The challenge

There are ambitious plans for an economic boom in Australia’s largely unspoiled tropical north. But how do we balance increased productivity, traditional uses, and nature conservation? The diversity of available planning tools and the complexity and lack of accessibility of some of these tools constrain their use by decision-makers. This means that government agencies, Natural Resource Management groups, Indigenous peoples, and other stakeholders commonly make decisions based on inadequate information. Furthermore, decisions are commonly made with one objective in mind, such as agricultural development or biodiversity conservation. However, this focus on single objectives limits our capacity to consider the full range of environmental, social, and economic outcomes of proposed developments and their implications for different stakeholders. It also hinders our understanding of the potential for co-benefits and trade-offs between different objectives. Considering multiple objectives is therefore critical to support future planning of northern Australia’s nationally and globally significant cultural and natural values.

How will this research help?

This research will create a toolkit to guide planning and management that supports multiple uses of land and water, while maintaining environmental and cultural values. The toolkit will provide a roadmap to assess the potential impacts of current and future development and management regimes on biodiversity, ecosystem services, and the access to (and use of) land and water resources by different stakeholder groups. Specifically, the project will demonstrate how to put participatory, multi-objective catchment planning into action, to allow stakeholders to construct and assess the outcomes of alternative development and management scenarios. The toolkit will also facilitate assessment of the benefits and costs of implementing different management interventions to mitigate threats to biodiversity associated with different land and water uses. The toolkit will be designed for one case-study area, but can also be used in other areas in northern Australia.
How will the research be carried out?

The research will be developed in six stages:

1. Identify current and future uses of land and water and management needs as a basis for understanding stakeholder preferences for and constraints on land use and management, which in turn will be used to articulate management goals and objectives;
2. Map environmental, cultural, and economic values of land and water;
3. Identify and assess current and future threats to values of land and water;
4. Identify and assess cost-effectiveness of management actions to address these threats;
5. Build land-use scenarios and identify alternative configurations of actions and uses; and
6. Evaluate and discuss potential land use and management outcomes, including changes in land values, co-benefits, and trade-offs based on stakeholder preferences, opportunities, and constraints.

Where is the research happening?

This project will use the Fitzroy River catchment, in the Kimberley region of Western Australia, as a case study. Organisations participating in NRM planning are commonly organised by catchments, so focusing at the catchment scale will allow researchers to develop and test the planning toolkit under the 'typical' settings in which stakeholders consider management decisions.

Who is involved?

The project will be led by Professor Bob Pressey from James Cook University (JCU). Professor Pressey will be supported by researchers from JCU, the University of Western Australia, Griffith University, CSIRO, and the University of Queensland.

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