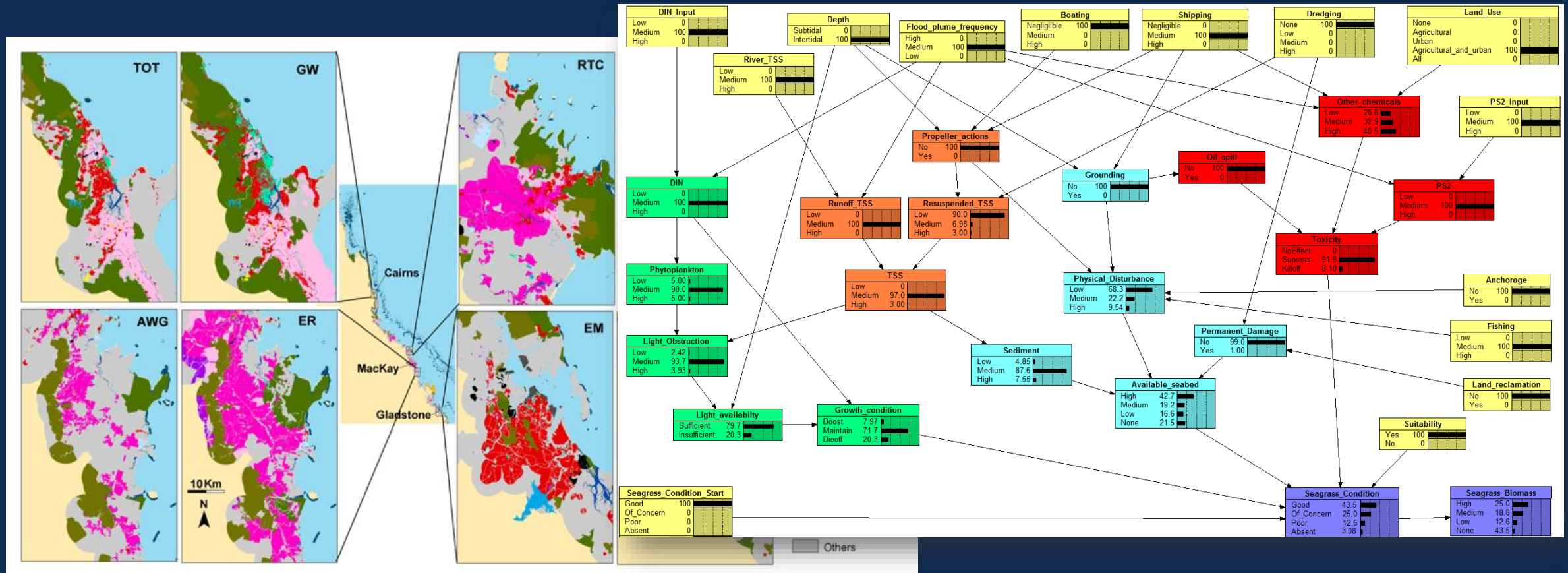
## 4. Land-use change scenarios

- Interpret alternative policy settings spatially, or map the plausible futures for development in regions
- Then link to assessments of implications for conservation (and social and economic considerations)
- Example on the right is part of a comparison of pre- and post-2013 vegetation regulations in Queensland, with maps of regional ecosystems exposed to various types of clearing

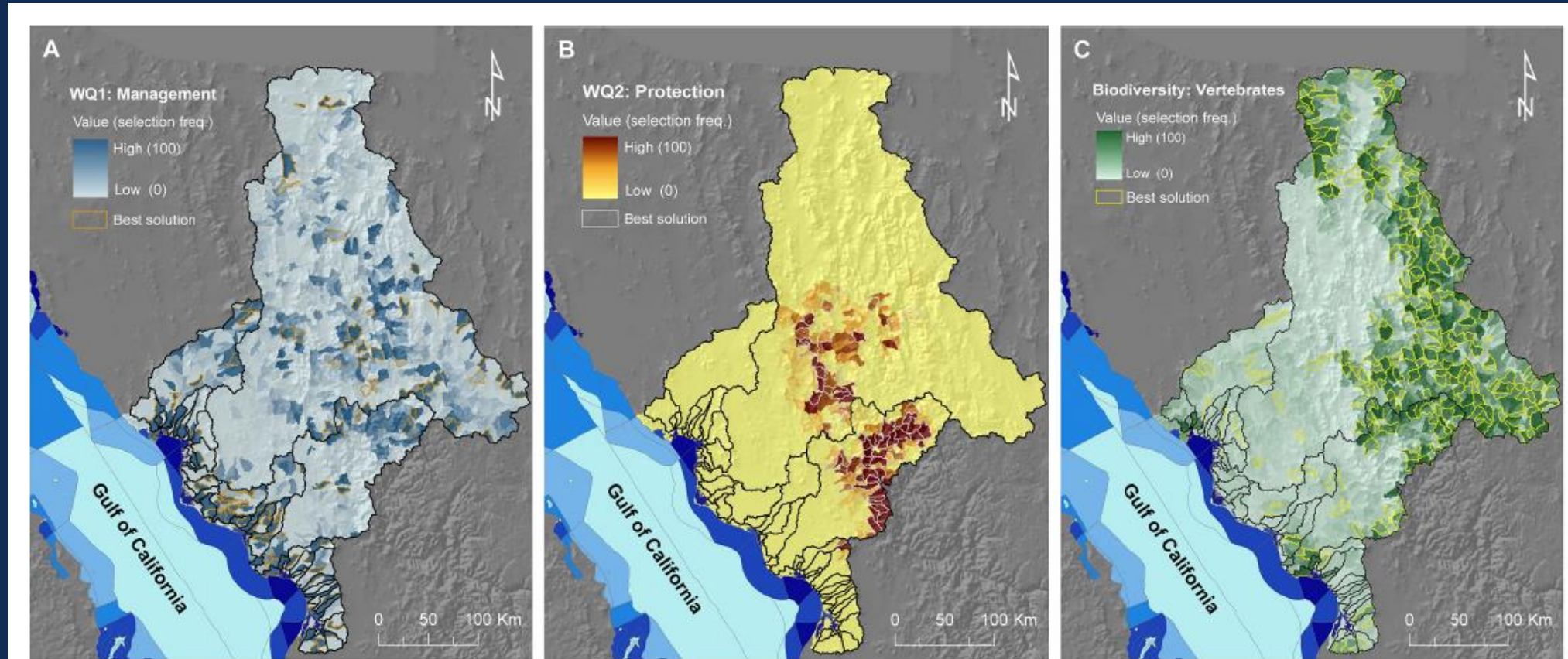


# 4. Land-use change scenarios

Spatially explicit development scenarios linked to cumulative impact assessments



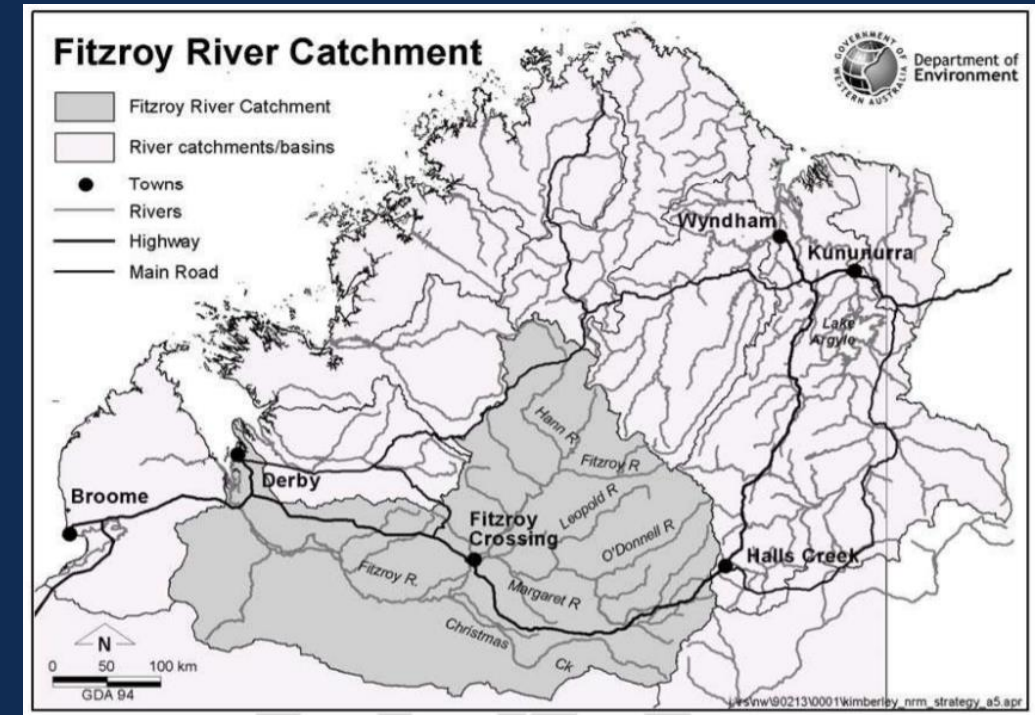
# 5. Multi-objective planning



**Fig 8. Priorities for catchment management and protection.** Maps show the relative value or priority of sub-catchments for achieving two sets of marine objectives (improving or maintaining end-of-river water quality) and one set of terrestrial objectives (conservation of terrestrial vertebrates). The values of planning units are represented by the selection frequency maps of Marxan. Sub-catchments selected more frequently in Marxan runs (darker colours)

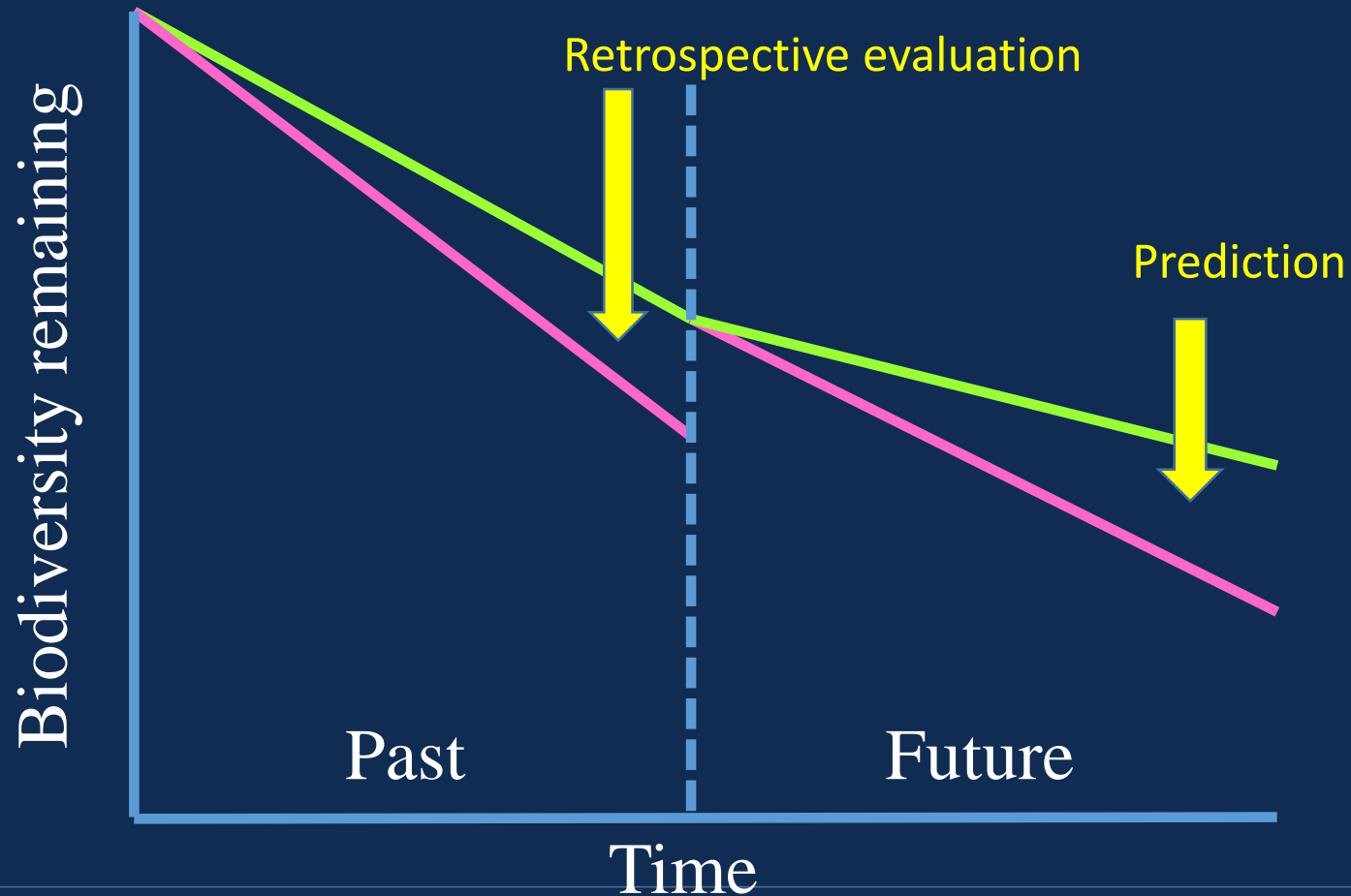
# 5. Multi-objective planning

- Building on previous work in the Daly (NT) and Gilbert (QLD) catchments, we have work underway in the Fitzroy catchment in the Kimberley
- Funded by NESP and in collaboration with UWA, CSIRO and others
- Emphasis on engagement with all stakeholders, including Indigenous groups
- Main aims are to:
  - Construct alternative land-use scenarios for the Fitzroy
  - Identify trade-offs and co-benefits between different objectives (e.g. nature conservation, cultural conservation, agriculture, grazing, mining)
  - Guide for decision-makers, and accountability regarding both positive and negative effects of development



## 5. Evaluation of conservation impact

Impact is the difference made by a conservation intervention relative to the *counterfactual* of no intervention or a different intervention



## 5. Evaluation of conservation impact

- Achieving conservation impact is about making a difference
- Counterfactual thinking can be applied to a wide range of on- and off-reserve conservation measures, including policy
- Targets can and should be set for conservation impact
- Impact is not achieved, and is probably compromised, by simple-minded area targets
- Impact is not achieved by increasing the representativeness of protected areas: it is about which ecosystems and species are protected, not how many
- Impact evaluation tells us something important and radical: *a society's commitment to nature conservation is measured by what it is prepared to give up for nature ... NOT by meaningless targets achievable under business as usual*

