



Enhancing farm dams

What to plant in and
around your dam

Native vegetation in and around a farm dam has many benefits for water quality, farm productivity and biodiversity. This brochure provides guidance on the types of plants suitable for revegetating dams, and includes lists of recommended plants.



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How to use this guide

This guide provides lists of plants suitable for the different zones of a farm dam — inflow, margins, shallow and deep water, dam wall and spillway. Strategically planting just a few plants from each list will contribute to a healthy dam.

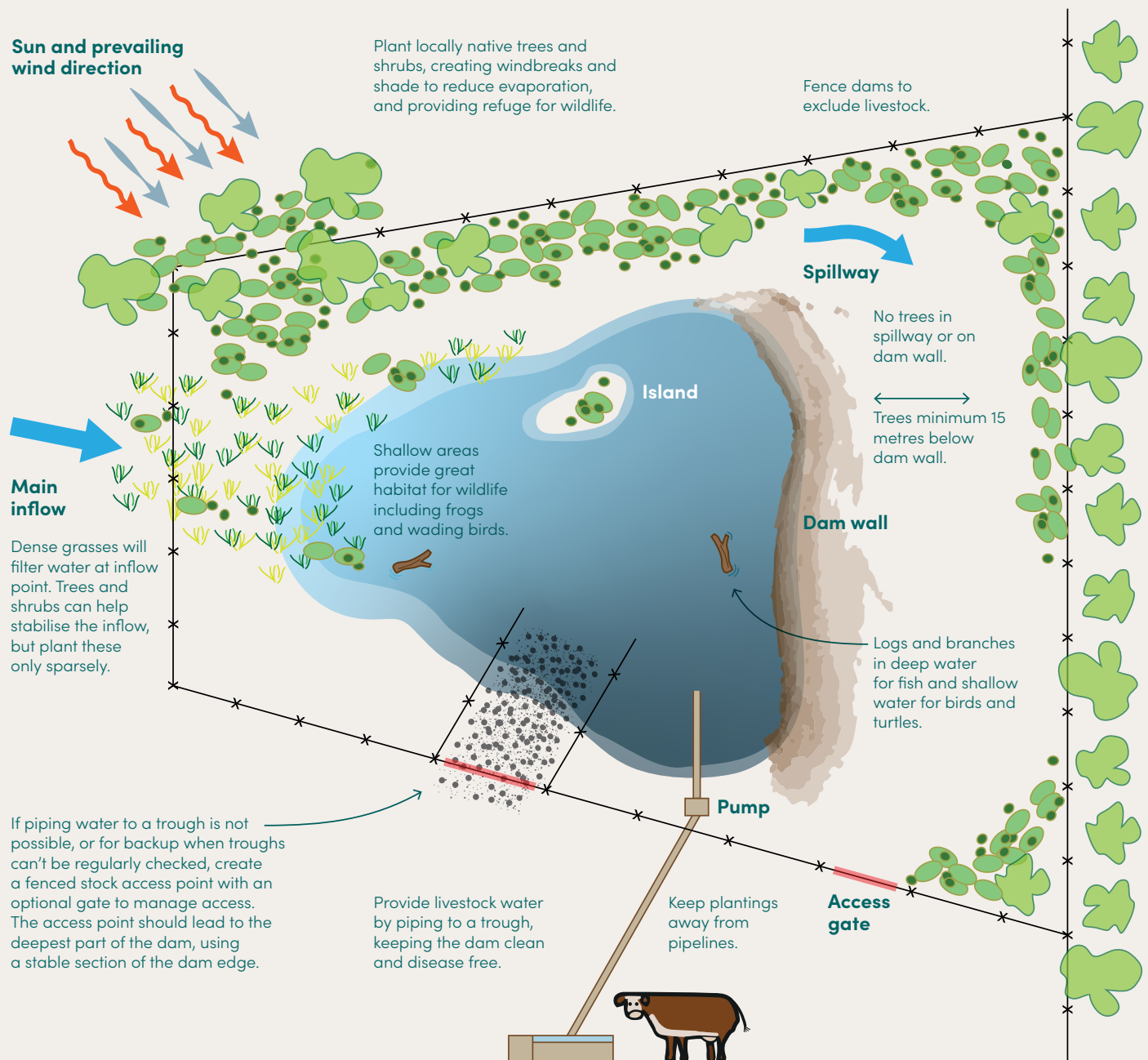
This guide focuses on grasses, herbs, sedges and aquatic plants — it does not include shrubs or trees for planting further back from the dam edge. Draw on the expertise of your local Landcare, Local Land Services or Catchment Management Authority for more information on shrubs and trees native to your region.

We have developed this guide for regions within the Sustainable Farms project area (see map on back cover), which encompasses the NSW South West Slopes, Central West, Murray-Riverina and North East Victoria. The plants listed are generally available at native plant nurseries. Local availability may vary, but the guide provides a range of options to choose from.

Bird's-eye view of a dam showing dam zones and vegetation types.

Illustration modified from Frankenberg, J., *Enhancing Farm Dams*, Ch. 11 in Stelling, F. (ed), 1998, *South West Slopes Revegetation Guide*.

Plan of a farm dam showing key features



Why is vegetation in and around dams important?

- Vegetation on the edge of dams contributes to slowing wind speeds, which is a major factor in higher evaporation rates and bank erosion.
- Ground cover plants in the dam inflow zone slow water, reducing erosion and silting of the dam, and filtering nutrients and other pollutants from the water before it reaches the dam body.
- In the dam margins, plants that tolerate alternating periods of inundation and dry help reduce soil erosion, filter water pollutants and reduce evaporation, improving water retention in times of drought.
- Floating plants create shade in the dam water and help keep water temperatures lower.
- Tall trees set back from the dam edge help cast shade over the dam, reducing evaporation and providing good conditions for wildlife.

Vegetation in and around a dam is key to good farm dam management and will improve water quality and retention. Healthy, well-vegetated dams provide habitat for invertebrates, fish, frogs, turtles and birds. In turn, these animals help improve the function of a dam by cycling nutrients from the dam into the wider landscape, and by modulating sediment, nutrient, salts and algal levels within the dam.

The first step towards a well-vegetated dam is to exclude stock to enable vegetation to regrow. Stock exclusion has the added benefit of preventing pugging, bank erosion and water pollution, all of which can degrade the dam's water quality. Stock water can be piped to a trough. If troughs are not an option or to provide backup in case of pump or trough failure, a fenced hardened access point can enable stock to drink from the dam without damaging the rest of the dam area.

Vegetation will begin to regrow from the existing seedbank as soon as a dam is fenced and grazing pressure removed, while strategic planting or seeding in selected areas will enhance the diversity and structure of the vegetation. In particular, wetland and riparian vegetation may need a helping hand to colonise if a dam is isolated from other water bodies in the landscape. If plant availability is limited, it is better to plant densely in a selected area rather than a few plants across a large area.

Planting or seeding native plants will also enhance biodiversity, including by creating structural diversity in the vegetation (e.g. a mix of ground covers, reeds and shrubs, which are important for different species including frogs and waterbirds), and providing food and habitat for native wildlife, including pollinators and other beneficial insects.

Fencing a dam to limit stock access (right) prevents pugging, bank erosion and water pollution (far right). Stock water can instead be piped to a trough, or a hardened access point can be installed, enabling stock to drink from a limited area of the dam.



Zones of a dam

1. Inflow

Plant grasses, sedges, rushes and small shrubs

Most of the water in a dam will generally flow into the dam from one area – the inflow zone. A well-vegetated, fenced inflow zone with dense ground cover is one of the most important factors to keeping dam water clean. Plants in the inflow zone help filter sediment and absorb nutrients from paddock run-off, minimising the risk of toxic algal blooms caused by high nutrient levels. A long or wide inflow zone will provide more space for this nutrient absorption to take place.

The inflow zone should have a dense ground cover comprising a mix of grasses, sedges and low shrubs. Existing grass and forb species can perform this role. Exotic species may be part of the groundcover mix initially, but weeds should be discouraged as they can harbour pest species and leave large bare areas after dying off. With grazing pressure removed, this area should naturally transition to a perennially dominated species mix over time. Planting native grasses and forbs (e.g. kangaroo grass, weeping grass, tussock grass and billy buttons) will help improve biodiversity and drought resilience.

Some species listed for planting in the inflow zone will perform well in seasonally wet events but may be dormant in dry periods. Planting a mix of wet- and dry-loving species will ensure vegetation cover throughout the year. Extraordinary flooding events sometimes occur after drought, so having a rich species mix will provide cover, reduce flooding erosion and help keep the dam water clean.

2. Margins

Plant ground covers, herbs, sedges, reeds and rushes

Dam margins are the area between the high-water mark and the water line. They are typically inundated after big rain events, then dry out between rains. The margins can host a different set of plants to the main inflow zone and provide excellent habitat at the aquatic/terrestrial interface for frogs, dragonflies and birds such as crakes and rails.

Reeds and rushes on dam margins will help trap soil and other particulate matter and prevent them polluting the dam. Vegetation in this area also plays an important role in preventing erosion from wave action generated by wind, and thus helps reduce evaporation and turbidity.

Rushes such as *Juncus* will sometimes colonise a dam margin naturally, but planting can speed up the process and provides the opportunity to introduce plants that won't recolonise readily, such as the stream clubrush.

3. Shallow water

Plant sedges and semi-aquatic plants

The shallow zone, between the dam margins and deep water, is highly variable depending on inflows. Many of the plants that grow in this zone are emergent species that can cope with inundation for relatively long periods.

In some dams, shallow water regions are subject to regular cycles of flooding and drying, and are similar to dam margins and spillways. In other dams, there will be a more expansive shallow ephemeral area that is not restricted to a narrow edge strip. The exposed mud, flooded meadows and vegetated shallows that exist in shallow areas are important for many plant and animal species.

Shallow areas can be created or enlarged in a number of ways, including through extending the dam to create a larger shallow area below the inflow. Purpose-built sediment traps (smaller dams built in the main inflow area to catch sediment) are another example. When well-vegetated, these areas play an essential role in catching and filtering sediments from inflow and can provide excellent habitat for native wildlife.

4. Deep water

Plant aquatic species

Most dams will have a deep section where water persists longest during dry times, and stays cooler during summer. Floating plants such as *Azolla* create shade in dam water and provide a cooling effect. However, high nutrient levels can drive excessive growth of these plants in some dams, leading to low oxygen levels in the water and creating inhospitable conditions for other life in the dam. This can be relieved by providing shade on the surface of the dam, preferably by trees planted a suitable distance away from the water's edge. *Azolla* can also be periodically harvested by dragging a rope across the surface of the dam.

5. Dam wall

Plant tough perennial grasses

Plant spreading ground covers, perennial species or small shrubs with outward-extending fibrous roots to help keep the wall stable. Dam wall vegetation needs to be low to allow for structural dam inspection (checking for slumping or cracks in the dam wall) and shallow-rooted to avoid root damage to the wall. Don't plant trees or deep-rooted shrubs.

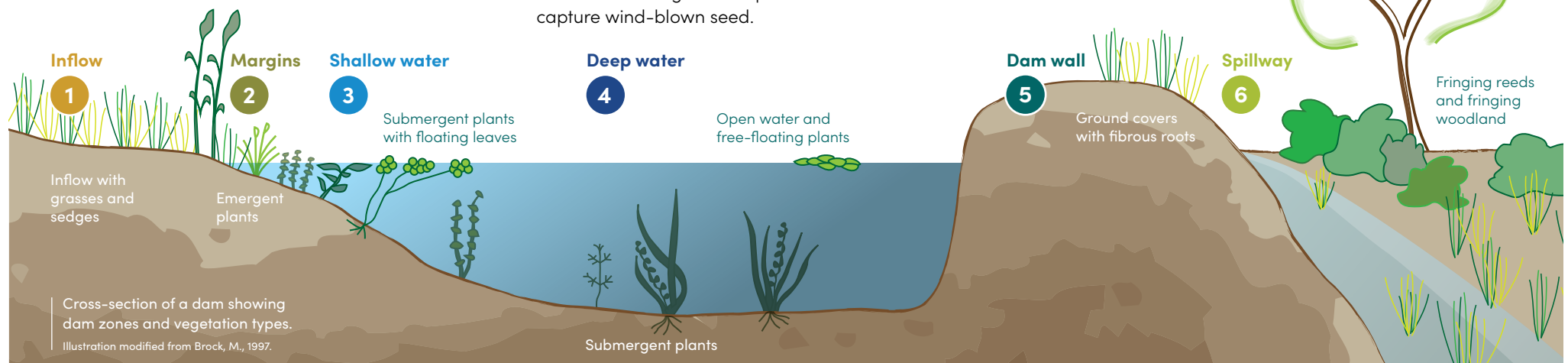
Dam walls can be challenging to vegetate. They are made of compacted clay, and unless a layer of topsoil is present, it is difficult for plants to get a toehold. This is particularly the case if the dam wall is steep, in which case constructing a physical barrier to minimise erosion is a good idea.

Ideally, the topsoil would have been saved when the dam was built, and spread across the surface of the dam wall after construction. Select tough, drought hardy grasses such as *Austrostipa* species (speargrasses) and *Rytidosperma* species (wallaby grasses) and scramblers such as *Hardenbergia*. Top dressing with soil or old hay from elsewhere on the farm can help, and adding fallen branches and logs can help hold loose material and capture wind-blown seed.

6. Spillway

Plant grasses, sedges and mat-forming herbs

Spillways carry water away from the dam during overflow events, and should have 100% vegetation cover to avoid erosion. The spillway will be frequently dry and seasonally inundated, and is best suited to deep-rooted perennial grasses, rushes and sedges. Avoid trees, shrubs and other plants that may shade out the ground cover or block the flow of water.



Zones of a dam

Islands

Islands can be created when a dam is built, or added later as floating islands. Islands provide valuable habitat for animals, especially birds and turtles which use them as safe nesting sites. Solid earth dam islands can be planted in the same way as dam margins and dam walls but can also have shrubs or small trees planted at higher points. The addition of logs and breeding boxes will attract frogs, fish and birds to the dam.

Floating islands are unattached islands that can be constructed from a wide range of materials including PVC pipes and wooden pallets, using plastic drums for floatation. When planted with rushes and aquatic plants, they form rafts of water plants that produce a large root mass, useful for encouraging microbial communities which enhance water quality. The plants and their associated microorganisms can help reduce contaminants or excess nutrients such as phosphorus through the process of phytoremediation. They also provide habitat for fish, turtles, frogs, nesting birds and rakali (native water rats), and create shade in deeper areas of the dam.

Floating islands need to be maintained, repaired or replaced regularly. If using plastics, select tough, long-lasting plastics. Natural materials are preferable as they do not create pollutants, but they have a shorter lifespan.

Plant selection for floating islands can include shallow and deep water species.

A family of grey teal take advantage of an "island" in a farm dam.

Photo: David Smith.

Surrounding terrestrial vegetation

Terrestrial vegetation around a dam plays a vital role by sheltering the dam surface and providing habitat for wildlife. Planting a few trees at least 5m from the dam edge provides shelter from sun and wind, helping reduce evaporation. Trees and shrubs, particularly dense shrubs, also provide habitat and refuge for birds and other wildlife. Additionally, vegetation cover around the dam further helps to reduce the risk of erosion.

Avoid planting woody vegetation in the inflow area or close to the dam wall. In general, take care not to plant too many trees, as excessive shade can limit the growth

of the groundcovers that are essential for stabilising the soil. Leaving an area around the dam free of trees also provides waterbirds with a clear flight path to land and take off from the water.

This guide does not include a list of tree or shrub species suitable for farm dam surrounds, as you should choose species that are indigenous to your location, and your choice of plants may also be guided by other factors such as planting for pollinators or establishing a native shelterbelt. Consult your local NSW Local Land Services office or Victorian Catchment Management Authority, native plant nursery or Landcare facilitator for advice on trees and shrubs appropriate for your property.



Plant lists

Key to plant lists:

‡ Tolerates low to moderate levels of salinity.

* Can become dominant under high nutrient and/or warm water conditions. Avoid introducing to small dams.

The plant lists are suitable for reference in the Sustainable Farms project area (see map on back of booklet).

Fringing terrestrial species

These plants grow on land, but some species, including many of those listed, can withstand temporary inundation.



Common name(s)	Scientific name	Dam zone						Waterlogging tolerance	Natural habitat	Plant type
		Inflow	Margins	Shallow water	Deep water	Dam wall	Spillway			
Common swamp wallaby grass	<i>Amphibromus nervosus</i>	●	●				●	Moderate	Drainage zones, riparian	Perennial grass
Purple wiregrass	<i>Aristida ramosa</i>					●		None	Grassland	Perennial grass
Speargrasses	<i>Austrostipa</i> spp.					●		None	Grassland	Perennial grass
Redleg grass	<i>Bothriochloa macra</i>					●		None	Grassland	Perennial grass
Tall sedge	<i>Carex appressa</i>	●	●				●	Moderate	Drainage zones, riparian	Perennial sedge
Plains sedge	<i>Carex bichenoviana</i>	●					●	Low	Drainage zones	Perennial sedge
Knob sedge	<i>Carex inversa</i>	●					●	Low	Grassland, drainage zones	Perennial sedge
Poong'ort, hollow sedge	<i>Carex tereticaulis</i>	●	●				●	Low	Drainage zones, riparian	Perennial sedge
Swamp goodenia	<i>Goodenia humilis</i>		●				●	Moderate	Grassland, drainage zones	Perennial mat-forming herb
Variable raspwort	<i>Haloragis heterophylla</i>	●					●	Moderate	Grassland, drainage zones	Perennial mat-forming herb
False sarsparilla	<i>Hardenbergia violacea</i>					●		None	Grassland, woodland	Perennial scrambling herb
Pennywort	<i>Hydrocotyle tripartita</i>	●	●				●	Low	Drainage zones, riparian	Perennial creeping herb
Swamp isotome	<i>Isotoma fluviatilis</i>	●	●				●	Low	Grassland, drainage zones	Perennial mat-forming herb
Austral rush	<i>Juncus australis</i>	●					●	Low	Grassland, drainage zones	Perennial rush
Sea rush	<i>Juncus kraussii</i>	●	●				●	Moderate	Drainage zones, riparian	Perennial rush ‡
Matted pratia	<i>Lobelia pedunculata</i>	●	●				●	Low	Grassland, drainage zones	Perennial mat-forming herb
Spiny-headed mat-rush, basket grass	<i>Lomandra longifolia</i>	●	●				●	Low	Woodland, grassland, drainage zones	Perennial tufted herb
Woodruff	<i>Luzula densiflora</i>	●					●	Low	Grassland, drainage zones	Perennial rush
Lesser loosestrife	<i>Lythrum hyssopifolia</i>	●	●				●	Low	Drainage zones, riparian	Annual erect herb
Purple loosestrife	<i>Lythrum salicaria</i>	●	●				●	Low	Drainage zones, riparian	Perennial erect herb
Weeping grass	<i>Microlaena stipoides</i>	●				●	●	Periodic only	Grassland, drainage zones	Perennial grass.
Creeping knotweed	<i>Persicaria prostrata</i>	●	●				●	Low	Grassland, drainage zones	Perennial mat-forming herb
Tussock grass, river tussock grass	<i>Poa labillardierei</i>	●	●				●	Low	Grassland, drainage zones	Perennial grass
Snow grass	<i>Poa sieberiana</i>					●		None	Grassland	Perennial grass
Large river buttercup	<i>Ranunculus papulentus</i>	●	●				●	Moderate	Riparian	Perennial herb ‡
Wallaby grasses	<i>Rytidosperma</i> spp.					●		None	Grassland	Perennial grass
Fluke bogsedge, common bogsedge	<i>Schoenus apogon</i>	●					●	Moderate	Grassland, drainage zones	Annual or perennial Sedge
Kangaroo grass	<i>Themeda triandra</i>	●				●	●	Low	Grassland, drainage zones	Perennial grass ‡

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* Can become dominant under high nutrient and/or warm water conditions. Avoid introducing to small dams.

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Emergent species

These plants grow in water and in damp soil at the margins of water, but can cope with drying out. All are naturally found in riparian and drainage areas.



Stream clubrush
(*Bolboschoenus fluviatilis*)



Common rush
(*Juncus usitatus*)



Pondweed
(*Potamogeton sulcatus*)



Water plantain
(*Alisma plantago-aquatica*)

Common name(s)	Scientific name	Dam zone						Waterlogging tolerance	Suitable water depths (m)	Plant type
		Inflow	Margins	Shallow water	Deep water	Dam wall	Spillway			
Water plantain	<i>Alisma plantago-aquatica</i>		●	●				High	0–0.2	Annual or perennial erect herb
Jointed twigrush	<i>Baumea articulata</i>		●	●				High	0–1	Perennial sedge ‡
Soft Twig-rush	<i>Baumea rubiginosa</i>		●	●				High	0–0.3	Perennial sedge ‡
Sea clubrush	<i>Bolboschoenus caldwellii</i>		●	●				High	0–0.3	Perennial sedge ‡
Stream clubrush	<i>Bolboschoenus fluviatilis</i>		●	●				High	0–0.3	Perennial sedge ‡
Tassel sedge	<i>Carex fascicularis</i>		●	●				High	0–0.3	Perennial sedge
Tufted sedge	<i>Carex gaudichaudiana</i>		●	●				High	0–0.3	Perennial sedge
Water ribbons	<i>Cycnogeton (Triglochin) procerum</i>			●	●			High	1–2	Perennial aquatic herb
Giant Sedge, Tall Flat-sedge	<i>Cyperus exaltatus</i>		●	●				High	0–0.3	Perennial sedge
Leafy Flat-sedge	<i>Cyperus lucidus</i>		●	●				High	0–0.2	Perennial sedge
Star fruit	<i>Damasonium minus</i>		●	●				High	0–0.2	Annual or perennial erect herb
Common spikerush	<i>Eleocharis acuta</i>		●	●				High	0–0.3	Perennial sedge
Tall spikerush	<i>Eleocharis sphacelata</i>			●	●			High	0–5	Perennial sedge
Knobby clubrush	<i>Ficinia nodosa</i>		●	●				Moderate	0–0.3	Perennial sedge ‡
Nodding clubrush	<i>Isolepis cernua</i>	●	●				●	Moderate	0–0.1	Perennial sedge ‡
Common rush	<i>Juncus usitatus</i>	●	●				●	Moderate	0–0.2	Perennial rush
Erect Marsh-flower	<i>Liparophyllum exaltatum</i>		●	●				High	0–0.5	Perennial aquatic herb
Button rush	<i>Lipocarpa microcephala</i>	●	●				●	Low	0–0.2	Annual sedge
Slender knotweed	<i>Persicaria decipiens</i>		●	●				High	0–0.5	Perennial semi-aquatic herb
Pondweed	<i>Potamogeton cheesmanii</i>		●	●	●			High	2	Perennial aquatic herb
Pondweed	<i>Potamogeton sulcatus</i>		●	●	●			High	3	Perennial aquatic herb *
River clubsedge	<i>Schoenoplectus tabernaemontani (validus)</i>		●	●				High	0–1	Perennial sedge ‡
Sharp clubsedge	<i>Schoenoplectus mucronatus</i>		●	●				High	0–0.5	Perennial sedge ‡
Floating Bur-reed	<i>Sparganium subglobosum</i>		●	●				High	0–0.5	Perennial sedge
Narrow-leaved Cumbungi, Bulrush	<i>Typha domingensis</i>		●	●				High	0–0.5	Perennial rush ‡ *

Semi-aquatic species

These plants can grow submerged or partly submerged in water.



Small mud-mat
(*Glossostigma elatinooides*)



Austral brooklime
(*Gratiola peruviana*)



Common reed
(*Phragmites australis*)



Small river buttercup
(*Ranunculus amphitrichus*)

Common name(s)	Scientific name	Inflow	Margins	Dam zone				Waterlogging tolerance	Suitable water depths (m)	Plant type
				Shallow water	Deep water	Dam wall	Spillway			
Waterwort	<i>Elatine gratioloides</i>		●	●				High	0–0.3	Annual mat-forming herb
Small mud-mat	<i>Glossostigma elatinooides</i>	●	●				●	Low	0–4	Perennial mat-forming herb ‡
Australian sweet-grass	<i>Glyceria australis</i>		●	●				Moderate	0–0.1	Perennial grass
Austral brooklime	<i>Gratiola peruviana</i>		●	●				Moderate	0–0.2	Perennial mat-forming herb
Common reed	<i>Phragmites australis</i>		●	●	●			High	0–4	Perennial grass ‡ *
Small river buttercup	<i>Ranunculus amphitrichus</i>		●	●				High	0–0.1	Perennial herb ‡
River buttercup	<i>Ranunculus inundatus</i>		●	●				High	0–0.1	Perennial herb

Aquatic species

Aquatic plants grow fully submerged in water. All are commonly found in riparian areas. In dry conditions, some can persist as semi-aquatic plants.



Common duckweed
(*Lemna disperma minor*)



Watermilfoil
(*Myriophyllum crispatum*)



Nardoo
(*Marsilea drummondii*)



Swamp lily
(*Ottelia ovalifolia*)

Common name(s)	Scientific name	Inflow	Margins	Dam zone				Suitable water depths (m)	Plant type
				Shallow water	Deep water	Dam wall	Spillway		
Watershield	<i>Brasenia schreberi</i>			●	●			0.3–2	Perennial herb
Common duckweed	<i>Lemna disperma (minor)</i>			●	●			0.2–10	Annual herb ‡
Nardoo	<i>Marsilea drummondii</i>			●	●			0–1	Perennial fern. Nardoo is toxic to stock so only plant in fenced dams.
Coarse watermilfoil	<i>Myriophyllum caput-medusae</i>		●	●	●			0–2	Perennial and semi-aquatic herb
Watermilfoil	<i>Myriophyllum crispatum</i>		●	●				0–0.5	Perennial and semi-aquatic herb
Red watermilfoil	<i>Myriophyllum verrucosum</i>		●	●	●			0–1.5	Perennial and semi-aquatic herb ‡
Wavy marshwort	<i>Nymphoides crenata</i>			●	●			0.05–1.5	Perennial herb
Entire marshwort	<i>Nymphoides montana</i>			●	●			0.05–2	Perennial herb
Swamp lily	<i>Ottelia ovalifolia</i>			●	●			0.2–1	Annual or perennial herb
Ferny Azolla	<i>Azolla pinnata</i>			●	●			0–5	Perennial fern *

Planting notes

Most dams that have previously been grazed will begin to recover and show vegetation growth after being fenced, but this can take longer if the seed bank is depleted, so planting can speed things up.

Once dam plants are established, they usually seed prolifically so even if dams shrink or dry out in droughts, rain will enable germination of the seed bed or the regrowth of dormant underground stems. Birds and wind also spread seed so novel species may appear. Over time, the mix of species will stabilise to suit the particular ecology of the dam.

Some broad considerations to keep in mind when choosing plants for your dam:

- **Minimise erosion** by planting species that provide good groundcover (e.g. watermilfoils, small mudmat, pennywort and grasses) to help protect the dam margins, inflow and spillway.
- **Minimise the dam's exposure to sun and wind** by planting larger trees set well back from the dam edge, reeds and rushes in shallow parts of the dam, and floating plants that cover some, but not all, of the dam surface. This will help reduce evaporation rates and keep the water cooler for longer.
- **Dams with salty water** should still be vegetated, but choose plants that are salt tolerant – indicated on the planting guides by ‡.
- **Plant for diverse vegetation structure.** Trees and large shrubs should be the smallest component of any dam planting plan, and should be planted well back from the dam edge to avoid shading out groundcover plants or damaging the dam walls. The vast bulk of planted species should be groundcovers and emergent species that will help stabilise the dam edge and provide excellent habitat for invertebrates and frogs.
- **Choose species that fit the size of the dam.** Avoid species like bulrushes and common reeds (indicated by * in the planting guide) in small dams where they will outcompete other species and use a lot of water. If these are already in your dam and are not dominating other plants, it is fine to leave them there.

Managing exotic plants

The recommended plant list includes only native species, as they generally provide better habitat for wildlife. However, some exotic species such as *Phalaris* and other agricultural grasses may be prolific in the landscape and will be the first to recolonise the area around a fenced dam. In this case, broadscale removal of exotic groundcovers is not recommended in the first instance, since these species will help perform the important functions of stabilising the soil, capturing pollutants and reducing exposure to wind.

Instead, a more targeted approach to managing exotic species is recommended, based on the following considerations:

- Is the plant listed as a noxious weed? (Check weeds.org.au)
- Is the plant likely to negatively impact the outcomes I am trying to achieve? For example, willows can crowd out fringing aquatic vegetation and reduce populations of aquatic insects such as dragonflies and mayflies.
- Is it feasible to remove the exotic plant in the long term? For example, removing *Phalaris* from a dam surrounded by a *Phalaris* paddock will be nearly impossible.
- Is this particular exotic replaceable with a native species that will provide the same function, such as stabilising the dam edge, and is it feasible to do so? For example, replacing surrounding pasture grasses and weeds with native grasses may be challenging in highly fertile areas.

In some cases, ripping and spot spraying can be necessary to create the conditions for newly planted species to thrive. However, it is essential to use only chemicals which are suitable for riparian areas, and use them as sparingly as possible due to the potential impacts on frog populations.

Wanted dead or alive

As well as living plants, dead timber and snags are great additions to dams.

Below the water, they provide a surface for beneficial algae to grow on, and create microhabitats for aquatic life including fish and frogs to shelter among. This extra life in the water is all part of maintaining a healthy dam with high levels of oxygen, which in turn means better water quality for stock.

Large logs and branches that protrude from the water provide a safe place for turtles to rest and for waterbirds to perch, out of reach of foxes and feral cats.

In general, dead trees, fallen logs and large fallen branches should be left in-situ in paddocks or woodlands as they provide great habitat, but often they have to be moved for safety reasons or because they interfere with roads, fences or machinery. In this case, the dead timber can be moved into or next to a dam where it will continue to play a role as habitat for years to come.



Site preparation

Plant type	Recommended site preparation and protection of plants	Best time to plant	Planting density
Aquatic and semi aquatic plants	No preparation necessary other than manually clearing away other vegetation from area to be planted. Placing small branches over plants can help protect them from ducks and other herbivores.	Plant in the warmer months when most plants are active – spring, summer and early–mid autumn. If possible, plant when the dam is full.	Optimum density 2–4 plants per square metre in areas chosen for planting.
Terrestrial grasses, herbs, rushes and sedges	Spot spray areas to be planted with a knockdown herbicide. Placing small branches over plants can help protect them from ducks and other herbivores. It is easier to establish plants on dams with less exposed subsoil – otherwise, it might be necessary to add topsoil with organic content to enable plants to establish.	Late winter to early spring. If planting when a dam is not full, plant a variety of plants at varying points up to the maximum water height, so that a range of plants can either establish or fail based on water levels the following season. Once established, most margin plants have some resilience to periodic dry and wet periods.	Optimum density 5–6 plants per square metre in areas chosen for planting. If planting density is too low, areas of bare ground are vulnerable to invasion by exotic species.
Trees and shrubs	Rip ground before planting (ideally some months prior to allow rip lines to collapse). Spray rip lines or spot spray with a knockdown herbicide.	Late winter to early spring. Be careful of frost damaging young seedlings. Guards can help, or delay planting until spring.	Planting density and configuration will vary between regions, so consult your local Landcare group, LLS or CMA for guidance.

Glossary

Annual: A plant that completes its life cycle within a year. Annuals flower, seed and die within a single season.

Aquatic: A plant that grows only in water. Aquatic plants can be free floating or rooted on the bottom of the dam. Some have very long stems that grow up through the water column.

Emergent: Grows in water and damp soil at the water's margin.

Groundcover: Groundcover refers to any plant that lies on top of the soil and protects it from erosion or inhibits weeds. The best groundcover plants grow outwards not upwards.

Herb: Also known as forb. A plant that is not a grass and does not have woody stems.

Mat-forming: A short, ground-hugging groundcover.

Perennial: A plant that lives for many years. Perennials can flower and produce seeds over multiple seasons and retain biomass all year, but may be dormant for some periods. Some perennials can also spread vegetatively from roots, stems, tubers or bulbs.

Phytoremediation: The use of plants to extract toxins or nutrients from soil or water.

Rhizome: An underground, horizontal stem from which buds and roots can grow.

Rush: A plant from the Juncaceae family. Rushes have small petal-like flowers on branched flower stems.

Sedge: A plant from the Cyperaceae family. Sedges have flowers without petals, in spike or club shaped clusters, with a single leaf at the base of each flowering stem.

Semi-aquatic: A plant that can grow submerged or partly submerged in water.

Stem segments: Detached stem sections that can establish a new plant.

Stolon: A stem growing along the ground from which buds and roots can grow.

References

- Brock, M., 1997. Are there seeds in your wetland? Assessing wetland vegetation. Land and Water Resources Research and Development Corporation, Canberra, ACT.
- Frood, D. and Papas, P., 2016. A guide to water regime, salinity ranges and bioregional conservation status of Victorian wetland Ecological Vegetation Classes. Arthur Rylah Institute for Environmental Research. Technical Report Series No. 266. Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
- Romanowski, N., 2009. *Planting Wetlands and Dams: A Practical Guide to Wetland Design, Construction and Propagation*. Landlinks Press, Collingwood, Victoria.
- Sainty, G.R. and Jacobs, S.W.L., 2003. *Waterplants in Australia: A Field Guide*, 4th edn., Sainty Books, Griffith, NSW.
- Stelling, F. (ed), 1998. *South West Slopes Revegetation Guide*. Murray Catchment Management Committee & Department of Land & Water Conservation, Albury, NSW.
- Walsh, N.G. and Entwisle, T.J. (eds), 1994. *Flora of Victoria Volume 2: Ferns and Allied Plants, Conifers and Monocotyledons*. Inkata Press, Melbourne, Victoria.

Sustainable Farms project area

The plant lists are suitable for reference in the Sustainable Farms project area, outlined here in navy blue.



Wholesale nurseries

If your local nursery does not stock the plants you require, they will be able to order the plants via wholesalers such as those listed on our website. Scan the QR code or visit SustainableFarms.org.au/info/nurseries



Further information

- For further information on enhancing farm dams for biodiversity, visit sustainablefarms.org.au
- For information on the role of farm dams in the landscape, see: The Farm Dam Handbook, 2011, NSW Government.
- For information on wetland plants, see: Waterplants in Australia: A Field Guide (4th edition), 2003.
- For information about plant identification and distribution, visit NSW Flora Online or Flora of Victoria.
- To connect with local advice, contact your local Landcare group or your Local Land Services or Catchment Management Authority.

SustainableFarms.org.au

Sustainable Farms is an initiative of The Australian National University. Contact us for more information.

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Sustainable Farms acknowledges the Traditional Custodians of the land we work on and we pay our respects to their Elders, past and present.



Local Land Services

