

Vic matter 10 Case study Gunbower 2014-15

A collaborative effort to achieve environmental outcomes at Gunbower Forest

Gunbower Forest spans 20,000 hectares along the Murray River floodplain near Cohuna, downstream of Echuca. It is an internationally important wetland under the Ramsar Convention and includes one of the most significant remaining areas of River Red Gum forest in Australia.

The forest is home to many endangered plants and animals, including the Giant Banjo Frog and Intermediate Egret. The creek contains a number of endangered fish such as Murray cod and Golden perch. Due to the high diversity of fish in the creek, it is considered to be a valuable refuge and source of fish for the recolonisation of surrounding waterways.

The forest contains numerous sites of Aboriginal and post-settlement cultural heritage. These sites indicate people's strong connection to the forest, both historically and today. The forest provides social and economic values through timber production, apiculture (bee keeping), recreation and tourism.

The North Central Catchment Management Authority (NCCMA) are the environmental water managers at Gunbower Forest. Environmental water management of the forest aims to support a broad range of objectives, including: maintaining the health of river red gum and black box communities; providing suitable feeding, breeding and refuge habitat for waterbirds (including colonial nesting species); promoting connectivity between the waterways and floodplain to transfer nutrients and support healthy populations of native fish; increasing the area of healthy permanent and semi-permanent wetlands; and providing suitable habitat to support a diversity and abundance of native water dependant species, such as frogs (Principle 2).

Environmental water has been managed in the Gunbower system since 2003. During the Millennium drought, environmental watering provided critical refuges for waterbirds and fish in an otherwise dry landscape. The watering also supported aquatic and floodplain vegetation communities, enabling them to complete their lifecycles and replenish seed banks.

With the return of wetter conditions in recent years and completion of floodplain infrastructure works, the first large-scale floodplain watering of Gunbower Forest was undertaken 2014. The event involved the delivery of over 98 GL of water to the forest, providing much needed connectivity between the creek and forest. The event facilitated fish movement between the forest, Gunbower Creek and Murray River, enabling native fish to access an abundance of food resources which supported extensive breeding and recruitment of small bodied native fish. The watering promoted the growth and reestablishment of vegetation communities, including the threatened Wavy Marshwort (*Nymphaea crenata*) and River Swamp Wallaby-grass (*Amphibromus fluitans*), which responded particularly strongly to the event. These objectives were consistent with Basin Annual Environmental Watering Priorities (connecting rivers and floodplains, supporting instream functions and enhancing and protecting refuge habitat) (Principle 1).

Throughout the construction of infrastructure in Gunbower Forest, and in the planning and delivery of environmental water, the NCCMA has engaged the local community, agencies, land managers, ecologists, traditional owners and local government (Principle 7).

This engagement occurs through a number of mechanisms, including through the Gunbower Island Community Reference Group (consisting of community members), NCCMA Natural Resource Management Committee (consisting of local community members from across the North Central CMA region), and through consultation with indigenous groups (Yorta Yorta and Barapa Barapa

Traditional Owners), local Government and community groups (such as Gannawarra Shire Council, local Progress Associations and Development committees). Engagement also occurs through the Gunbower Operational Advisory Group (comprised of agencies involved in delivering the environmental watering program) and Technical Working Group (comprised of ecological experts).

Input from consultation with the community and stakeholders has been used to refine the timing of flows (for example to reduce impacts on activities such as firewood collection and commercial timber harvesting), and to ensure information was provided to inform visitors and local communities of the watering program, particularly the timing and extent of the planned inundation. Community consultation has been a vital component in ensuring the success of the infrastructure works and environmental watering at Gunbower Forest.

The Gunbower Operational Advisory Group (GOAG) plays an important role in advising on the operational planning and delivery of environmental water. The group is convened by NCCMA and includes a broad range of agencies, including waterway managers (North Central CMA and NSW State Forests), storage managers and river operators (Goulburn-Murray Water and Murray-Darling Basin Authority (MDBA)), land managers (Parks Victoria and Department of Land, Water and Planning) and water holders (VEWH, CEWH and MDBA). The group coordinate to provide input and advice on river flows and water availability, feasibility of the desired watering, identification and mitigation of risks, and operational management during the watering (Principle 3). In 2014 the Technical Working Group also input to the GOAG, providing advice on desirable flow regimes and adaptive management to achieve the greatest ecological outcome during the delivery.

The group coordinated throughout the watering event, with input from agencies used to inform how the action progressed. The strength of the collaboration between agencies was demonstrated during the final stages of the event, when fish exit strategies were being developed, trialled and refined (Principle 6). To create a migration cue for small-bodied native fish (e.g. Australian smelt and gudgeons) to exit the floodplain prior to the completion of the watering event, a sharp drop in water level was required. Working closely with fish ecologists, the GOAG was able to fine-tune the operation of multiple regulators to achieve a sharp drop in water depth across the forest. Monitoring of the Hipwell Road fishlock confirmed that a native fish response was successfully triggered (Principles 8 and 4). The GOAG is a great example of proactive and effective collaboration amongst partners in the Victorian environmental watering program.

The 2014 watering at Gunbower Forest was delivered using consumptive water en route. This means that consumptive water was diverted through the creek and forest to achieve the desired environmental objectives, whilst on its way to meet consumptive demands downstream in the Murray system (Principles 3, 10 and 11). Losses associated with the diversion of this consumptive water were met by environmental water holders (VEWH and MDBA) to ensure that there was no impact on other water users. This approach allowed desired objectives to be met using much less environmental water – with over 98 GL of consumptive water diverted though the forest, but only 56 GL of environmental water required to support the event (the remaining 42 GL of consumptive water was returned to the River Murray).