

Weir Pool

This note was produced following discussion with Richard Lansdown who is a leading specialist in aquatic plants and aquatic ecosystems. Richard is the County recorder for Bryophytes and is from Stroud.

Background

A few key points regarding the pool and the reason for plants colonising and the spread of duckweed.

- The puddling clay acts as a medium for seeds.
- The pool has high nutrient levels resulting in the eutrophication which leads to the pool becoming covered with duckweed.
- Traffic from the adjacent road also adds nutrients to the pool from runoff (even if the road is infrequently used).
- *Glyceria* which is an aquatic grass has become established within the pool.
- Because of the shape and size of the pool it will always be a recurring issue.

Management Options

Pigs (to eat roots of vegetation)

- Grazing with pigs will add more nutrients increasing eutrophication
- The grazing could spread seeds and vegetation
- Could damage the pool and the clay

Covering with plastic (remove sunlight to kill or weaken plants)

- The vegetation will break down into the water increasing the amount of nutrients.
- Once the plastic has been removed it will cause an algae bloom because of the light and increase in nutrients.
- Unlikely to kill the roots unless the plastic has been in place for over a year
- Ungerminated seeds will remain in clay medium.

Herbicide

- Will break down plants within the pool which will add more nutrients and cause an algae bloom
- Richard said that not all the seeds within the clay will germinate within the first season. Therefore, the remaining seeds will germinate again once the treatment has been undertaken
- Requires dry leaves where *Glyceria* floats on the water.
- The problem will remain. For example, seeds will be spread into the clay by dispersing animals or be windblown and the use of herbicide would have to be frequent.

Ducks

- Add lots of nutrients through droppings
- Predate on amphibian (NERC.s 41 species of principle importance)
- Favourite food for fox's

Removing grass by hand

- Removing grass by hand will strip (reduce) the fertility levels of the pool (similar to hay meadow management).
- The work does not all need to be done in one season.
- Open area of water should be kept for amphibians such as frogs that were present within the pool this year.

Planting aquatic species

- Richard said that the pool should colonise naturally (this is good ecological practise and aquatic plants spread easily)

Recommendations and Conclusions

The clay within the pool provides a medium for plants to germinate. Subsequently, a stand of *Glyceria* grass has colonised the pool and has spread within the previous growing season.

Annual management will be required to keep the grass under control. This will lower the nutrient levels within the pool improving the health of the pool. Other management options will cause the plants to breakdown within the water raising the nutrient levels which could create algae blooms.

We discussed either removing the clay and restore as an historic feature with ephemeral water levels or manage as a pool with the puddled clay which would require annual management.

Good water flow into and out of the pool will allow nutrients to flush out.



Photo 1: aquatic grass and duckweed



Photo 2: adjacent road which would increase nutrient levels

