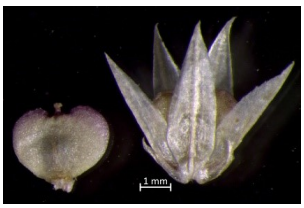
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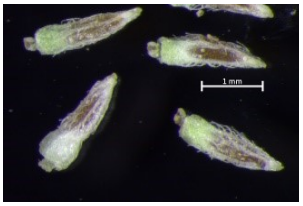
Centre for Freshwater Ecosystems

Fact Sheet

MMCP Collaboration

Understanding wetland plant seed dispersal and interactions with floodplain infrastructure





This project, is one of five research themes that make up MMCP. This research theme examined the impacts infrastructure has on our waterways, to the dispersal ability of plants and their seeds.

Dispersal

Dispersal of seeds or other vegetative propagules into restored and newly created habitats is a key process for the establishment of species.

Seed dispersal by water can be categorised into two types:

- Floating on the surface.
- Sinking and drifting along the bottom.



Infrastructure

The infrastructure used to manage flow regimes will influence the seed communities being transported into wetlands which may impact on the recovery of species after disturbances such as extended drought.

Structures between rivers and floodplains are primarily pumps and regulators:

- Are put in place to manage water quality, improve fish movement or restore wetting regimes to wetlands.
- Each type of structure will have a different impact and associated risk to seed dispersal.

Further information

MMCP Collaboration (MMCP) is a project supported by the Joint State Governments and the Murray-Darling Basin Authority to generate and adopt freshwater ecological knowledge through collaboration, to maintain research capability and contribute supporting science to underpin the Basin-Wide Watering Strategy.

MMCP Collaboration Final report: doi.org/10.26181/5d19927544b20

Vegetation dispersal report: doi.org/10.26181/5d19911fa9947

Conference presentation: doi.org/10.26181/5d199e8f5b58e

Other vegetation dispersal factsheets: doi.org/10.26181/5c64f333845b5

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Types of structures in the Murray-Darling Basin and impacts on seed dispersal

Structure	Impact	Mitigation	Risk
Unregulated channel • No structure between the river and wetland.	• Nil.	• Nil.	1 best
Pumps • Connection between river and wetland maintained by pumping water. • Water pumped from below the water surface (e.g. bottom of river).	• Selects for seeds floating below the water surface. • Potential for seeds to be damaged.	• Adjust height of float value to modify depth from which water is pumped.	5
Undershot (sluice/gate) regulators • Flows modified by raising gate and allowing water to flow underneath. • Used to prevent water moving either into or out of a wetland.	• Entrapment of seed and other debris drifting on the surface.	• Complete opening of gates.	4
Overshot (drop-board) regulators • Flows modified by removing or adding boards. • Used to prevent water moving either into or out of a wetland.	• May reduce the potential for seed dispersal due to reduced flows and potential entrapment of seeds.	• Removal of all boards to allow maximal water movement into wetlands.	3
Tilting (Lay) flat gates • Flows modified by tilting weir on its bottom horizontal axis. • Used to prevent water moving either into or out of a wetland.	• Minimal. • Titling of gates should allow seeds to be washed in to wetlands.	• Full tilt of weir(s) for maximum water movement into wetlands.	2

Key findings

- Seeds from aquatic and riparian plants do not drift on or near the water surface for extensive periods of time.
- Modification of connectivity by the use of infrastructure is likely to modify the dispersal patterns of seeds.
- Infrastructure has the potential to influence the plant communities within wetlands as they recover from disturbances.
- How many and which species are able to be transported into these habitats will depend on the type of connection and life history traits of the available species.







Project team

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Australian Government

MURRAY–DARLING BASIN AUTHORITY

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