Ella Bay Development, Far North Queensland
Expression of Interest in Conducting Research:

Research Topic:

How do the on-site and off-site environmental impacts of Ella Bay Integrated Development compare with those of a typical low density rural residential development?

Research Team

Name	Positions	Qualifications
A/Prof David King	Director CTURP	BA Hons, Cert.Ed , PhD
Dr Nicky Moore	Lecturer	BSc Hons, PhD
Research assistants from CTURP		

Background and research questions

Little Cove residential estate is a traditional low density rural residential estate being developed on a forested allotment adjoining Ella Bay Integrated Development. Both developments share boundaries with each other and with the National Park/Wet Tropics World Heritage Area (WHA).

Rural residential developments such as Little Cove often result in incremental impacts beyond their development footprint due to landscape modification and contribute to residential sprawl encroaching on natural areas. Ella Bay Resort is being designed to be ecologically responsive to its site and surrounds, aiming to minimize impacts on the adjoining WHA. As this development includes a higher density residential component as well as a resort and other tourist infrastructure it presents an opportunity to test if the claims of increased ecological sustainability can be supported in fact.

The design, layout and operation of new developments can have both on-site and off-site impacts. In areas of such natural significance and environmental sensitivity as the coastal wet tropics both types of impacts need to be managed. There are considerable areas of freehold land in close proximity to the WHA which will inevitably be developed. While the development footprints on the lots themselves can be significant, there is potential under the relevant planning scheme to reduce clearing and minimize onsite impacts. Unfortunately the offsite impacts, such as weed encroachment, stormwater runoff and modification of adjoining bushland, which have the potential to degrade much larger adjoining areas are harder to manage and are usually not monitored.

The research will compare the environmental impacts on the adjoining WHA of the Little Cove (LC) traditional residential development with the residential component of the Ella Bay Integrated Development (EBID) using indicators such as:

1. Extent of weed transport into the WHA.
2. Extent of change in vegetation structure and species composition in the WHA adjoining the development.
3. Stormwater impacts and runoff.
4. Area of permeable/impermeable surfaces as a percent of the overall development.

Aims and objectives

The primary aim is to monitor the on-site and off-site anthropogenic impacts of a traditional rural residential development (Little Cove) and compare it with those from the higher density residential component of the Ella Bay Integrated Development. This will be achieved through:

1. Baseline surveys of the WHA forest adjoining both Little Cove and the EBID.

2. Regular monitoring and mapping of extent and distribution of off-site anthropogenic impacts over time.

3. Remote imagery of the two developments to determine on-site impacts.

4. Comparison of off-site and on-site impacts of the two designs of residential development, as a basis for recommendations for reducing the impact of residential development in the wet tropics.

Methodology

Sites demonstrating the same level of cyclone impact using the methodology of Unwin et al (1988) will be paired and monitored over time to look at anthropogenic impacts originating from the adjoining development. Baseline surveys will be undertaken of the forest adjoining both Little Cove and the Ella Bay Integrated Development including establishing quadrats and photo points to identify existing forest structure and weed distribution. These points will be monitored every 6 months to document changes over a 3 year period.

The vegetation and weed surveys will follow the methodology of Gillieson and Moore (in prep) adapted from Kanowski and Catterall (2006) to study the changes in forest structure and composition over time. Weeds will be identified and counted along 100m line transects originating at the boundary of the residential lots.

Remote imagery, both historical and current, will be used to monitor:

- the extent of clearing and revegetation on both study sites as a percentage of the original vegetation on the sites.
- the area of permeable and impermeable surfaces will be measured to estimate stormwater runoff generation.

Outcomes

The outcome will be planning recommendations for reducing the environmental impacts of residential development on nearby sensitive areas. This project will also feed into monitoring how well the EIA mitigation measures have succeeded and work in with other researchers in this area.

Funding

Activity	*Funding Requirements*	*Source of Funding*
Research Assistant Salaries	20,000	requested
Travel and accommodation	10,000	requested
Principal researchers time commitment	11,000	In kind CTURP/JCU
CTURP office and staff	4,000	In kind CTURP

References

Gillieson, D.and Moore, N.J. (in prep) Remote sensing assessment of rainforest damage from Cyclone Larry and vegetation recovery monitoring. *Austral Ecology, Special Theme Edition: Cyclone Larry*

Kanowski, J. and Catterall, C. P. 2006. Monitoring Revegetation Projects for Biodiversity in Rainforest Landscapes. Toolkit version 1. Research Report No. 51. Rainforest CRC, Cairns.

Unwin, GL et al 1988. Initial effects of tropical cyclone 'Winifred' on forests in north Queensland. *Proc. Ecol.Soc. Aus. 15, 283-296*

Appendix 1: Short Curriculum Vitae's of the Research Team

CURRICULUM VITAE: - DAVID KING

Principal Employment:

2003-date	Associate Professor of Geography
1999–date	Director Centre for Tropical Urban and Regional Planning, James Cook University
1996-date	Director, Centre for Disaster Studies,

Funded Research and Consultancy: 2000-2007

2007	Tsunami Warning Survey, Bureau of Meteorology & JCU
2006	Review of the National Disaster Risk Management Strategies, Queensland, Queensland Department of Emergency Services
2006	Cyclone Monica Post Cyclone Survey, Bureau of Meteorology
2006	Cyclone Larry Post Disaster Survey, Bureau of Meteorology
2005	Tsunami post disaster appraisal, Thailand, Bureau of Meteorology, CDS
2005	Weather warnings for Non English speaking background residents, Bureau of Meteorology
2004	Indigenous weather knowledge, Bureau of Meteorology
2004	Destination Risk Management Modelling, Sustainable Tourism CRC
2004	Climate change and coastal zone management: assessment of risk for tourism, Sustainable Tourism CRC
2003	Melbourne Storm December 2003: Household Phone Survey, Bureau of Meteorology
2003 – 2004	Indigenous Weather Knowledge: Bureau of Meteorology, CDS
2003	Backpacker Awareness of Cyclone Hazard: Cairns City Council, CDS
2003 – 2005	Tourism, climate, and needs of Australian tourist destinations. Tourism CRC, Climate and Natural Disasters Project.
2002	JCU Special Studies Program. Community Recovery after the Sierra Leone Civil War.
2002-2004	Australian Research Council Linkage Award, Post Doctoral Fellowship. Study of risk, vulnerability, behaviour, attitudes and perceptions of warnings, with Bureau of Meteorology
2001	Marine Weather Forecast Users Survey, Bureau of Meteorology
2000	Hidden Valley Landowner Baseline and Socio-Economic Surveys, July 2000 and 1993 Summary, Report prepared for Morobe Gold.
2000	Cities Project Multi-Hazard Analysis Methodology Review, AGSO
2000-2002	Australian Post Graduate Award Industry Partnership. Vulnerability of Remote and Indigenous Communities to Natural Hazards, with Queensland Health.

Publications – Career Total: 81 Journal papers, conference papers, monographs, chapters, and books. 36 funded consultancy and research reports.

Research Degree Supervision: 8 Masters, 16 PhDs

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Nationality: Australian and British
Qualifications: BA Hons 2.i. Geography, SOAS, London, 1972
PostGraduate Certificate in Education. Cambridge University, 1973
PhD, School of Oriental & African Studies, London University, 1979
'Diamond Mining settlements in Central Kono District, Sierra Leone'
Corporate Member of Royal Australian Planning Institute
Member of Natural Hazards Society and The International Emergency Management Society

CURRICULUM VITAE: NICKY MOORE

BSc (Hons), PhD (James Cook University)

Lecturer
School of Earth and Environmental Sciences, Centre for Tropical Urban and Regional Planning
James Cook University, Cairns, Queensland 4870, Australia.
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Email: Nicky.Moore@jcu.edu.au

EMPLOYMENT

2006 – date	Lecturer, James Cook University, Cairns
2004 – 2006	Town Planner, Atherton Shire Council
2001 – 2003	Snr Strategic Environmental Planner, Blue Mountains City Council
1998 – 2001	Environmental Planner, Manningham City Council
1994 – 1998	Snr environmental Scientist, natural Resource Assessments, Cairns,
1993 – 1994	Principal Conservation Officer, Qld Dept of Environment & Heritage, Cairns

Teaching areas include: urban and regional planning; wildlife management; impact assessment; and environmental studies.

MEMBERSHIP OF ORGANISATIONS

Corporate Member, Planning Institute of Australia
Member, WTMA Community Consultative Committee
Member, Steering Committee Wooroonooran National Park Management Plan
Member, Conservation Advisory Working Party, Wooroonooran National Park Management Plan

RECENT PROJECTS INCLUDE:

. Prepared stream management guidelines for QDPI (Water Resources) to ameliorate impacts of various procedures in the wet tropics region.

. Conducted a detailed EIAS (Flora, fauna, World Heritage values) of the Daintree region of north Queensland to assess the likely impacts of introducing grid power to the area. This work included a detailed investigation of flow-on effects resulting from a projected doubling of the resident population.

. Conducted a detailed flora and fauna investigation over a 25 km^2 area as part of an EIAS of the proposed new industrial estate for the Townsville region.

. Conducted an assessment of the best corridor option for a new road and rail access route to the Port of Townsville (including impacts on mangroves, remnant vegetation pockets, urban parkland, saltmarsh and savanna woodland areas). Then undertook a detailed ecological study of the favoured route.

. Assessed the environmental impacts of flood mitigation and streambank stabilisation works on South Johnstone River.

RECENT PUBLICATIONS

NJ Moore (2001). *Where are we now? Issues and Trends for the Blue Mountains*. Background papers for consultation workshops conducted May/June 2001. BMCC Katoomba NSW.

NJ Moore (2002). *Towards a more sustainable future: Looking after our environment.* A survey of trends, issues and key ideas. BMCC Katoomba NSW.

NJ Moore (2002). Chapter 10 Projecting the Natural Environment In: *Environmental Management Plan 2002 Volume 2:Planning Context for Draft LEP 2002* p35-58.

NJ Moore (2002) *Schedule 5: Significant Vegetation Communities in the Blue Mountains.* Draft LEP 2002. October 2002.

NJ Moore (2005). *Picnic Crossing Reserve Management Plan*. Atherton Shire Council. September 2005. 68 pp.

Moore, L.A. and Moore N.J. (submitted). Implications of environmental catastrophes and climate change for management of an endangered species. *Austral Ecology, Special Theme Edition: Cyclone Larry*

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