

Shamley Village Green Pond Scoping Assessment and Management Recommendation



14th May 2020
For: Shamley Green Parish Council

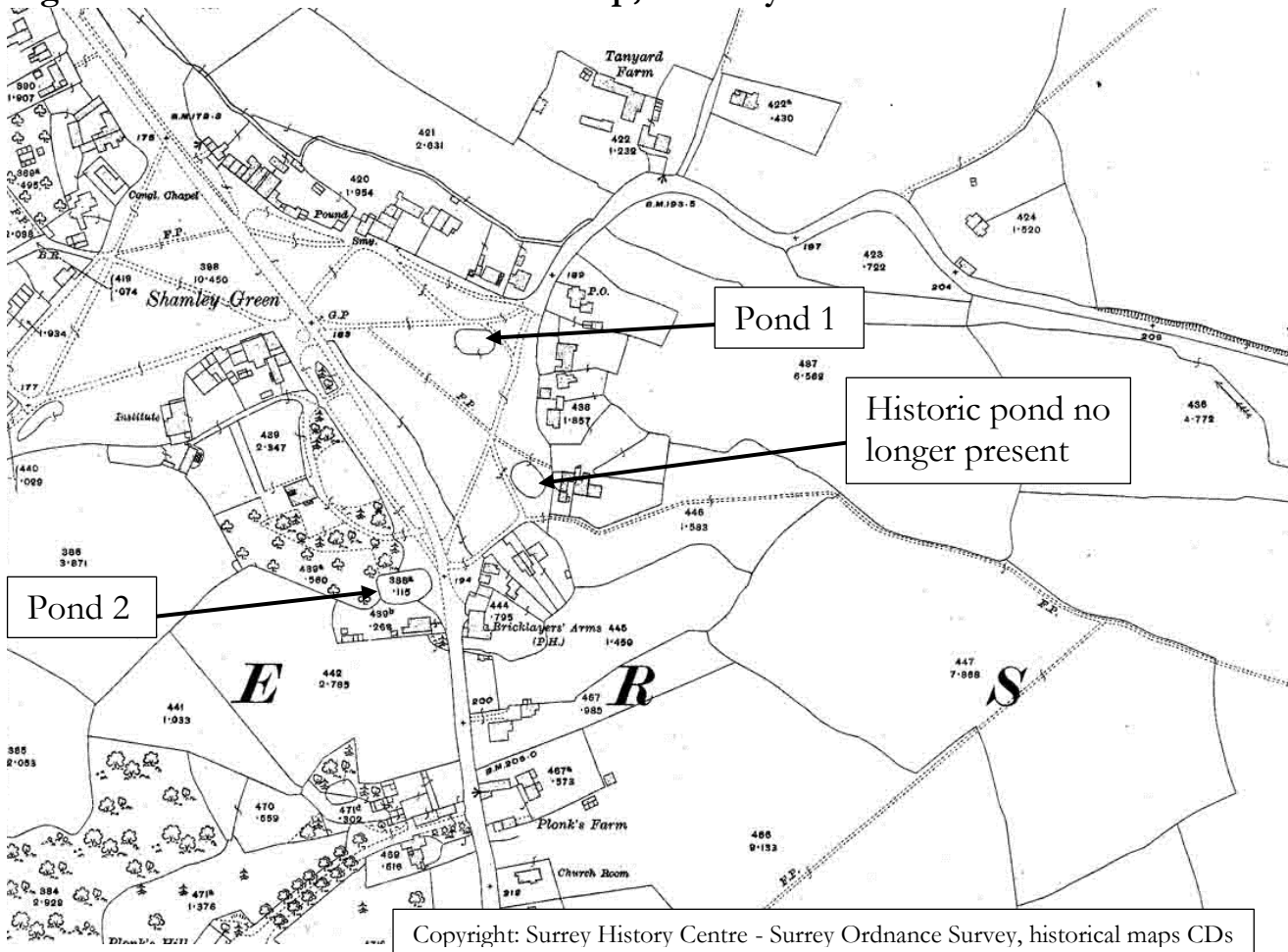


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1.0 Background

GPM Ecology was commissioned in April 2020 by Shamley Green Parish Council to provide a Scoping Assessment of two ponds on Shamley Green and to provide management recommendations of the ponds in order to improve their biodiversity. The works are required following Waverley Borough Council passing over control and management of the Green to the Parish Council. The two Ponds are present from early edition 1871 OS plans as shown below in **Figure 1**, with a further pond on the east side of the Green that appears to have disappeared by 1960.

Figure 1: Historic and Location OS Map, Shamley Green 1915



2.0 Survey Methodology

A Phase 1 habitat survey was conducted at the two ponds (see **Figure 2**) on 17th April 2020. Lamping and 25 bottle-traps (15 in Pond 1 and 10 in Pond 2) were deployed during the survey visit, with newts caught release between 6 to 7am on 18th April 2020. The ponds were assessed for its Habitat Suitability Index (HSI, Oldham et al 2000¹), a useful tool to determine suitability to support GCN. The HSI index scores a pond as 0 (unsuitable for GCN breeding) to 1 (ideal for GCN). On the morning of 18th April observations were made on birdlife associated with each pond.

¹ Oldham RS, Keeble J, Swan MJS and Jeffcote M 2000. Evaluating the suitability of habitat for the great crested newt. The Herpetological Journal Vol.10, No. 4 (WITH REVISIONS)

3.0 Survey Assessment Results

3.1 Habitat Assessment - Pond 1 was within open semi-improved grassland, with willow *Salix-Rubus* bramble scrub along the southern banks, road along the north side and a mature willow tree just east of the pond. The pond supported New Zealand Stone-crop *Crassula helmsii*, with a 100% cover across the pond surface. Native flora, such as marsh marigold *Caltha palustris* and willowherb *Epilobium* spp. had less than 1% cover across the pond, with a duck-house and willow-scrub on an island in the centre of the pond. The pond has an inflow and outflow, with pendulous sedge *Carex pendula*, rushes *Juncus* spp. and water-cress *Nasturtium officinale* growing in the outflow ditch.

Pond 2 was located on the roadside opposite Bricklayers Arm, with two gardens directly on the western boundary and a narrow road verge to the east. The pond support New Zealand Stone-crop *Crassula helmsii*, with a 100% cover across the pond surface. A yew-hedge *Taxus baccata* and wall is located along the southern boundary and laurel *Prunus laurocerasus* with a mature lime *Tilia* spp. tree. Alder *Alnus glutinosa*, elder *Sambucus nigra* and bramble grew on the eastern boundary having recently been felled, with wood-chip covering the bankside. The pond margin supported rushes, with water mint *Mentha aquatica*, reedmace *Typha latifolia* and bur-reed *Sparganium* spp. An outfall was located in the south-west corner of the pond.

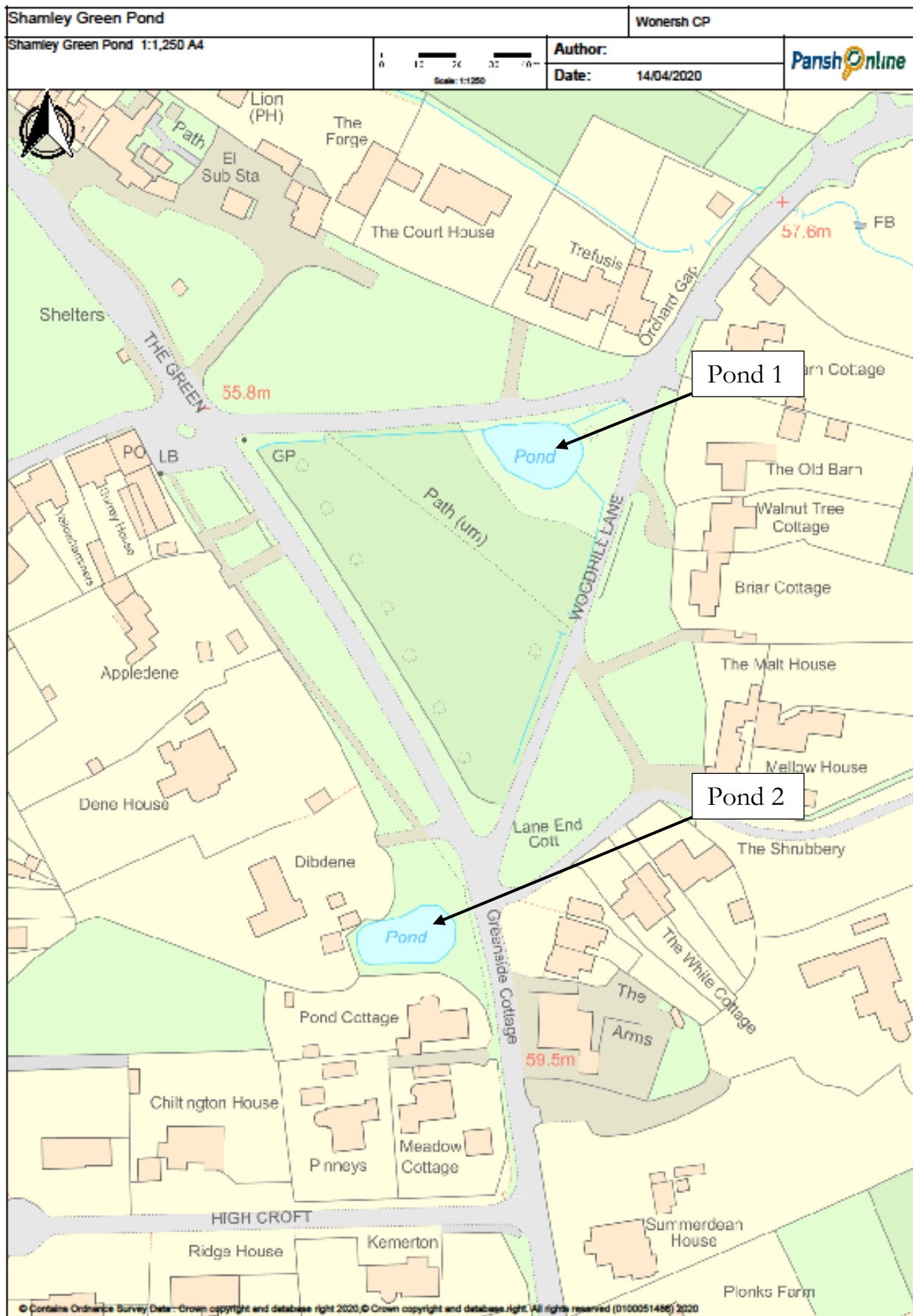
3.2 Amphibian Survey Results - **Table 1** below provides a summary of the amphibian survey, while **Appendix I** provides detailed amphibian survey results. The pond appears to support a small-sized population of smooth newts and breeding population of frogs with toad tadpoles also observed in Pond 2. No great crested newts (GCN) were observed and the Habitat Suitability Index score of Pond 1 was 'Good' (0.73) and the HSI-score for Pond 2 was 'Excellent' (0.84). It should be noted that if fish are present in this pond the HSI-score for Pond 2 would be significantly lower. The amphibian survey did not conclusively discount GCN as present and further monitoring (possibly eDNA survey) could be considered for Pond 2

Table 1: Summary of Amphibian Survey 17th April 2020

Pond	Lamping	HSI for GCN	Newt Eggs	Other species
1	5 Smooth Newts	0.61 (Good)	None	Frog and toad tadpoles present
2	2 Smooth Newts	0.84 (Excellent)	None	Frog tadpoles present

3.3 Observations on breeding birds - A pair of nuthatches *Sitta europaea* were territorial around the willow tree adjacent Pond 1, fending-off tits and great-spotted woodpecker *Dendrocopos major*. Mallard *Anas platyrhynchos* bred on the Pond 1 with 16 ducklings observed. Moorhen *Gallinula chloropus* was also observed but breeding could not be confirmed. Pond 2 had a great diversity of birds using and breeding in the vicinity of the pond, with a pair of greenfinch *Carduelis chloris* and wren *Troglodytes troglodytes* holding territories around the pond. A moorhen bred on the pond and several mallard ducks were present (but not breeding) at the time of the survey. Blackcap *Sylvia atricapilla*, tits and other small birds came to the pond more readily than Pond 1 (which is more open) to feed and drink, as there was good shrubbery cover around this pond. No BOCC red-listed birds were observed.

Figure 2: Location of Shamley Green Ponds and Ditches



4.0 Recommendations

4.1 Pond 1

Pond 1 supports New Zealand Stonecrop *Crassula helmsii* (a Wildlife and Countryside Act Schedule 9 non-native species), the management of which requires careful consideration. This plant should not be mechanically-removed from the pond, as this action is likely to encourage its dispersal. All equipment used in managing the pond should be carefully cleaned, away from water bodies. See 4.2 below for a summary on Prevention and Control of stonecrop. As well as these preventions and controls the following actions should also be considered specific to Pond 1:

1. Ducks should not be encouraged at this pond, as wildfowl will encourage the spread of stonecrop to other ponds.
2. The pond is shallow and a sump could be dug (by mini-digger) in the middle of the pond, to create a deeper area with more permanent water.
3. Pond 1 did not appear to support any significantly important ecological features and therefore could be considered for filling-in with a new pond dug, for example further south and in the middle of the Green. Pond 1 could be infilled with arising from the new pond. If this is considered the flora of the Green should be surveyed to determine the conservation status of the semi-improved grassland and a hydrological assessment considered to ensure any new ponds created will hold water.

4.2 Prevention and Control of *Crassula helmsii* (New Zealand stonecrop or Australian swamp stonecrop) CABI (<https://www.cabi.org/isc/datasheet/16463>)

Prevention

As with all invasive species management, prevention is better and more cost-effective than control.

Rapid Response

*Early detection and treatment is essential in the prevention of future invasions and spread of *C. helmsii*. Smaller, localized populations have better success at being controlled than those which have the opportunity to spread and become well-established ([Environment Agency, 2003](#)).*

Public Awareness

*Several publications have been produced in areas with *C. helmsii* populations regarding the impacts of invasive species and the steps that aquarists and lake recreationists need to take in order to prevent introducing and spreading aquatic invasives.*

Control - Cultural control and sanitary measures

*In several regions where aquatic invasives have established, governmental organizations have started requiring that recreationists drain all water and clean off all gear (boats, trailers, fishing equipment, nets, etc.) used on water bodies in order to minimize the chance of spreading aquatic invasive species, such as *C. helmsii*, to other areas. [Dean et al. \(2015\)](#) suggest that the presence of large grazing animals can facilitate a higher*

abundance of *C. helmsii*, and that managers of grazed wetland habitat should therefore enforce biosecurity measures, and prevent grazing livestock access to drawdown zones where the plant already occurs.

Physical/mechanical control

Control of *C. helmsii* has had limited efficacy due to its ability to propagate vegetatively through small fragments. Attempts to mechanically harvest only serve as means of creating and introducing more plant fragments, potentially aiding in dispersal to new locations ([CAPM-CEH, 2004](#)). *C. helmsii* is also tolerant of shade, extreme cold, and desiccation, making it very difficult to control. Small patches may be controlled with plastic shade material, but the material must remain in place for at least eight weeks, and often up towards six months ([CAPM-CEH, 2004](#)). This process is very labour intensive and causes much disturbance ([Bridge, 2005](#)). Freezing with liquid nitrogen has been effective on small populations, while surrounding medium sized populations with a fine wire mesh fence can aid in targeting removal and preventing further spread (OEPP/EPPO, 2007). Dredging of near shore or emergent vegetation throughout the year can also be an effective control mechanism. It is recommended that all dead plant material be removed to reduce potential oxygen depletion through decomposition.

Movement control

Several countries have banned the importation or sale of exotic plants, such as *C. helmsii*, in attempts to minimize the chance of introduction to non-native regions. In the UK, *C. helmsii* has been added to Schedule 9 of the Wildlife and Countryside Act 1981, making it an offence to deliberately plant or cause this species to grow in the wild.

Biological control

CABI has been investigating the biological control of *C. helmsii* since 2009, for more information see '[Finding a biocontrol agent for *Crassula*](#)'. Research is currently focussed on a host specific mite, *Aculus* sp. (Eriophiyidae) and scientists are at the final stages of pest risk assessment. If approval is granted, field trials will take place in 2018. Grass carp will feed to a limited extent on small populations of *C. helmsii* but it is not its preferred food ([Dawson and Warman, 1987](#)). However, introduction of grass carp can negatively impact the coexisting native submerged vegetation, and introduction is even prohibited in some countries.

Chemical control

C. helmsii is susceptible to chemicals containing diquat and glyphosate ([Dawson, 1996](#); [CAPM-CEH, 2004](#)). Diquat is best applied in the autumn or winter and water temperatures should be >12°C ([Minchin, 2008](#)). In the European Union where diquat is banned for use in aquatic systems, early spring application of dichlobenil is often used when the plant is still entirely submerged ([CAPM-CEH, 2004](#)). Glyphosate should be applied from April to late November, when the majority of the plant is emergent. It is recommended that at least 70% of dense populations be chemically treated at one time to reduce potential re-colonization from untreated areas, and the remaining 30% should be treated one week later ([CAPM-CEH, 2004](#)). In an English nature preserve, a hot biodegradable foam made of coconut and corn sugars was reported as being able to control approximately 50% of the population, but did not eradicate it ([Bridge, 2005](#)). Hydrogen peroxide has been experimented with as a potential control method, but only plant scorching and temporary suppression of plant material was achieved ([Dawson and Henville, 1991](#)). [Sims and Sims \(2016\)](#) successfully eradicated *C. helmsii* from two ponds in Norfolk, England, using herbicide (glyphosate) application and in situ burial.

4.3 Pond 2

Although *Crassula* was not observed in this pond at the time of the survey, it is likely to be present and the above recommendations should be considered when conducting any management of this pond. The following actions should be considered:

1. Scrub around the pond had been coppiced with chippings spread across the bankside. While it is recommended that shrubs are coppiced on a regular basis all chippings should be chipped and removed offsite – for example chipping could be taken to a nearby allotment sites, if allotment-holders are interested in using the chippings on their plots. If the chippings are left *in situ* they will leach nutrients into the pond.
2. Macrophytes had recently been removed and as reedmace can grow several metres a year, it is recommended that the pond is cleared of macrophytes on a biannual or annual basis keeping plant cover to a maximum of 20-30% cover across the pond. This could potentially be carried-out by hand, using local volunteers, with vegetation left to breakdown on the road verge just north of the pond. Although wood-chippings should not be left nearby to the pond, it is recommended that macrophyte vegetation is left nearby, to allow aquatic-life to return to the pond.
3. The outflow in the south-west corner of the pond should be kept clear of vegetation and a cofferdam could be created around the outfall to maintain a higher water level.
4. The removal of cherry-laurel and bamboo on the north-west boundary with the property at Dibdene would benefit the biodiversity of the pond, if they were replaced with an alternative native hedge (such as a yew-hedge).