Submission 047
Date received: 29/07/2011

terrain
NATURAL RESOURCE MANAGEMENT

29th July 2011

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Standing Committee on Climate Change, Environment and the Arts
House of Representatives
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Canberra ACT 2600

Submitted via email to: ccea.reps@aph.gov.au

Re: Terrain NRM Submission to House of Representatives Standing Committee Inquiry into Australia's biodiversity in a changing climate

Terrain NRM welcomes the opportunity to make this submission to the Inquiry into Australia's biodiversity in a changing climate. Terrain NRM is the designated regional Natural Resource Body for the Wet Tropics region. Established in 2003, Terrain is a not-for- profit public company funded from a range of corporate, government and philanthropic sources. Current key funding programs include the Australian Government's Caring for our Country Program and its key component Reef Rescue, which Terrain is administering on behalf of the region.

Terrain's key role is to support implementation of the Regional NRM Plan, *Sustaining the Wet Tropics*, by supporting action, facilitating funding and integrating effort to achieve sustainable communities and ecosystems in far north Queensland. Terrains activities build partnerships to secure the health of our natural resources including the region's biodiversity, water, soil, climate, Traditional Owner and community assets. Terrain provides planning direction, information, advice and practical support to community groups, organisations and individuals with an interest in NRM.

The Wet Tropics region contains ecosystems that are nationally significant due to World Heritage Area status as well as containing habitat that supports EPBC Act listed species and ecological communities. The Wet Tropics Management Authority *State of the Wet Tropics Report 2007 – 2008*[1] identifies climate change as presenting *"an immediate and urgent challenge for biodiversity conservation in the Wet Tropics region"*. The report states that all native species will be more vulnerable due to climate change increasing threats through new competitors, predators, diseases and introduced species. It is predicted that ecosystems will undergo major changes in species composition and geographic extent, with some disappearing entirely and new or novel ecosystems emerging. The report refers to research that indicates there is a *"strong likelihood of approximately 50 species becoming globally extinct from the WTQWHA* (Wet Tropics of Queensland World Heritage Area) *with only a moderate average temperature increase"* and that *"most upland endemic vertebrate species will disappear under the worst-case scenarios with temperature increases of 5.0ºC or more"*.

This submission is based on a case study of Terrain's work in the Mission Beach area which is used to highlight issues and recommend responses around the Terms of Reference of the Inquiry. As well as

[1] Wet Tropics Management Authority. 2008. State of the Wet Tropics Report: 2007 – 2008. Climate Change in the Wet Tropics: Impacts and Responses.

this case study, two broad programs are highlighted which have relevance to the management of biodiversity in emerging national responses to climate change. These discuss increasing the capacity of the regional community, including Indigenous peoples to manage for biodiversity outcomes and participate in biodiverse carbon market opportunities.

In summary, this submission highlights the following principles of managing for biodiversity in a changing climate:

Key Principles:

- Flexible responses to the complex challenges of biodiversity are necessary and require a range of available mechanisms and programs
- Regional NRM bodies, as flexible brokering institutions, are vital to ensure integration of action across tenures, institutions and scales
- Legislate and manage for the integrity of the landscape, not the values of individual tenures alone
- Planning responses must protect local scale connectivity
- Integrated governance across scales is required to address complex conservation challenges
- Incentive programs and other funding resources must account for ongoing maintenance of ecosystems and monitoring of program effectiveness. For market based instruments such as offsetting this must also account for ensuring compliance with the conditions of the scheme.

Case Study: Mission Beach Southern Cassowary Habitat and Critically Endangered Littoral Rainforest

Mission Beach is located on the coast in the Wet Tropics region and due to this is at risk of the predicted impacts of climate change including sea level rise and increased intensity of cyclone events. The area contains one of the largest coastal blocks of rainforest in the Wet Tropics which forms part of a vital connection between lowland and upland rainforest. Retaining this landscape scale connectivity is a key requirement for landscape resilience to face the adaptation challenges of climate change.

Mission Beach contains some of Australia's most diverse biological values, significant at an international scale, including World Heritage listed rainforests and Australia's largest population of the Southern Cassowary. It's coastal location and natural assets make it attractive to people seeking a sea change lifestyle as well as to developers aiming to take advantage of the areas tourism potential. The combination of development pressure and the associated increase in population from tourist and new residents, traffic and dogs, are adversely impacting the Southern Cassowary and its habitat. The area suffered heavily from cyclone damage from both category 4 Cyclone Larry in 2006 and more recently category 5 Cyclone Yasi in 2011.

The Cassowary acts as a keystone species for dispersing rainforest seeds. Retaining connected habitat from the coast to the upland forests ensures the Cassowary's dispersal role in ongoing ecological processes. This connectivity is vital to the ongoing health of many ecosystem types, including Littoral Rainforest. The EPBC Act listed Critically Endangered Littoral Rainforest occurs throughout the coastal areas of Mission Beach. Littoral rainforests are the only lowlands EPBC community identified along Australia's east coast. Cyclone Yasi was highly damaging to foreshore vegetation from Ingham to Innisfail, including Critically Endangered littoral rainforest with areas disappearing out to sea, however new substrate was deposited during this event, demonstrating the dynamic nature of coastal vegetation.

Since 2006, Terrain NRM, in partnership with CSIRO and the Marine and Tropical Science Research Facility has been working to find solutions to the complex conservation issues at Mission Beach. With support from the Australian Government, Terrain has worked with the community, governments and other stakeholders to develop a voluntary plan identifying actions that will maintain a viable habitat network as well as ensure the social and economic wellbeing of the area. This process has been backed by the best available science and has developed theoretical understanding of community based natural resource management as well as an investment prioritisation tool for targeted landscape scale investment in habitat. This work provides a model for implementing recommendations made by Steffen et al (2009)[2] showing a co-generative participatory research model between CSIRO and the regional Natural Resource Management body and identifying and addressing in part the need for central-local integration with regard to governance.

Implementation of the on ground actions of the plan has been hampered due to a lack of available programs to engage and reward landholders for habitat protection and management. Work at Mission Beach has also highlighted the importance of many other issues relating to the conservation of biodiversity and landscape resilience and the range of activities that are necessary to achieve this.

The Mission Beach Habitat Network Action Plan is available online at:
http://www.terrain.org.au/programs/biodiversity/mission-beach.html

In relation to the Terms of Reference, Mission Beach has highlighted the following understanding and needs:

Assessment of whether current governance arrangements are well placed to deal with the challenges of conserving biodiversity in a changing climate

Issues:

- Terrain NRM has acted as a brokering organisation in the Mission Beach area, able to work across tenures and institutional arrangements more in line with the boundary needs of biodiversity management. Terrain has worked in partnership with diverse actors to align activities across institutions driven by a clear understanding of regional priorities as well as feeding information in a two-way exchange to overcome the central to local disconnect in action and on ground requirements. Although Terrain has been effective in building alignment at the local and regional level, there is a need for governance arrangements at the State and National level that can facilitate cross-government alignment for biodiversity outcomes by coordinating the efforts of multiple agencies.
- Biodiversity outcomes in the area have been hampered by gaps and limitations in planning mechanisms. Traditionally, land use planning has facilitated development and has not considered biodiversity. As well, legislation addressing development, (for example the EPBC Act) , struggle to deal with cumulative development impacts and protect connectivity at the local level.
- The local community has a vital role to play in conservation and the process at Mission Beach has seen Terrain coordinate the Mission Beach Habitat Network Action Committee involving community, agencies and researchers to build understanding across scales and work together to find solutions to complex conservation problems.

[2] Steffen W, Burbidge AA, Hughes L, Kitching R, Lindenmayer D, Musgrave W, Stafford Smith M and Werner PA (2009) Australia's biodiversity and climate change: A strategic assessment of the vulnerability of Australia's biodiversity to climate change. A report to the Natural Resource Ministerial Council. Commissioned by the Australian Government. CSIRO Publishing.

- Local Governments have an important role to play in the conservation of biodiversity with adequate planning schemes that are able to respond to local biodiversity needs. Local Government efforts are hampered in small rate base communities by lack of resources to allow for biodiversity incentive responses such as rate relief and the ability to attract skilled planners with a good understanding of both urban planning and biodiversity planning.

Response:

- Recognise and support organisations that can act as a broker to address the complexity of biodiversity within a coordinated framework with good knowledge of local to national scale programs and land management mechanisms. Regional bodies are in a key position to act as these organisations as they are able to act across the boundaries of tenures and Acts.
- It is important to address the position of biodiversity in the policy hierarchy by raising the importance of biodiversity in the decision making process. There needs to be surety that biodiversity is considered in policy and planning decision making in the first instance rather than relying on a rearguard action and repair strategy.
- There is a need for governance structures that are able to address biodiversity at a whole-of-government level and flexible enough to respond rapidly to emerging policy issues.
- Legislation managing for biodiversity outcomes must be able to take a landscape approach applying the broad landscape context at the property level and avoiding consistent degradation through cumulative habitat impacts.

Connectivity between ecosystems and across landscapes that may contribute to biodiversity conservation

Issues

- Viable habitat linkages are necessary at both the local and landscape scale for landscape resilience and for continuation of small remaining areas of endangered ecosystems such as EPBC Act listed Critically Endangered Littoral Rainforest
- Current funding programs such as Caring for Our Country are focused primarily on a listed ecological community approach, which limits actions that considers habitat connectivity and landscape scale connectivity.
- A narrow programmatic focus can be restrictive for addressing the range of complex actions required for biodiversity.
- Landscape connectivity is built across tenures and land use types and does not always only included vegetated areas. Habitat corridors are often not protected at the local scale or in areas that are not remnant vegetation but may form part of landscape connectivity.

Response:

- A suite of mechanisms is required for incentives and for addressing protection for all tenure types. A range of available habitat management and protection mechanisms allows for appropriate actions to be taken to address biodiversity conservation in appropriate timeframes. For example, in highly contested landscapes such as Mission Beach, incentives for improving connectivity through habitat repair and management are necessary, but where a key block of habitat is threatened by development, strong planning mechanisms or funds for buyback of the block may be the only option and needs to be available and able to be applied while the window of opportunity is present.
- Ecosystem management must consider a whole of ecosystem approach, including the individual species that support the ecosystems function and non-habitat threats, and not just focus on the vegetation component of ecosystems.

Terrestrial, marine and freshwater biodiversity in Australia and its territories

- Biodiversity responses to climate change need to also take into account non-habitat threats to species eg the Southern Cassowary is also impacted by traffic volume and dog attacks. Building resilience requires reducing the broad array of threats impacting biodiversity.
- In highly dynamic natural systems, such as Littoral Rainforest in the Wet Tropics which is regularly disturbed by cyclone events, there is a need to recognise and protect new substrate areas. Under current legislation, the Queensland Vegetation Management Act won't protect new vegetation until it's of a certain age.

Strategies to enhance climate change adaptation, including promoting resilience in ecosystems and human communities

With climate change predicted to increase the intensity of natural disasters, and of cyclonic events in the Wet Tropics in particular, strong disaster response strategies are required. These need to include Natural Resource Management and biodiversity as well as community and economic resilience. This requires:

- Natural Resource Management to be included in disaster response planning and implementation
- Adequate mapping resources of priority biodiversity values for distribution to agencies and managers post disaster event (eg Littoral Rainforest. Post cyclone Yasi, inadequate mapping hampered efforts to ensure littoral rainforest was protected during cyclone clean-up activities. Terrain is currently working with CSIRO to improve mapping of Littoral Rainforest)
- Information on the management protocols of specific biodiversity values are also required ready to be distributed and compliance with legislation needs to be enforced
- Stable organisations with expertise in NRM and biodiversity management that are able to mobilise quickly post disaster (eg Currently Terrain NRM is providing training to cyclone clean-up crews to ensure appropriate management actions within biodiversity priority areas)

The adaptive management model of community engagement and action at Mission Beach has demonstrated value in building community resilience for disaster response with the community able to mobilise rapidly to respond to threats to the Southern Cassowary in the post-Cyclone Yasi period.

Mechanisms to increase community engagement

Issue:

- Biodiversity conservation and climate change and the actions required to address these are complex issues that are difficult to communicate clearly. Broadly, the community lacks an understanding of the complex management needs of biodiversity and distrusts the science that drives policy.
- There is a need to build narratives that clearly articulate complex concepts and actions that people can take to address these.

Response:

- At Mission Beach, CSIRO has worked with Terrain to develop a collaborative focal species approach to community engagement with the Cassowary acting as a "bridging object" to

unite diverse actors and opinions and provide a basis for developing a vision and agreed actions that all parties can find meaning within. [3]

- The participatory research model used at Mission Beach ensures that science is based in real-world examples, and co-generates knowledge as questions arise to be fed directly back into the biodiversity management processes. This process raises community understanding and skills and contributes to global knowledge.
- Funding programs need to recognise and support the importance of education, awareness and engagement activities to enhance biodiversity conservation outcomes

The following two examples highlight specific issues regarding the emergence of a carbon market and other mechanisms that will increase ecosystem rehabilitation in regional areas.

Strategies to enhance climate change adaptation, including promoting resilience in ecosystems and human communities

Example: **Building employment for Indigenous people in rural communities**
Issue:
The current model for habitat rehabilitation and environmental works to enhance landscape resilience relies in large part on volunteer and community group effort and short term funding programs such as C4OC. This model delivers trees in the ground but ecological success can be compromised by the ability to carry out longer term maintenance and monitoring due to a lack of labour capacity and ongoing funds.

A number of employment programs are currently aiming to place long term unemployed people in green jobs. These programs tend to be short term with no clear career pathway and with very tight budgets that make delivery difficult for organisations that take on these programs.

New emerging environmental markets (e.g. carbon offsetting) will drive major investment in environmental rehabilitation. However, in order to deliver such programs, there is a need to raise regional capacity for delivery around technical skills such as monitoring, working on Biosecurity issues, fire management and team supervision.

Response:
Terrain has been working to establish a green workteam model that improves environmental and employment outcomes. This model also addresses Sub-policy 1.2 of Australia's Biodiversity Conservation Strategy 2010-2030: Increasing Indigenous engagement through employment and training that strengthens biodiversity outcomes.

The model addresses existing barriers to Traditional Owners realising their aspirations to work on country through building sustainable business enterprises which operate high quality, multi-skilled environmental works teams, pro-actively winning contracts with government, corporate agencies and industry. The innovative model builds resilience through integrating training and long-term mentoring, responding to experience from Traditional Owner groups that training programs in isolation from structured and dedicated 'real life' support have limited sustained success. This results in Green Career Pathways training and skills for technical, business and governance, to enable Traditional Owners to establish independently-operated, profitable business enterprises, and instil investor confidence in the ability of Indigenous teams to deliver high quality environmental rehabilitation services. These skilled workteams are able to be actively involved in the management

[3] Hill R *et* al 2010 Adaptive community-based biodiversity conservation in Australia's tropical rainforests. *Environmental Conservation* **37** (1): 73–82

of protected areas through securing contracts resulting in a win-win for both the Traditional Owners and the agencies, which are looking for opportunities to more actively involve Traditional Owners in natural resource management.

Mechanisms to promote the sustainable use of natural resources and ecosystem services in a changing climate

Market based instruments: Biodiverse Carbon

The implementation of a price on carbon in Australia through the government's "Securing a Clean Energy Future" has cemented role of the Carbon Farming Initiative as one of three pillars in the Australian Government's climate policy. The combination of the CFI and existing NRM plans, activities, networks and governance arrangements is unique to Australia and possibly the best system in the world to ensure sequestration and abatement will deliver improved landscape health and resilience. The CFI structure will enable the sale of aggregated carbon on freehold and leasehold land into both international and domestic voluntary and regulated carbon markets. The initiative's focus must be on driving the uptake of holistic, regenerative land management, enhancing biodiversity values and resilience from the micro to the macro scale.

Terrain NRM began investing over 4 years ago in systems, modelling and methodologies to guide aggregation of multiple terrestrial carbon products that will deliver landscape co-benefits. It recognised that existing NRM plans, activities, networks and governance arrangements (a system unique to Australia) can provide the basis for carbon sequestration and abatement at the landscape scale as well as provide considerable ongoing investment for landscape health, resilience and repair. As a result Terrain has worked with and on behalf of Australia's 56 regions and therefore with government throughout the design of the CFI.

In Australia some key issues still remain problematic including the shifting policy framework and lack of certainty in the marketplace, high transaction costs and a low price for carbon. Conceptually, the attraction to offsetting was that it was low cost and could provide other co-benefits such as improved productivity, biodiversity and water quality outcomes. In reality transaction costs of offsets have resulted in little uptake. In Australian agriculture, the family farm is the predominant basic business unit resulting in a fragmented production base with implications for accessing offset opportunities including high transaction and monitoring costs. Aggregating the activities of landholders across the landscape provides specific solutions including:

- Risk management is spread across the landscape;
- Risk is spread temporally over extended timeframes;
- Development of a portfolio of risks that allows investment in diversity while reducing volatility;
- Transaction costs associated with scientific, technical, measurement, legal and administrative support are spread;
- Enhanced ability to meet the needs of the buyer in providing a portfolio of products;
- Monitoring outcomes to feed back into policy;
- Driving strategic research and development;
- Drive behavioural change that delivers real abatement;
- Driving the policy agenda

Terrain welcomes:

- the proposed expenditure on the Carbon Biodiversity Fund, NRM plans, agriculture, capacity building, the Indigenous Carbon Fund, research, methodologies and other programmes.
- The third objective of the Act that that seeks to ensure land carbon investment contributes to healthy, resilient landscapes
- Recognition of the role of NRM plans and their landscape priorities in guiding carbon investment towards co-benefits and away from perverse outcomes
- Linkage of Australian accredited land carbon credits to the price, making them of real value
- The engagement by the Department with the various stakeholders during programme design

Australia's Regional Bodies are well placed to provide vital assistance in the design and delivery of all these programmes. We strongly urge the Departments of Climate, Environment and Agriculture to collaborate closely with end users about the design and delivery of these important programmes. Given that all regional bodies are likely to begin reviewing their regional plans so they are fit for purpose to guide investment towards co-benefits, they can play a key role in helping make these programmes strategic, collaborative and efficient and ensure they are founded on good science.

We thank the Australian Government for the opportunity to make this submission. For any further information please contact Carole Sweatman, CEO, Terrain NRM at our Innisfail office (details below).

Regards

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