

Mr Jamie Pittock

23 October 2009

Dr John Williams
Commissioner
Forests Assessment
Natural Resources Commission
GPO Box 4206, Sydney NSW 2001
By email: forests@nrc.nsw.gov.au

Dear Commissioner,

Submission: red gum and cypress forests

I write in a personal capacity to offer some views on the conservation of red gum and cypress forests in the NSW Riverina. The “red gum forests”, called here floodplain forests, are as much wetland ecosystems as they are forests, and many of my comments in this submission are directed at required aquatic conservation measures required to sustain and enhance this floodplain biodiversity.

I offer these views in an unreferenced format but would be pleased to supply more data to Commission staff to follow up any of these points if desired.

1. Need for more and linked conservation reserves

In my view a primary role of the NRC inquiry is to make recommendations for a comprehensive and representative reserve system in the NSW Riverina, a system that complements recent reserve designations in Victoria, ensures that substantial areas are not further degraded through logging and livestock grazing, and promotes effective management, particularly with environmental flows. I am concerned that the focus on red gum and cypress forests, and in separate reports, may distract participants and the NSW Government from the urgent need to conserve more depleted forest and woodland types in the region. The surviving remnants of many ecosystems on public lands are small and need to be complemented through complementary management of habitats on private lands and land purchases for conservation. Further, many of the most threatened species, such as the Superb Parrot, use different, adjacent forest habitats. Thus there is a need to identify areas like the mid Murrumbidgee and Millewa forests where conservation reserve networks could be established that include complexes of dryland and floodplain forest ecosystems. Further, the reserve systems should incorporate substantial remaining habitats of all listed threatened species and communities on public lands (or in the case of the Northern Hairy Nosed Wombat, an objective adopted of eventually reintroducing the species to the Millewa forest). *I urge the NRC to make recommendations for a comprehensive and representative reserve system in the NSW Riverina that covers the full range of ecosystem types and habitat of all listed threatened species and communities on public lands.*

2. Need to ensure reserves are effectively linked across the landscape

The fragmented nature of remaining forests and woodlands in the Riverina requires special efforts to conserve and restore habitat connectivity. River frontages, Travelling Stock Reserves (TSRs) and road easements are particularly significant in the Riverina for maintaining such connectivity. Additional areas on private land may need to be targeted for conservation agreements or purchase to consolidate larger blocks that have greater resilience for conservation. *I urge the NRC to make recommendations to protect and enhance habitat connectivity across the Riverina.*

3. Role of Travelling Stock Reserves

While the inquiry is focussed on state forests, significant, linked and representative areas of the Riverina's depleted forest and woodland ecosystems remain on public lands in TSRs. These may play vital ecological roles, such as providing habitat for migratory and threatened woodland birds. The critical conservation values of these TSRs are jeopardised by proposals to sell off TSR lands and the leasing of such lands for set grazing. *I ask the NRC to recommend that the NSW Government: a) retain in public ownership all TSRs, b) include management for conservation of biodiversity as one of the primary purposes of TSRs, and c) prohibit use of TSRs for set term grazing.*

4. Role on non-government conservation management organizations

Non-government land trust organisations (like Bush Heritage and NSW Trust for Nature), community groups like the Fivebough & Tuckerbil Wetlands Trust, and Indigenous organizations are playing increasingly important roles in managing ecologically significant lands for conservation. In the Riverina bioregion, significant sites are owned and managed by such institutions, including Ned's Corner Station by the Trust for Nature Victoria, and Toogimbee Indigenous Protected Area. Such organizations contribute significantly to conservation by attracting additional resources, engaging key constituencies, and in undertaking conservation measures where governments are constrained by politics. A number of forest ecosystems in the region are substantially fragmented and primarily remain on private lands. Non-government organizations can play a significant role in the establishment of larger, diverse and more resilient conservation reserves through purchase and management of key lands, and through partnerships with private land holders. *I ask the NRC to recommend: a) localities where complementary management by non-government agencies would greatly enhance conservation (for example, by increasing areas of dryland forest habitat of the Superb Parrot in proximity to the red gum forests in the mid Murrumbidgee and Millewa areas), and b) state government support for such non-government conservation initiatives.*

5. Role of Indigenous traditional owners

Aboriginal traditional owners are playing an increasingly significant role in improving management of conservation areas in western NSW through co-management agreements covering state reserves, and directly with Indigenous Protected Areas. The Victorian Government has recently agreed to co-management of significant areas of floodplain forests along the River Murray. I ask the NRC to recommend to the NSW Government that Indigenous involvement in the management of Riverina floodplain forests be increased through: a) further co-management agreements covering state reserves, b) support for the establishment of further Indigenous Protected Areas, including in collaboration with the

Indigenous Land Corporation and Federal Government, and c) potential establishment of community ranger programs.

6. Importance of environmental flows to sustain red gum forests

While I urge the NRC to recommend reservation of extensive areas of flood plain forests in conservation reserves, these will only remain ecologically healthy with appropriate environmental flows. I welcome efforts by governments to reallocate water for environmental flows in the Riverina, but ask the NRC to make recommendations to address the following problems and diversify the measures applied by the governments:

- a) **Suspension of water sharing plans.** There is no point in having water sharing plans if governments suspend them whenever times are tough, as the NSW Government did with the Murrumbidgee and others in 2006. *The NRC should recommend the adoption of water sharing plans by the NSW State Government that apply under all conditions.*
- b) **Acquiring flood easements.** *The NRC should recommend that the state government acquire flood easements and relocate any affected infrastructure to ensure that environmentally appropriate flows can be provided to the forests.*
- c) **Regulating and reoperating flood levees and water spreading banks.** The ad hoc and poorly regulated construction of flood levee banks and water diversion banks in many places has a) diverted water away from and desiccated key areas of floodplain forests, and b) proven unsustainable as the volume of water that can be passed often diminishes downstream resulting in levee breaks during floods. In this context I note that in Europe and China there are large scale programs to pull flood control levees back from rivers as a climate change adaptation measure to give rivers room to flood safely. In the Riverina, systematic construction of banks in places like the Great Cumbung and Lowbidgee has changed floodplain hydrology on a grand scale. *The NRC should recommend that the NSW Government systematically regulate all earthworks that impact on floodplain hydrology, that all such infrastructure be regulated by time-limited licenses that are subject to periodic review, and that relicensing assessments can recommend removal or reoperation of poorly performing infrastructure at the owners expense.*
- d) **Protection of remaining free-flowing tributaries.** While main stems of most MDB rivers are regulated, a small number remain free-flowing and these maintain critical ecological processes, such as flood pulses and connectivity in regulated systems. In Victoria, for example, the Ovens River has statutory protection as a Heritage River against water infrastructure development and diversions. *The NRC should recommend that the NSW Government identify and protect any remaining tributaries of the Lachlan, Murrumbidgee and Murray rivers that remain free-flowing in the state.*
- e) **Re-operating weir pools.** Along the major rivers, modest but ecologically significant areas have been permanently inundated by weir pools. The historical practice of maintaining most weir pools at a constant level has inundated and killed key areas of floodplain forest as well as favouring exotic species like carp. In many places, old growth but stressed red gum riparian zones have recovered when regulators across side arms of weir pools have reinstated natural drying cycles (for instance, Lake Benanee near Euston). Varying the level of weir pools has proven difficult, sometime because of operational requirements but usually due to the need to adapt local infrastructure, such as pump intakes, and due to cultural resistance by operators. *I ask the NRC to recommend that the NSW Government assess and reoperate each weir pool to: a) better mimic natural variability in water levels, b) adapt local infrastructure to varying water levels, and c) prioritize further side arms that would benefit from regulators to restore natural drying cycles.*

- f) **Conjunctive management of surface and groundwater.** Much of the current work on environmental flows has focussed on surface waters, yet it is likely that the health of large areas of floodplain forests depend in large part on shallow groundwater aquifers that have been poorly regulated until recently. *I ask the NRC to consider how better management of groundwater in conjunction with surface waters can contribute to floodplain forest conservation.*
- g) **Water trusts.** In the United States, non-government conservation water trust organizations play significant roles in purchasing water entitlements and applying them for aquatic conservation. While in their infancy in Australia, similar organizations are being established and the Murray Wetlands Working Group (at least, until its recent, unfortunate incorporation into DECCW) demonstrated the benefits of having such institutions undertaking environmental watering to sustain floodplain forests. Water trusts have a number of advantages separate to and complementary with government environmental water managers, since they can: a) attract additional resources; b) take decisions to apply water more quickly than public institutions (many government administered watering events have failed to achieve their environmental objectives, such as enabling water bird chicks to complete fledging, as approvals took too long to deliver water on time), and c) attract local community support and participation that is not offered to government environment agencies. It is also clear that regulations for releasing environmental water are frequently far more onerous than water for irrigation. *I ask the NRC to recommend that the NSW Government facilitate better conservation of floodplain forests, particularly on private lands, by: a) ensuring that state laws facilitate the operations of non-government environmental water trusts, and b) that regulations governing releases of environmental waters are made no less onerous than those for agriculture.*

7. Importance of controlling thermal pollution

While releasing more environmental flows is significant for sustaining floodplain forests, the poor design of major release structures on the dams on all major tributaries of the Murray Darling Basin results in water too cold for reproduction of fish and other biota downstream. NSW Fisheries report thermal pollution of -3 to -10°C in rivers for up to 300 km downstream on rivers like the Lachlan, Murrumbidgee and Murray. Aquatic fauna is an integral part of the red gum forest ecosystem and measures to better conserve this wildlife should be a part of the NRC's findings. Thermal pollution can be eliminated by installing multi-level off take towers, or a variety of other devices that have a cheaper capital cost but incur more expensive operating expenses. I note that control over the temperature of water releases could be an important climate change adaptation measure. *Consequently I ask the NRC to recommend that the NSW Government systematically retrofit major dams with thermal pollution control devices.*

8. Importance of restoring riverine connectivity – infrastructure relicensing

Many of the fish in the rivers of the bioregion are migratory and barriers to migration from dams, weirs and other infrastructure have contributed to their population declines. There are an estimated 4,000 barriers to fish passage in the Murray Darling Basin, only a small portion have any form of fish passage devices. While the MDBA has a welcome program to restore fish passage on the mainstem of the Murray and Edwards rivers down stream of Hume Dam, this is a one-off exercise that does not cover other streams and is unlikely to be revisited as circumstances change. NSW Fisheries has surveyed their MDB catchments and published prioritized inventories of barriers to fish passage. These reports show that: a) a lot

of the infrastructure is redundant (eg. weirs built to supply water for steam trains) or illegal, and b) retrofitting a relatively moderate number of these barriers would significantly enhance opportunities for native fish migration and breeding. Now is a critical time to act since as modifications to infrastructure are accelerating to manage water scarcity and to meet the higher safety standards required under conditions of climate change. However one-off initiatives are inadequate to deal with the problem as the use of instream infrastructure changes over time, as environmental standards and impact mitigation technologies improve, and as climate changes require ongoing changes in operation of infrastructure. In the United States, non-Federal Government owners of hydropower dams operate under 30-50 year licenses regulated by the Federal Energy Regulatory Commission. This periodic relicensing enables regular public assessment of whether the infrastructure is safe, still serves a valuable economic purpose, and all relevant social and environmental impacts are mitigated to an acceptable degree. Licenses may be revoked, requiring removal of under-performing infrastructure, or renewed with conditions requiring retrofitting to meet new standards. *I ask the NRC to recommend that the NSW Government establish a similar periodic relicensing regulatory system covering all instream infrastructure, flood levees and water diversions banks.*

9. Importance of riparian restoration programs

Continuous riparian forests perform critical ecological functions, including: providing linked habitat for forest species, reducing erosion, providing the vegetation inputs into the aquatic food chain, supplying the woody debris that native fish require for habitat, filtering out pollutants, and shading the river surface. The micro-climate maintained by such forests may become increasingly important in building resilience of river ecosystems to climate change impacts. In the Victorian Riverina, state agencies have responded by establishing new conservation reserves along key streams, including the Murray and Ovens rivers. One state park, Broken-Boosey, is nearly 40 km long but just 40 m wide for most of its length. Innovative riparian restoration programs, notably the North East Catchment Management Authorities Ovens “River Tender” program are using cost-effective incentives for private land managers to restore river frontages. The Victorian Government is currently considering whether to remove livestock grazing from all public land river frontages. In my view NSW should adopt complementary programs. *The NRC should recommend that the NSW Government: a) establish linear conservation reserves to complement those in Victoria, on the riparian lands of major rivers, including the Murray, Edward and Murrumbidgee ; b) institute a policy of progressively removing all livestock grazing from river frontages, and c) establish major programs of incentives for conservation and restoration of river frontages on private lands.*

10. Ramsar listing of major wetlands

The report notes that the mid-Murray forests are Ramsar listed, imposing obligations on the Australian government to “maintain the ecological character” of the site. This is increasingly challenging as climate change, over-allocation and mismanagement of water impacts on these floodplain ecosystems. Ramsar member parties are required to take all possible measures to maintain sites, yet in these cases it is difficult to distinguish between human-induced changes in hydrology that is within the capacity of the governments to address versus climate-induced impacts on the site that is beyond the direct ability of authorities to mitigate. As some changes in ecological character appear inevitable, it is important that the Australian governments approach these problems by transparently applying all the mechanisms of the Ramsar Convention, so as not to undermine the Convention, to draw in

overseas expertise where relevant, and to establish high standards for managing similar changes in ecological character of Ramsar sites globally due to climate changes. *Consequently I ask the NRC to recommend that the NSW Government seek Federal support to:*

- a) Define changes in ecological character expected, distinguishing between those that can be addressed with improved management and those that cannot be ameliorated;*
- b) Advise the Ramsar Secretariat that the site is at risk of change in ecological character;*
- c) Nominate the site on the Montreux Record of sites undergoing ecological change;*
- d) Prepare a management plan, seeking advice from Convention bodies, and derived from water allocated in the 2011 MDB Plan to manage the site; and*
- e) Follow Convention processes in and revising the site's Ramsar Information Sheet and ecological character description to reflect the new management objectives.*

There are also a number of other wetlands in the region that clearly qualify for Ramsar site nomination under one or more of the nine site listing criteria. Ramsar site listing has a number of advantages, including: a) codifying the application of Federal law to existing matters of national environmental significance within and upstream of the site; b) increasing priority for resources for conservation of the listed sites, c) facilitating cooperative management of wetlands across land tenures, and d) contributing to the global system of wetlands conservation. Initially, state owned lands in the Lowbidgee and Booligal wetlands should be assessed for nomination. Other wetland types across the region should also be assessed for nomination of representative sites, such as black box floodplains and ephemeral lakes. *I ask the NRC to recommend that the NSW Government seek Federal support to assess and nominate additional wetlands as Ramsar sites commencing with publicly owned lands in the Lowbidgee and Booligal wetlands.*

11. Links to the Murray Darling Basin Plan

The NRC inquiry has a difficult task in reach conclusions before the 2011 Murray Darling Basin Plan has establish conservation targets and concomitant sustainable water diversion limits. The NRC can and should recommend a conservation reserve system for the forests and woodlands of the NSW Riverina, but the floodplain forest ecosystems that they may contain will only survive in their current distribution to the extent that the MDB Plan allocates sufficient water. *In this context I urge the NRC to make recommendations for floodplain reserves to form the NSW Government's submission to the MDBA as to the extent to which these ecosystems should be conserved under the MDB Plan.*

I also note the extensive existing and proposed installation of regulators and other water infrastructure to manage environmental waters to maintain areas of the flood plain forests. Outside Millewa Forest and the weir pools, this infrastructure is required because of inadequate environmental flows. Some of this expensive infrastructure may not be required if the MDB Plan returns substantial volumes of water to the river system. While investments to enable water allocation to the environment are generally welcome, depending on such systems for biodiversity conservation risks institutional failure, as evidenced by the NSW Government's suspension of many water sharing agreements from 2006. Wherever feasible, managers should rely on natural ecological processes (ie flooding in this case) to maintain floodplain ecosystems. *Consequently any NRC support for more environmental water delivery infrastructure in higher floodplain areas should be predicated on demonstrated water scarcity by 'natural' flooding based on the relevant water allocations set in the MDB Plan.*

12. Cooperative management of river parks

It is apparent that conservation of the biota of the Riverina bioregion biota would be enhanced by greater collaboration between conservation managers in NSW, Victoria and South Australia. In the case of the Australian Alps and also the Mallee, environmental authorities in the adjacent jurisdictions have cooperative agreements aimed at enhancing conservation through harmonising management, accrediting staff managing transboundary sites, and sharing information on better management techniques. *I ask the NRC to recommend the establishment of a similar "River Parks" cooperative agreement between relevant government environmental agencies NSW, Victoria and South Australia, as well as appropriate non-government organisations, such as Trust for Nature Victoria and Indigenous Protected Area managers.*

13. Control of total grazing pressure

Following visits to a number of conservation reserves in the region, I am concerned that high total grazing pressure may be inhibiting regrowth of indigenous vegetation, especially in woodland reserves. In my view this overgrazing by kangaroos, goats and rabbits is likely to be exacerbated by easy access to artificial watering points. It is apparent that many national parks in western NSW retain tanks and other watering points installed for livestock production. *I ask the NRC to recommend that any such watering points in reserves in the region are either decommissioned or fenced to exclude access by herbivores.*

Many conservation are bisected by Travelling Stock Reserves, incurring impacts from grazing by livestock, weed introduction, public access and water access. *I ask the NRC to investigate whether TSRs in existing or proposed reserves in the region can be incorporated into the conservations reserves and decommission their associated watering points.*

14. Regeneration of native tree species

It is evident driving through the region that over large areas there is little or no regeneration of woodland tree species, such as Cypress, Rosewood and Sugarwood. I believe it is urgent that this problem is addressed while there are still mature trees available in the landscape to provide trees. In the interests of maintaining the full range of biodiversity in the landscape, *I urge the NRC to recommend a major program to systematically identify the reasons for lack of regeneration of these species and actions to rectify the situation.*

15. Climate change adaptation

The recommendations need to consider the likely impacts, resilience building and climate adaptation measures. Suggestion that I have made above that contribute to climate change resilience and adaptation include:

- Reservation of comprehensive and adequate reserves without degradation from grazing and logging;
- Establishment of large areas managed for conservation on a variety of land tenures through agreements with private land owners, purchase by conservation land trusts and designation of new Ramsar sites;
- Protection of habitat links across the landscape, including along rivers and TSRs;
- More effectively managing environmental flows, groundwater and weir pools;

- Restoring river connectivity through thermal pollution control, installation of fish passages, renovation and regulation of levees and instream barriers, and riparian forest restoration;
- Engaging a broader range of the community in management of high conservation value lands and waters.

In relation to the Lachlan floodplain forests, the major wetlands at the lower end of this river appear particularly vulnerable to likely changes in hydrology. *I urge the NRC to assess the potential for greater conservation of the Lake Cowal system as a refuge, just upstream of the study area, as a floodplain ecosystem that may be more resilient due to lower water transmission losses and its ability to source water from both Bland Creek and the Lachlan.*

16. Economic diversification

While the inquiry proposes to further examine the economic issues surrounding the current timber industry in the Riverina, I also urge consideration of the costs and benefits of economic diversification opportunities in the region. As a frequent visitor to the region I would say that visitor facilities and information is under developed. Some suggestions include:

- a) Economic benefits of management of new conservation reserves in the region, where Yamba National Park may provide one example;
- b) Development of a road-based tourism trail for drivers from Adelaide to Sydney or the snowfields, similar to the strip maps, attractions and facilities developed for travellers on the Stuart Highway in SA and the NT;
- c) Development of walking, canoeing and cycling trails (including rail trails) long the major rivers, with guide books, maps and camping facilities linked to major public transport hubs. Victoria's Lower Glenelg NP canoe trail is one such example.

Thank you for the opportunity to offer these suggestions.

Yours sincerely,

(Signed)

Jamie Pittock (BSc(Hons)).