PRACTICALITIES

TYPHA AT LAKE MEALUP

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THIS report summarises our experience in typha (*Typha orientalis*) control at Lake Mealup, our 120 ha property southwest of Pinjarra. The Lake Mealup Preservation Society Inc. (LMPS) is an incorporated community-based organisation that purchased three blocks in and around Lake Mealup from 1986 to 1988 with funds donated or loaned by members. There is an adjoining Department of Conservation and Land Management reserve in the centre of the lake, which was enlarged by a departmental purchase around the same time as LMPS purchased its land.

We have tried six control methods, described below and summarised in the table. We decided to undertake this work because of concern about the spread of *Typha* across the lake, especially in the recent years of low water levels, which greatly reduced the areas of open water.

The *Typha* problem at Lake Mealup

Lake Mealup is a large freshwater wetland. It reaches a maximum depth of typically 0.6 to 1.4 m in late spring, but dries out over most summers. The lake presently has approximately 50% cover of *Typha*, which is almost certainly all *T. orientalis*. There is a relative absence of non-target species, apart from small patches of emergents such as *Baumea articulata,* and excellent fringing stands of *Melaleucas*.

Method 1: Slashing dense stands in shallow water or damp ground

Slashing in itself will not control the plants. We use it to clear access into green regrowth patches because it is much easier to apply herbicide to emergent growth or to slash green stems underwater if they are emerging from a bed of slashed brown material, rather than trying to force your way through dense stands of old dry stems.

This is hard physical work. A brushcutter with a metal blade is the best, and it works better on brown foliage than on green. A sickle is good on green growth.

Method 2: Covering with plastic

Low stands or stands that have been slashed can be covered with heavy black plastic to kill it by the combined effects of light exclusion and heat. This method works OK, but dragging large sheets of plastic around is hard work. Because it requires lots of plastic, it is better for small areas. We used tyres to hold the sheets down, which was only partly successful as they tended to float off as the water rose.

Method 3: Cutting stems under water

If the plant is cut deep enough below the water (at least 30 cm underwater) it should drown – that's the theory anyway! The plants must remain submerged for weeks, so this method does not work on a falling water level. Peak water levels usually occur in late winter and spring. The best tool is a sickle, which cuts well unless there are tangles of old dead material. There will be some regrowth, and the area will probably need two recuts to eliminate survivors.

It may be that this method works best in coloured or turbid water, but we are not sure about this.

Method 4: Wiping with glyphosate

A solution of 1 part glyphosate (360 g/L) to 2 parts water is wiped onto the leaves, using a PVC elbow-length glove which has pieces of kitchen sponge glued to the fingers. One needs only to wipe 10-20 cm on a few leaves. We added a dye to the mixture to mark the treated plants, but we didn't find it effective. A stronger dye may work but generally one can see damp areas on treated plants for long enough while moving through the stands.

This method appears 100% effective on treated plants. Survivors are those missed in the first treatment. It takes two to three weeks to show any effect. The best time of year is said to be late spring through summer. At Mealup we found it effective through to May on green plants which are growing vigorously. It is not recommended if plants are standing in water that is deeper than 30% of their height. Also, don't slash plants and apply herbicide to the cut stems as the herbicide works by being translocated to the roots.

Method 5: Spraying with glyphosate

A solution of 100 mL glyphosate (360 g/L) plus 140 mL Liquid Ammo per 7 L is used in a spraypack with hand pump action. The operator must thoroughly wet the plants. The spraying is easy – carrying the large volumes of water to the spraying sites to reload the spraypack is the difficulty at Lake Mealup. Because of the potential harm to aquatic animals or non-target plants, we only use this method at Lake Mealup when the lake is dry.

Method 6: Hand weeding

We have grubbed out small seedlings (typically to maximum of 30 cm tall, preferably less). This works for small areas. We have covered larger areas by having a group of members walk in a line across the dry lake bed, dealing with plants as they find them.

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Method		Best time to control based on water level	Non-target plants nearby	Water quality
Method 1:	Slashing	Dry or very low	OK	NA
Method 2:	Plastic	Dry or very low	OK	NA
Method 3:	Cut under water	Must cut at least 30 cm below water surface; do not cut in rapidly falling water levels	OK	May work better if water is turbid or coloured
Method 4:	Wipe with glyphosate	Dry or very low; plants no more than 30% immersed	OK but care needed	NA
Method 5:	Spray with glyphosate	Preferably dry	Not suited	NA
Method 6:	Hand weeding	Dry or very low	OK	NA

Glyphosate toxicity issues

Read the instructions and safety information provided with the herbicide. Wear gloves, goggles, a long-sleeve shirt and long pants. Have water nearby to wash splashes off your skin. Wear eye protection, for example safety goggles, as the dead *Typha* spikes can seriously damage your eyes if you walk into them.

The surfactant in some formulations is toxic to frogs, up to ten times more toxic than the herbicide itself (Mann and Bidwell, 1999). There are formulations which are less toxic to aquatic life; and these should be used. Whatever the formulation used, it is best to avoid contamination of water. Therefore, do not let herbicide come into contact with the water of the lake or river.

Because our part of Mealup adjoins a nature reserve, we discussed the use of herbicide with the Department. Agreement for application of herbicide should be first sought from the owner or manager of the wetland.

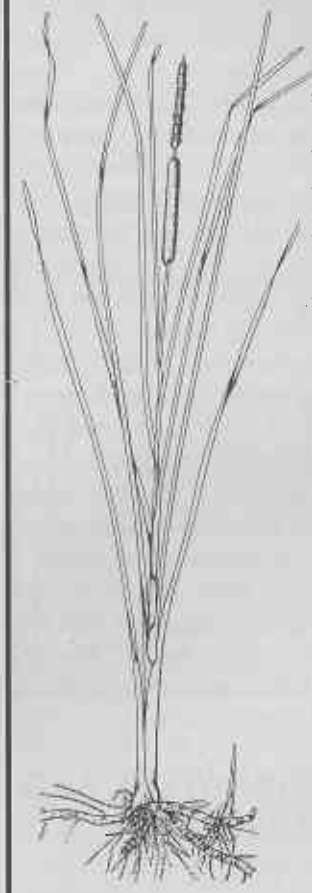
A caveat

These notes represent our experience at Lake Mealup where the varying water levels and the location of non-target plants influence our choices of control methods. Some of these methods will not be practical elsewhere.

We are definitely not experts! We have learned by trial and error, by reading and by seeking advice from, and sharing experience with, others. We hope to continue to optimise our methods and get the best results for our efforts.

Reference
Mann, RM and Bidwell, JR (1999) The Toxicity of Glyphosate and Several Glyphosate Formulations to Four Species of Southwestern Australian Frogs. Arch. Environ. Contam. Toxicol. *36, 193-199.*

Jan Knight and Peter Wilmot are founder members of the Lake Mealup Preservation Society Inc. For more information about typha control or to arrange a visit to Lake Mealup, contact them on 08 9244 3015 or email: jan_edit@omen.com.au



Bullrush and Yanget

Freshwater areas, including sandplain seeps, often contain populations of *Typha* species, tall aquatic perennials with stiff, strap-like leaves and cylindrical flowering spikes. They do provide some fauna habitat and help, by shading the water surface, to slow down evaporation, but they grow so vigorously that they can quickly form dense masses which may totally cover a wetland or block a drain, leading to loss of more desirable species and to changed water flow. In industrial areas, however, that same fast growth rate can be very useful to strip nutrients from polluted waterbodies. The plants burn fiercely in dry summers.

Typha is a worldwide genus (called Bullrushes in England and Cattails in America) and one of the two species in WA, *T. orientalis*, is introduced. The other, *T. domingensis*, is native. The Nyoongar people used it as a food source and called it Yanget - hence place names like Yanchep and Yangebup. The best way to tell the two species apart is to measure the leaf width, if most of the leaves are wider that 8mm, it is probably *T. orientalis*, but be warned - intermediates exist! When ripe, *Typha* spikes produce a vast quantity of light fluffy seed - up to 200 000 seeds per spike - nearly all viable, so they can quickly reach new sites.

Your decision about whether, and how much, to control *Typha* in your wetland will depend on which species it is, but it won't be an easy job!