ENHANCING FARM DAMS

Part Two

PLANNING AND PREPARATION

AN ENHANCED FARM DAM IS ONE THAT HAS BEEN FENCED TO EXCLUDE LIVESTOCK AND REVEGETATED TO SUPPORT BIODIVERSITY AND WATER QUALITY.

This brochure is Part 2 of a three-part series on enhancing farm dams. It focuses on planning and preparing for dam enhancement. Part 1 explores the benefits and costs of enhancing farm dams, while Part 3 covers their long-term management and maintenance.

South West NRM

PLANNING: KEY ACTIVITIES TO CONSIDER

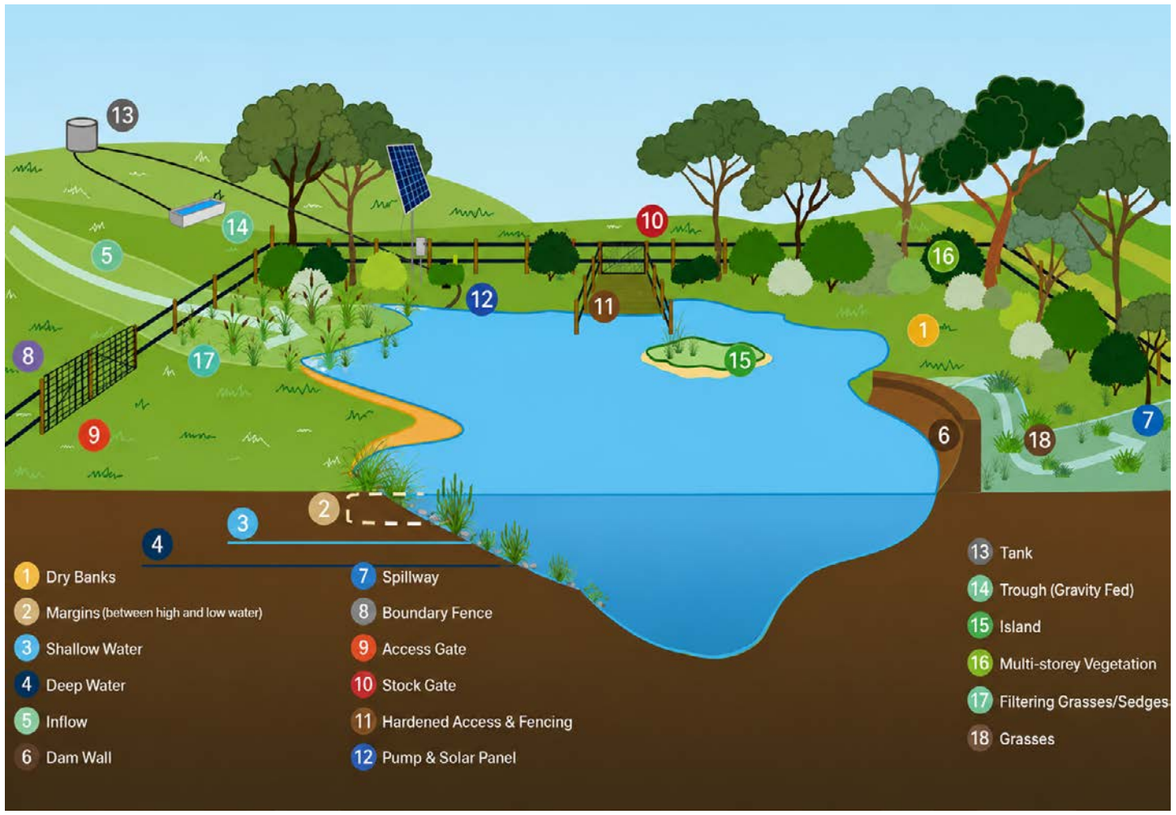
PLANNING REVEGETATION

Revegetation should include a variety of local native species with a range of flowering times. Different species are suited to different planting zones, as shown on page 4.

Dams can be planted at approximately 5,000 stems per hectare, with sedges and rushes planted more densely compared to shrubs and trees. Seedling orders should be placed in October the year before planting.

Deep-rooted plants should not be planted on or within 3 tree-heights from constructed dam walls. To reduce evaporation, use a combination of trees and shrubs to create a windbreak from hot easterly and northerly winds, avoiding gaps between and under trees.

If possible, the entire dam surface should be within 8–10 tree heights from the trees (i.e. include trees up to 10m tall for 80–100m wide dams).



WEED MANAGEMENT

Weed control may commence prior to fencing to ensure boomspray access to the site. Planning for weed control should include:

- The early identification of key problem weed species.
- Adequate time for weed control prior to revegetation works.
  - A minimum of two blanket knockdown herbicide applications prior to planting.
  - If soil needs to be reshaped or ripped to treat compaction, one knockdown should occur before soil disturbance and one/two afterwards.
  - Post-planting, grass selective herbicides should be used to limit off target damage.
  - Spot spraying using non-selective herbicides can be completed with caution.
  - If erosion is a risk, control weeds and plant out small areas at a time.

Problem weeds

- Prioritise kikuyu and blackberry control, as these weeds become difficult to manage once revegetation is established. These weeds may need 1–2 years to control.

Chemicals

- Consider the ecological impacts of chemical use around waterways. Always use aquatic-safe herbicides and surfactants and seek advice if unsure.

FENCING TO EXCLUDE LIVESTOCK

- Allow adequate space between the high-water mark and the fence for revegetation and access, and to avoid branches falling on the fence.
- Gates should be installed to allow for access and maintenance.
- Barbed wire should be avoided to reduce negative impacts on wildlife.
- Use electric fence standoff insulators positioned on the paddock side below the top wire.
- Kangaroos can also damage revegetation sites, so consider fence type if they are present.

PROVIDING ACCESS TO WATER

Where possible, use a pump system to feed water into troughs. The ideal system is solar pumping to a header tank that gravity-feeds to troughs.

Hard water access is recommended if pumping to a trough is not possible. This can also be useful when troughs aren't being monitored, if the pump breaks, or to access firewater.

Hard water access points should be fenced past the low water point so stock cannot access revegetated areas, and can be reinforced with compacted gravel.

PLANTING

Planting in June after good rain limits the need for watering while allowing time for plants to establish before summer. Handheld augers can be used to create holes, especially if soil is compacted.

HABITAT AUGMENTATION

- Young seedlings provide limited shelter in the early stages. Adding hollow logs, tree branches, and rocks can provide immediate wildlife refuge.
- Additional enhancements may include earth islands and floating islands which provide a safe refuge for birds to nest away from feral animals.

PLANTING ZONES (FIGURE 1 ABOVE)

- **Dry Banks –** The upper banks will support a variety of trees, shrubs, herbs and groundcovers. Ideally at 1 plant every 4m^2.
- **Margins –** The seasonally wet areas between the low and high watermarks can be planted up with a variety of rushes and sedges. Ideally 5–6 plants/m^2 planted in clumps.
- **Shallows (Emergent) –** Shallow water zones support emergent plants that stabilise the bed and provide habitats for a variety of macroinvertebrates and birds.
- **Deeper Water (Submergent) –** These areas can support both floating plants and fully submerged plants.

Other zones include the inflow and spillway, which are at risk of erosion due to concentrated water flow, so these zones should be vegetated with groundcovers such as grasses, sedges and rushes. The back of the dam wall can be planted with native perennial grasses.

Species suitability can also be influenced by the salt content of soils. If you have areas impacted by salt, consider having your soil tested for electrical conductivity by sampling your soil and sending it to an accredited laboratory.

PLANT SPECIES LIST

This list provides a guide to suitable native plant species for different zones around the dam. For more advice, contact your local Landcare office.

TREES	HEIGHT (M)	FLOWERING
Agonis flexuosa (Peppermint) B	to 10	Sep–Nov
Allocasuarina fraseriana (Sheoak) B	5–15	May–Oct
Banksia attenuata (Candle Banksia) B	5–10	Oct–Feb
Banksia grandis (Bull Banksia) B	5–10	Sep–Jan
Banksia littoralis (Swamp Banksia) M	1.5–12	Mar–Aug
Banksia seminuda (River Banksia) B	6–13	Mar–Aug
Callistachys lanceolata (Native Willow) B	5–8	Sep–Dec
Corymbia calophylla (Marri) B	40	Dec–May
Eucalyptus rudis (flooded gum) M	5–20	Jul–Sept
Melaleuca preissiana (Moonah) M	2–9	Nov–Feb
Melaleuca rhaphiophylla (Swamp Paperbark) M	1–10	Jul–Jan
Paraserianthes lopantha (Cape Leeuwin Wattle) B	1–10	Apr–Oct
SHRUBS		
Acacia extensa (Wiry Wattle) B	1–3	Aug–Oct
Acacia saligna (Orange Wattle) B	2–9	Jul–Nov
Acacia urophylla (Net-leaved Wattle) B	1–3	May–Oct
Acacia pulchella (Prickly moses) B	0.3–3	May–Dec
Astartea scoparia (Dainty Astartea) B,M	1–3	Aug–Feb
Callistemon phoeniceus (Fiery Bottlebrush) B,M	1–6	Sep–Jan
Gastrolobium sericeum B	1	Sep–Dec
Hakea lissocarpha	1–3	Jun–Sep
Hakea varia (Variable-leafed Hakea) M	1–4	Jul–Nov
Kunzea spp B	1–4	check spp
Melaleuca incana B	1–5	May–Nov
Melaleuca laterita (Robin Redbreast) B,M	to 2.5	Aug–Apr
Melaleuca viminea (Mohan) M	0.5–5	Jul–Nov
Taxandria spp B,M (depending on spp)	2–10	check spp
RUSHES/SEDGES		
Bolboschoenus caldwellii (Marsh Club-rush) M,S	0.3–1.2	Aug–Mar
Carex spp (C. tereticaulis is part saline) M	0.5–1.5	Sep–Feb
Cycnogeton heuglii (Water Ribbons) S,D	0.3–2	NA
Ficinia nodosa (Knotted Club-rush) M,S	1	Oct–Jan
Juncus amabilis (part saline) M	0.5–1	Sep–Jan
Juncus kraussii (Sea Rush) M (saline)	0.3–1.2	Oct–Jan
Juncus pallidus (Pale Rush) (part saline) M	0.5–2	Oct–Dec
Lepidosperma effusum (Spreading Sword-sedge) M,S	2.5	Apr–Nov
Leptocarpus spp M	1	check spp
Machaerina arthrophylla (part saline) M	0.3–2	Sep–Feb
Machaerina rubignosa (part saline) M,S	to 4	Sep–Feb
Machaerina vaginalis (Sheath Twigrush) M,S	0.6–1.5	Oct–Nov
OTHER		
Anigozanthos flavidus (Tall Kangaroo Paw) B	0.5–3	Nov–Jan
Hardenbergia comptoniana (Native Wisteria) B	Climber	May–Oct
Themeda australis (Kangaroo Grass) B, Dam wall	0.3–2	Jan–Dec
Key: B – Banks; M – Margins; S – Shallows; D – Deeper water		

This project is supported by the Australian Government through funding from the Natural Heritage Trust under the Climate Smart Agriculture Program. This document was developed by Geocatch, Lower Blackwood LCDC and South West NRM.

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