



Senator Rex Patrick
Senator for South Australia
Parliament House
Canberra ACT 2600

Dear Senator Patrick

Thank you for sending through your photos of Barmah-Millewa Forest (attached for reference). We have followed up the causes behind the stands of dead river red gums with one of our colleagues in the NSW government who has a long working history in Millewa Forest. Their response follows.

The photos were taken at sites where trees were killed by wildfire at Coppingers Swamp-Duck Lagoon in 2008 and around Moira Lake in 2005. Both fires killed large areas of river red gum forest, including many very large mature trees.

The photos also show stands of river red gums in Millewa that died 60-80 years ago as a result of permanent inundation during the early days of river regulation, i.e. from the 1940s. These dead stands are located in wetlands such as St Helena, Reed Beds, Black Swamp, White Swamp and Little Edward. One of the main reasons why the forest regulators were installed along the Murray River, Edward River and Gulpa Creek from the 1950s onwards was to restrict unseasonal flooding of the forest in summer and autumn from irrigation deliveries.

Some of the old trees that died are enormous and are an indication of the ephemeral watering regime of these wetlands prior to river regulation. Several wetland restoration programs in Millewa over the past 20+ years have seen water management infrastructure installed to manage flows into the sites more efficiently and allow drying phases to be implemented. The condition of the wetlands rapidly improved and became significantly more productive due to the reinstated flooding/drying regimes.

No mature stands of river red gums have been killed or negatively affected by environmental watering which occurs at a seasonally appropriate time. Only a relatively small area of Barmah-Millewa Forest can be watered due to the current flow constraints (approximately 25 per cent of the total forest area). Therefore, a large proportion of Millewa Forest is presently severely drought stressed. There are stands of trees located on more elevated sites that are extremely stressed and many trees appear to have died.

The photos also show large areas of previously open (tree-less) floodplain that have been lost to river red gum encroachment (e.g. the Moira grass plains). This has been a consequence of river regulation, where the open areas were previously maintained by annual flooding (seedlings were drowned by successive floods), but nowadays the overbank events are of smaller magnitude, are less frequent and much shorter duration, which has allowed river red gums to germinate and establish in areas of floodplain where they did not occur under natural conditions.



We aim to emulate the annual winter-spring flooding and summer-autumn drying regimes that would have occurred naturally (prior to river regulation). This is why we open the forest regulators into Barmah-Millewa Forest in early July and close them at the end of December (sometimes earlier) each year. This operating strategy allows a drying phase to be achieved for the forest, but also provides connectivity for native fish over the spring breeding period. We also aim to hold water in some of the forest creeks (such as the Toupna Creek) to maintain drought refuge for native fish (especially threatened small bodied species and juvenile Murray cod and trout cod) and other water dependant species such as turtles, etc. River red gum trees would not be negatively affected by this watering regime.

In most years we manage flows into certain wetlands where waterbirds such as the nationally threatened Australasian bittern and colonial-nesting waterbird species are nesting. We generally manage flows into these wetlands to maintain a stable water level on the recession of an overbank event that triggers nesting until the end of January. We then allow the sites to dry over the remainder of summer and over autumn into the following winter until they are filled again by the next over bank flow, which generally happens in August-September. River red gum trees would not be negatively affected by this watering regime either.

The Murray-Darling Basin Authority's 'The Living Murray' program (TLM) is the main source of ecological monitoring in the Barmah-Millewa Forest. The most recent Barmah-Millewa Forest Reports Card can be accessed on the MDBA webpage:

<https://www.mdba.gov.au/managing-water/water-for-environment/barmah-millewa-forest-report-card-2017-18>

The scientific monitoring indicates that the overall health of the forest has improved significantly from 2006–07, when it was rated a 'D', to an 'A' in 2017–18. Monitoring also shows that native plants are in better health at sites that receive water for the environment.

Please let me know if you have any further questions in relation to the flows through Barmah-Millewa Forest and the pressures on its health.

Yours sincerely

Jody Swirepik
Commonwealth Environmental Water Holder

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cc: Secretary, Senate Standing Committee on Rural and Regional Affairs and Transport







