

Project Profile

Ashridge Estate: Long-Term Pond Management Strategy

Background

Ashridge Estate, which is owned and managed by the National Trust, covers 2,000 hectares of beech and oak woodland, commons and chalk downland nestled in the Chilterns Hills. Across the Estate are ponds of varying sizes, many of which are believed to be very old. Most of these ponds are in densely wooded areas, and are therefore shaded and subject to significant organic inputs throughout the year, from leaf litter and dead wood accumulation. Most have had no recent management and are shallow and ephemeral.

Much of the land within the Estate is under common ownership and the National Trust has focussed its conservation efforts on pond restoration as opposed to pond creation. It would be difficult to dig new ponds because of the legislation protecting the Common Land.

The Trust recognised the importance of a thorough ecological assessment of each pond prior to implementation of new management. Through an understanding of the ecological characteristics of their ponds, they could ensure pond restoration avoided impacts on important plant or invertebrate species, or on any legally protected species such as great crested newts.

BSG Ecology's Role in the Project

BSG Ecology was commissioned by the National Trust in 2013 to carry out an assessment of the biological quality of eighteen ponds within Ashridge Estate¹, and to provide recommendations for the future management of ponds within the whole Estate.

In 2013 we carried out spring and summer surveys which involved:

- Assessing the suitability of the pond habitat to support breeding great crested newts using Habitat Suitability Index (HSI) methodology².
 - Evaluating the quality of the pond habitat using an adapted National Pond Survey (NPS) methodology³, which required sampling and subsequent species-level identification of aquatic macroinvertebrates using a standard 3-minute kick sample methodology.
 - Sampling terrestrial beetles and bugs from the riparian zone (the pond edges and bankside) of each pond (these were also identified to species-level).
 - Characterising the plant communities of each pond.
- Following the surveys, habitat, water quality, plant and macroinvertebrate data were collated and analysed using the 'Predictive SYstem for Multimetrics' (PSYM) tool⁴ to assess the biological quality of each of the ponds. The PSYM tool was used to classify the ponds into four categories of biological quality whereby ponds with an Index of Biological Integrity over 74% were classified as Priority Ponds⁵ in accordance with definitions in the PSYM guidance.

Outcome

The main findings of the surveys were that certain ponds, primarily smaller ones located in woodland, were becoming infilled with woody debris and detritus and drying out through a process of natural succession. These ponds supported few aquatic macroinvertebrates, and nationally scarce and threatened species were largely absent (derived from IUCN red-list categories (Critically Endangered, Endangered and Vulnerable). In contrast, larger ponds in more open conditions supported a richer invertebrate fauna, and some also included great crested newt and other amphibians.

The data generated from the surveys were used to inform the preparation of a pond management plan by BSG Ecology for the National Trust. Recommendations for the future management and enhancement of the ponds were set out, including the most appropriate season(s) to complete pond management work. The plan took into consideration ponds highlighted as being of conservation priority (IBI exceeding 74%) and any containing noteworthy invertebrates, including species of conservation importance. Anticipated constraints to pond management within the Estate were highlighted, including the presence of legally protected species such as great crested newt.

The prescribed management recommendations were based on a long-term strategy. By taking a long term view, the simultaneous alteration of conditions in ponds can be avoided, enabling a succession of ponds in different states to co-exist across the Estate, from recently managed ones to those that are unmanaged and drying out. The intention is to promote a wider diversity of invertebrate assemblages, each associated with ponds in different successional states. Accordingly, it was recommended that only a sample of ponds (those in worst condition, with no scarce or protected species) were targeted in the first five years for the most invasive forms of pond management, including silt/detritus and debris removal.

Monitoring of the managed ponds over the next five years will be carried out to measure whether the prescribed management activities result in a favourable outcome. A favourable outcome will increase confidence that similar pond management can be rolled out across other deteriorating ponds on the Estate, for which management (in the form of direct intervention) is recommended.

¹ <http://www.nationaltrust.org.uk/ashridge-estate/>

² ARG UK (2010) Advice Note 5: Great Crested Newt Habitat Suitability Index.

³ Biggs, J., Fox, G., Nicolet, P., Walker, D., Whitfield, M. and Williams, P. (1998) A guide to the methods of the National Pond Survey. Pond Action, Oxford.

⁴ Pond Action (2002) A guide to monitoring the ecological quality of ponds and canals using PSYM. Pond Action, Oxford

⁵ A Priority pond would be classified as a Habitat of Principal Importance, as referred to in Section 41 of the Natural Environment and Rural Communities Act (2006).