Bodenham Lake Island Re-profiling Ecological Assessment

15th June 2018

Introduction

This project seeks to transform Bodenham Lake from an ex-gravel pit to a thriving nature reserve. Planning permission has already been granted for stage one of these works with three areas of reedbed to be created on the west and south-western edges of the lake.

Herefordshire Wildlife Trust are seeking permission to expand re-profile works, to focus on the islands (see figure 1). The islands are covered in a uniform habitat of scrub and immature woodland that has grown up over the past few decades.

The long-term outcomes of this project will be an increase in the biodiversity of the site and increased resilience of the species present. Wetland is a scare habitat within Herefordshire, with Bodenham Lake the largest area of open water in the County. However, it is not realising its potential as a wildlife habitat with large areas of very deep water, steep margins and island areas of what was once open ground now a uniform habitat of immature woodland. To improve biodiversity at the lake, this project will increase and diversify habitats. By working on a number of the islands we will create new areas of reedbed, open and exposed areas of gravels, shallow aquatic margins and species rich wet grasslands.

Reedbed is a priority national Biodiversity Action Plan (BAP) habitat and creation will provide a home for invertebrates and therefore a food source for amphibians, bats and birds, as well as providing cover for nesting birds and otters. The re-profiled areas will also enhance the habitat provision for ground nesting and wading birds, increasing the number of species that regularly breed at and visit the site. Species that could be attracted include Little Ringed Plover, Bittern, Bearded Reedling and Terns.

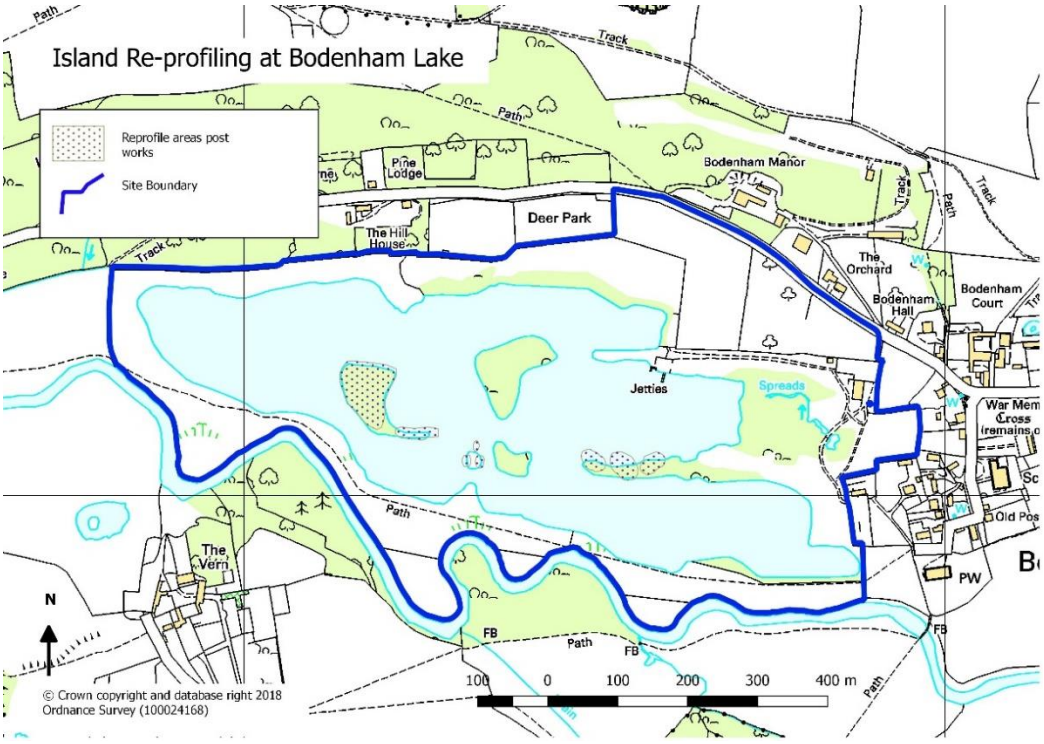


Figure 1: Proposed areas for re-profiling Bodenham Lake

i. River Lugg

Bodenham Lake is within the flood plain of the River Lugg, a Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC).

Any work to the islands is unlikely to have any impact on the SSSI and SAC. Transport routes to and from the working areas will where possible include a 30m exclusion area to prevent any materials from entering the river and causing potential harm to the aquatic ecosystem. In the unlikely event that it is necessary, natural silt wattles will be used to stop sediment from being moved via overland flow towards the River Lugg. Silt wattles slow the water, allowing silt to be deposited and the wood fill traps further sediments. The wattles will be applied based on the direct need observed on site.

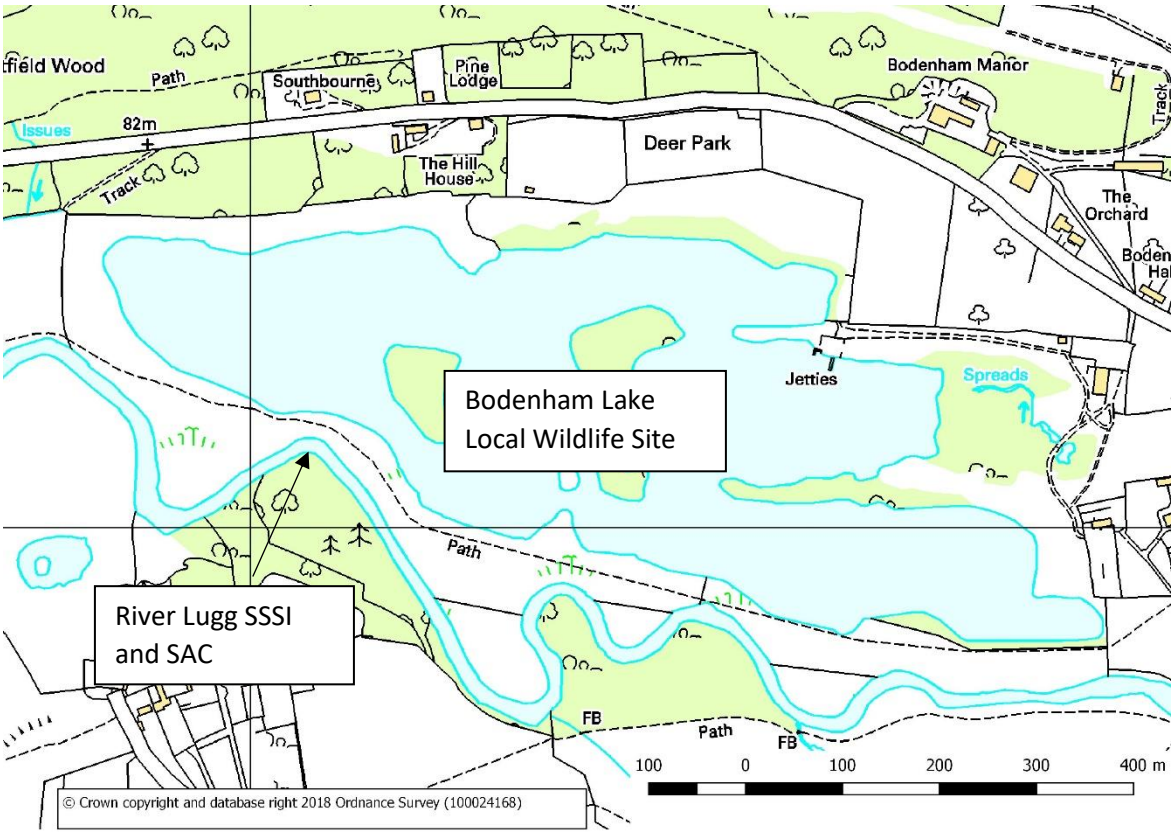


Figure 2: Site plan showing location of River Lugg and Bodenham Lake

ii. Birds

The proposed re-profiling work will begin in September once the breeding season is over, and will be completed within 5-7 weeks, before numbers of overwintering wildfowl have reached their peak.

Risk	Mitigation
General disturbance	- The impact will be minimised by beginning the work in September, when the breeding season is over. - Work will be completed within 5-7 weeks of starting, before over-wintering numbers have reached their peak.
Disruption of habitats during the construction period	- Disturbance will be limited to the construction area, allowing birds to use the rest of the lake/restricted access area. - The completed re-profiling and habitat creation will enhance the habitat provision of the lake for wading birds.

iii. Reptiles

Bodenham Lake has a healthy population of grass snakes and slow worms, which are being monitored by HWT using artificial refuge survey and direct observation survey.

The nature of the works (improving habitat quality and creating links between habitats) are in line with Natural England's standing advice on reptile compensation methods.

Risk	Mitigation
Disturbance/ injury during construction work	- Reptiles rarely hibernate near water due to flood risk, so are unlikely to be present in the reprofile areas in October. - If any reptiles are present they will be displaced from re-profile areas by removing vegetation prior to works commencing. - HWT have created large hibernacula for reptiles away from the re-profile areas, which link with other boundary features. - HWT will have an ecologist, Nigel Hand who is experienced in reptile translocation on a retainer, in case reptiles need to be translocated to a different area of the Lake.
Disturbance to habitat	- The tree removal work will maximise the amount of insolation (sun exposure), improving basking sites for reptiles. - The re-profiling will include a lot of variation in topography and high level of structural variation in vegetation, which is ideal for grass snakes.

iv. Trees

The main impact on trees during the island re-profiling works will be through the removal of alder and willow scrub from the lake shore. The islands of Bodenham Lake are heavily tree lined, removing these trees will allow increased light penetration to the Lake shore. The trees are typically young with relatively low ecological value. No high value tree (e.g. mature or veteran trees) will be affected by the works.

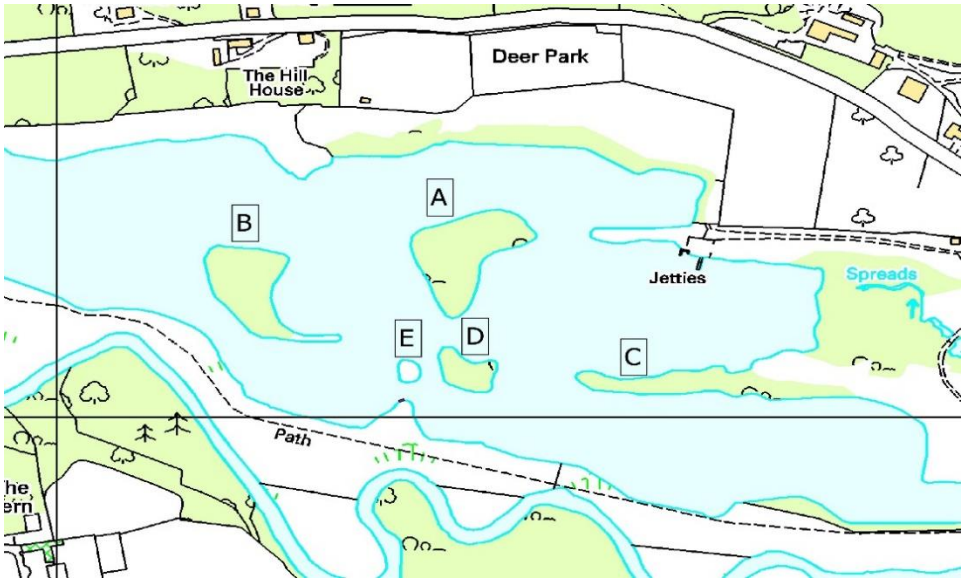
Timber from the scrub removal will be used in the creation holts for otters and reptile refugia. Any remaining timber will be burnt.

Risk	Mitigation
Tree removal during site preparation	- Alder and willow scrub will be removed from the islands, this complies with best management practices, which include opening up some areas of bank vegetation.
Compaction from machinery causing damage to roots	- Work will begin in September and be completed within 5-7 weeks, when ground conditions will be drier. - Machinery will have caterpillar treads to reduce the level of compaction caused.

v. European protected species

Otter

Surveys have shown that otter actively use the river corridor and the lake. The areas that are mainly used by otter as day resting sites (D and the Northern edge of B on the map below) will not be altered by these works. Herefordshire Wildlife Trust are working with otter expert Johnny Birks to ensure that these works are as beneficial to the otter population as possible



Risk	Mitigation
General disturbance to otters during the construction period	- If otters are seen on the site during working hours all work will be suspended for 24 hours, to minimise disturbance - All work will be carried out during daylight hours. - Machinery will be restricted to the construction areas. - No work will be carried out in the fenced off river meanders in order to provide a refuge area. - The 2008 survey noted that in the areas of the lake adjacent to the river, otters were less active on the lake and more active in the river, the river will not be impacted by the construction work (no vehicle access or discharge into the river). - Given the size of the site there will be adequate areas of refuge. - The re-profiling work will provide reedbed habitat, which is currently sparsely represented on the floodplain of the Lugg, enhancing the site for otter. -
Disturbance to otter breeding	- Construction will begin in September and will be completed within 5-7 weeks, minimising disruption of the expected breeding period. - All artificial holts bar one are in the fenced off river meanders or on the islands, AH6 will be assessed for otter activity and fenced off if in use. - New shelter holts will be created using scrub removed during site preparation.

White clawed crayfish

Native white-clawed crayfish are thought to be absent in the lake and the adjacent stretch of the Lugg. This is likely to be the result of the high numbers of American Signal Crayfish which are known to outcompete our native crayfish.

Risk	Mitigation
No impacts on crayfish expected, as none have been recorded in the lake	- Habitat traps (panpipe traps) are in place in several locations in the lake to allow long-term monitoring of crayfish.
Introduction of non-native crayfish to the lake	- No works are being carried out directly on the river and no water will be transferred from the river to the lake.

Bats

The re-profiling work will involve the removal of some trees, however the species removed will be young alder and willow, which are typically unsuitable for bat roosting as there are few cracks and crevices in the bark. Construction work will begin in September and will be completed in 5-7 weeks to minimise the impact on foraging bats. The reedbed created after re-profiling will provide invertebrate habitat and improve foraging opportunities for bats.

Risk	Mitigation
General disturbance	- Work will be carried out during daylight hours to minimise the impact on foraging activity. - The works will begin in September and will be completed within 5-7 weeks.
Disturbance of roost sites	- None of the buildings, where bats have been recorded, will be impacted by the work. - The alder/willow scrub that will be removed prior to re-profiling is unsuitable for bat roosting.

Great crested newts

Herefordshire Wildlife Trusts "Go Toads" project found great crested newts on the road that runs parallel with Bodenham Lake, however multiple great crested newt surveys using a variety of methods (bottle trapping, egg searches, torch surveys and netting) conducted by HWT have only resulted in smooth and palmate newt records. These records have been on different areas of the lake to where the reprofiling will take place. The continuing lack of great crested newt records in the Lake suggest that they are using other ponds in the vicinity to breed.

Risk	Mitigation
Disruption of newt habitat	- Artificial refugia will be created away from the construction area using material generated by tree felling on site. - A silt curtain will be used during construction, preventing the spread of sediment into the lake. - The creation of new habitats will enhance the suitability of the lake for newts by increasing the area of shallow water, providing cover and increasing the invertebrate population.

vi. Biosecurity risks

All works will be carried out in accordance with a biosecurity risk assessment, which will include disinfection of all equipment, vehicles and boots prior to entry to the site. The establishment of reedbed in the re-profiled areas of the lake presents a potential biosecurity risk if plants are brought in from off- site. Local provenance reeds and/or reeds propagated from plants originating from Bodenham Lake will be used, and appropriate biosecurity precautions will be applied during cultivation. Crassula helmsii is already present on the site, so precautions will be taken to prevent its spread.

Risk	Mitigation
Introduction of invasive plant species/diseases	- Plants sourced from a reputable nursery with full biosecurity precautions. - All plants checked for pathogen infections or contamination with non-natives prior to entry to site.

Spread of *Crassula helmsii* (present on site)	- All vehicles, equipment and boots disinfected before leaving the site. - Any incoming vehicles, equipment and boots disinfected before entering the site.
Risk of introduction of crayfish plague to the River Lugg	- None of the American signal crayfish found during the 2013 Lugg survey were infected with plague. - No water from the construction site will be discharged into the river.
Introduction of other pathogens to local environment	- All vehicles, equipment and boots disinfected before entry to the site. - No water from the construction site will be discharged into the river. - No runoff of materials from the construction site into the river.