

8 May 2009

Our Ref SR00117

Standing Committee on Natural Resource Management
(Climate Change)
Parliament House
Maquarie Street
SYDNEY NSW 2000

Dear Sir,

Re: Submission on the managing climate change impacts on biodiversity inquiry

Southern Rivers Catchment Management Authority (CMA) welcomes the opportunity to prepare a submission to the managing climate change impacts on biodiversity inquiry.

The inquiry is to report on adequacy of management strategies and options for improving these strategies in order that ecosystems are resilient to weeds and pests, in species distributions and compositions, extinctions, life cycle changes and other threats. The inquiry is also interested in adaptation options that consider industries dependant on the natural environment.

A detailed review of the various strategies operating or being developed within Southern Rivers CMA is not possible in the time available however some general comments are forwarded. We have suggested three main themes to the inquiry:

- Do what we are doing now, only in a better way and more of it;
- Promote what we are doing; and
- Specific actions based on new knowledge

Southern Rivers CMA believes the attached comments will strengthen the adaptation to climate change strategies undertaken in NSW to protect biodiversity whilst ensuring that regional and rural communities stay both productive and viable.

Yours sincerely



Pamela A Green
Chair

NSW Legislative Assembly
Managing Climate Change Impacts on Biodiversity Enquiry

Do what we are doing now, only in a better way and more of it

Ultimately the adaptation of our terrestrial ecosystems to an induced change of climate depends on the availability of basic elements. Natural water flows, soil development, a diversity of species and niches, and protection from invasive species.

The predicted effects of climate change are profound. However, most of the measures required to assist the adaptation of ecosystems to climate change are already being employed. *These include integrating sustainable agriculture with biodiversity protection, providing local and landscape scale corridors and connectivity, protecting important fauna and flora refugia and water course, soil health, fire management and controlling pest species.*

Current research suggests that a two-tiered risk management approach is required to buffer nature against climate change. Firstly by ensuring that current habitats are as healthy as possible, and secondly ensuring connectivity and permeability between these habitats. These actions are already being instigated by our natural resource managers, in particular Catchment Management Authorities (CMAs), through their statutory role as a consent authority under the *Native Vegetation Act 2003* and through their influence in native vegetation management and revegetation activities. Revegetation and vegetation management is a critical tool in buffering nature against climate change:

- hydrologically via the management of run-off and groundwater recharge;
- ecologically, for maintaining and improving habitat and landscape connectivity;
- agriculturally, via the diversification of farm incomes, integrated pest management, soil management, improved shade and shelter and
- from a greenhouse perspective, reducing carbon emissions from land clearing and in establishing carbon sequestration sinks.

Induced climate change provides us with an imperative to do significantly more of the same actions and in a more coordinated and effective way.

These actions can be achieved by:

- Altered funding arrangements for natural resource management, providing a level of certainty into long-term environmental management, such as:
 - the development of plans of management that link science with local, on-ground deliverable outcomes;
 - the ability to employ permanent, skilled staff;
 - the development of environmental proposals which last for longer than a three year funding cycle;
 - the allocation of resources which reflect the responsibility of NRM agencies such as Catchment Management Authorities to managing the environment in regard to climate change adaptation; and
 - the allocation of additional resources to enable implementation of projects which are suitable for the scale of the challenges presented by changing climate.

Climate change management plans need to seriously consider the likely impacts and guide the choices about what parts of the natural resource base will be irretrievably changed and the priorities for investment. The development of management plans would be invaluable for regional organisation such as Southern Rivers CMA as they could guide the routine environmental investment we undertaken in the protection and maintenance of viable populations, threatened species or otherwise, into the future.

Coastal EECs

Current predictive models suggest that by 2030 Australian average temperatures are projected to rise by 0.6 – 1.5 °C and by 1-5°C by 2070. This is in addition to other environmental changes such as altered frost regimes, changed flowering regimes for plants, decreased annual rainfall, changed weed and pest distribution and more frequent extreme conditions.

Shore lines and low lying coastal environments are already experiencing the first effect of induced climate change. Many EECs in Southern Rivers CMA are located adjacent to estuaries, riparian areas or on coastal floodplains. For example, a number of EECs such as Bangalay Sand forest of the Sydney Basin and South East Corner Bioregions, Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions and Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregions (both federal, via the *Environmental Protection and Biodiversity Conservation Act 1999* and state listed EEC) will be immediately affected by sea level change.

Other SRCMA listed EECs such as River-Flat Eucalypt Forest on Coastal Floodplains, Swamp sclerophyll forest on coastal floodplains and Swamp oak floodplain forest will be affected by a climatic shift to a more 'tablelands' environment rather than the wetter, temperate coastal environment in which they currently occur.

Climate change management plans need to seriously consider the likely impacts, and guide the choices about what will be left and the priorities for investment. The development of management plans for these communities would be invaluable to organisations such as SRCMA as they can guide the routine environmental investment we undertake in the rehabilitation, protection, maintenance and enhancement of EECs.

Promote what we are doing

Basic messages to the community via the mainstream media about soil, water, corridors as shelterbelts, species and niche protection would greatly assist NRM practitioners in their duties. Sometimes additional triggers and pressures are required to initiate action in the community.

It would be important and valuable to the community to run a change management process which enables rural and regional communities to discuss what the future could or will look like and develop plans to accommodate that future. Early studies indicate that for Australian agriculture, adaptation measures could reduce the impacts of climate change on productivity by almost 50 per cent, and substantially reduce the economic cost to regional communities.

A regional NRM delivery model has been brought in to NSW quite recently. Catchment Management Authorities (CMA's) are providing a more focused and target-orientated approach to biodiversity protection and the development of sustainable agricultural practices. This model needs to be supported and emboldened in climate change management plans. The CMA's conservation products, such Property Vegetation Plans, need to be increasingly referenced in climate change management plans and strategies.

An important part of the delivery of NRM involves increasing uptake and participation by the community. Climate change management plans need to support this aspect. Plans also need to be couched in the right geographical context. *The sub-regional scale provides the right context for*

local knowledge, local science and local community engagement to match National, State and regional conservation priorities. Management plans that strengthen the links between sustainable agriculture and biodiversity protection in rural landscapes will facilitate the flow of genes, individuals and populations that underpin adaptation to change are required.

Pest species are expected to be strongly favoured by climate change as niches open up and native species and soils decline. This is particularly the case if agricultural practices are not altered in response to environmental conditions. Success stories and useful models of weed and feral exclusion and hold lines needs to be promoted. Local communities need to be assured success is possible otherwise commitment to the issue will remain lower than what is required.

Specific actions based on new knowledge

There will be specific landscapes, issues and species that require particular attention in the crisis that climate change imposes on the natural environment. NRM practitioners are desperate for predictive ecosystem change modelling that can be understood locally. Basic models that can predict the redistribution of fire regimes, species and communities within catchment areas are required.

Weed invasion

Pest species are expected to be strongly favoured by climate change. We need the capacity to quickly and accurately map weed infestations and project their likely expansion scenarios – with current and predicted future climatic changes.

A local example can be provided with African Lovegrass (*Eragrostis curvula*), which is regarded as one of the worst weeds in Snowy River Shire. This is because of its invasiveness, potential for spread, and economic and environmental impacts. Infestations result in a significant loss in livestock production, and dense infestations may completely dominate pasture, reducing carrying capacity and land value. Southern Rivers CMA is particularly aware of African Lovegrass invading the High Conservation Value Monaro and coastal grasslands, compromising their resilience, biodiversity and genetic diversity. However, there is a distinct possibility that changes to grazing management in response to climate change will result in a species such as African Lovegrass becoming increasingly important for summer grazing of stock. Situations where pest species may at once be a threat to the health of the land but also become important for sustaining agriculture will provide major challenges in developing appropriate management strategies. The failure to develop appropriate management strategies has the potential to severely compromise the future of sustainable agriculture in our region.

This state needs some well funded and evaluated examples of where containment lines have been implemented, using the full suite of measures, to keep new weed invaders out of areas which are sensitive for biodiversity and/or primary production. This intelligence should be provided in combination with clearly articulated farm level management techniques for farmers to adopt to reduce weed and pest invasion.

In the absence of the required climate change information it is difficult for government programs to commit to any specific new path of action. We need a framework for undertaking landscape scale analysis of corridors to assist with vegetation and fauna adaptation and genetic diversity, in addition to an agreed science-driven policy on the critical thresholds for landscape connectivity. This framework should encompass broad concepts such as the protection of vegetation types

across their geographic extent as a strategy for maximising capacity to adapt to climate change. This framework will allow a focussed debate on what needs to happen and where in NSW.

The rapid development of a climate change adaptation strategy for NSW will allow rural and regional communities to develop new, viable futures. A strategy which focuses on current and regional adaptation will empower rural and regional communities. Regional organisations such as

CMA's are ideally placed to facilitate this adaptation in NSW, through the interpretation of high-level state wide strategies and articulate required management actions from within sub-regional management plans at the farm level to improve the resilience of both production agriculture and the environment.

Summary

Southern Rivers CMA believes that the *development of a climate change strategy* in NSW will allow this state to respond positively to human induced climate change. The development of a NSW wide climate change strategy will allow rural and regional communities to grow towards a viable, productive future. This strategy would incorporate the development of climate change management plans. These management plans would be at a sub-regional scale, providing the right context for local knowledge, local science and local community engagement to match National, State and regional conservation priorities.

Climate change management plans would detail the measures required to assist rural and regional communities manage sustainable agriculture and biodiversity conservation.

Science to support the climate change management plans, such as predictive ecosystem modelling, investigation of management techniques to better inform the management of production agriculture and the environment, modelling of landscape scale corridors requirements, potential pest and invasive species distributions as well as critical thresholds for vegetation communities is required.

A *regional NRM delivery model* for the climate change management plans will provide a focused and target-orientated approach to biodiversity protection and the development of sustainable agricultural practices which builds on the innovation and networks which exist to harness the energy and resources of local communities to adapt to changed climates.