



**MORDEN HALL PARK WETLANDS AND BOARDWALK
MANAGEMENT PLAN 2017-2026**

Using the management plan matrix the following habitats will be maintained by the Ranger Team to encourage the associated species to flourish.

Vegetation

NVC Communities represented in the Wetlands

S6 Carex acutiformis (swamp community)

S6 Carex riparia (swamp)

S12 Typha latifolia (swamp)

S28 Phalaris arundinaria (tall herb fen)

S4 Phragmites australis (swamp) UK BAP Priority Habitat

Waterfowl – Little Egret, Grey Heron, King fisher, Water Rail, Common snipe, coots, grey wagtail, Reed Bunting, moorhen

Invertebrates – Dragon flies, Blue-tailed Damselflies, Banded Demoiselle, Azure Damselfly, hoverfly, water beetles

Amphibians – smooth newt

(See 2005 Survey – Nature Conservation Evaluation for Morden Hall Park for full list of species and details)

Through good management we hope to attract the following key species to the habitats:-

Water vole – through reintroduction to the sedge fen

Cetti's Warbler – through hedge-laying and better tall herb fen

Common Frog and Common Toad – through scrapes to provide open water habitat and perennial damp swamp

Common Lizard – Removal of scrub to allow open areas of grassland

Invasive Species

Management of invasive species within the Wetland Area will be done as per the INNS Management Plan for managing invasive species. This plan is appended to this document

Boardwalk Maintenance Plan

An annual maintenance budget for short term cyclical and long term cyclical has been set for the Boardwalk, Dipping and Viewing platform from 2016, the next 10 years are detailed as follows:

YEAR	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
BUDGET	£1000	£1000	£1000	£1000	£5000	£1000	£1000	£1000	£1000	£5000

BOARDWALK, DIPPING PLATFORM AND VIEWING AREA MAINTENANCE PLAN					Staff member responsible	Hours per annum
	Spring	Summer	Autumn	Winter		
Daily visual check of Structures and interpretation	*	*	*	*	Ranger Team & Vols	365
BBQ – end of day checks for illegal use of barbecues on boardwalk and dipping platform and viewing area		*			Ranger Team	90
Check for shrinkage of timber and address any pinch points caused		*	*		P&G Manager	60
Removal of Hemlock along edges of Boardwalk	*				Ranger Team & Vols	8
Removal of vegetation growing through or on boardwalk		*			Ranger Team & Vols	8
Removal of leaf drop on surfaces regularly			*	*	Ranger Team & Vols	50
Cleaning of interpretation panels	*	*	*	*	Ranger Team & Vols	100
Removal of graffiti	*	*	*	*	Ranger Team & Vols	50
Repair or replace any damaged timbers or handrails	*	*	*	*	P&G Manager	14
Removal of litter	*	*	*	*	Ranger Team & Vols	150



Morden Hall Park INNS Action Plan 2015 to 2020.

1. Introduction.

The initial survey of the INNS along the Wandle, from source to where it flows into the Thames was undertaken on 27 Sep 2015.

To facilitate the systematic assimilation of records the river was divided into 10, two km sections and one, 1.5 km, manageable size sections. The stretches that are managed by the National trust are as follows:

Morden Hall Park Section

Watermeads Section

Merton Abbey Wall Section (the Pickle)

A team of trained recorders known as the River Ranger (RR) from the Wandle Trust undertook the initial base line survey. The RR will undertake all future annual surveys on and along the river and inform Morden Hall Park Parks and Gardens Manager and Ranger of results. This helps monitor the on-going situation across the whole Wandle..

Morden Hall Park staff will work in partnership with the River Ranger and Hit squad to tackle the INNS across National Trust owned land.

2. The approach.

The biology, ecology, dispersal mechanisms, vectors and ability and speed at which the species colonizes will determine whether or not a species is tackled from the source of the Wandle or whether they are tackled as isolated patches.

3. The species.

Three key species are currently present on the Wandle River through Morden Hall Park, Watermeads and Merton Abbey wall. These were recorded during the 27 Sep 2015 by the Wandle Trust, they are (see attached Plan): Floating pennywort (FPW) (*Hydrocotyle ranunculoides*), Himalayan balsam (HB) (*Impatiens glandulifera*), Japanese knotweed (JK) (*Fallopia spp*) . Despite reports of Giant Hog weed we have found these to be false, we actually have common hogweed on site.

3.1 Species to be tackled from the source of the Wandle working downstream.

Floating pennywort (FPW) (*Hydrocotyle ranunculoides*), Himalayan balsam (HB) (*Impatiens glandulifera*)

3.1.1. Floating pennywort (FPW) (*Hydrocotyle ranunculoides*)

Reproduces vegetatively and roots readily at the nodes. Jane Birch (LAG eBulletin 1 Nov 2015), from the Environment Agency is currently investigate whether the plant produces viable seed in the UK, and if so, in what areas. Her initial investigations suggest that the plant can produce viable seed under certain conditions. If this is the case along the Wandle it would be a game changer.

In the meantime, due to fragments of plants being able to establish into new plants with growth rates of up to 70kg of wet weight /meter square or with growth rates as high as 20cm per day having been recorded for individual plant FPW. Floating rafts of FPW are able to doubles their biomass between four to seven days in summer when adequate nitrates are available.

3.1.1.2. Recommended approach.

Morden Hall Park – weekly physical removal of Pennywort to avoid mass establishment and mat forming on river through the Park.

Early season folia spraying trials (prior to floating rafts becoming multi-layered) have been conducted in Watermeads backwater.. The inlet to both open water bodies can be screened off to restrict recolonization at their inlets, if required. Yet to establish if this has been successful enough to roll out through MHP.

3.1.2. Himalayan balsam (HB) (*Impatiens glandulifera*)

Himalayan balsam can only reproduce through viable insect pollinated seed, which germinates in February and March, giving the seedlings an advantage over other plants, as long as they not exposed to frost. Within four weeks the cotyledons become photosynthetically active. The first true foliage emerges as a whorl of four leaves, with

subsequent whorls of three. From germination to flowering takes 13 weeks. Flowering continues for another twelve weeks at which point the seeds are set.

Seed capsules mature producing up to 10 seeds per capsule and burst by either being touched or disturbed by wind or animal, expelling the seeds to a distance of 3-5 meters and sometimes up to seven meters. Individual plants may produce more than 800 to 2,500 seeds during a vegetative period with taller plants producing more seeds and pods. A large % of seeds fall near the parent plant to become next year's crop and are viable for up to two years.

Long distance dispersal is almost always aided by man, and along water course were the mass of buoyant seed can be washed down stream. With the ability to germinate while still in the water, gives Himalayan balsam a head start once it is deposited in suitable substrate.

3.1.2.2. Recommended approach.

This species has successfully been hand pulled over a number of years in Morden Hall Park, Watermeads and Merton Abey Wall by National Trust volunteers. This will continue where the densities permit.

Hand pulling to be undertaken from May to early June (depending on the season) once the plants are strong enough and before other vegetation restricts or impedes the operation.

National Trust staff will be clearing stands in Morden Hall Park along the Wandle and in back channels and ditches on site as prioritized by the Parks and Gardens Manager, prior to the upstream areas having been cleared and secured.

Vigilance on cleared areas will be of utmost importance and any recolonizations of sites, when reported, needs to be dealt with prior to flowering where practically possible.

In the event of bio-control agents becoming available and the distribution and densities along the Wandle warrant the release the agent, it is recommended it be considered.

3.2 Isolated patches of species that can be dealt with *in situ*.

Giant hogweed (GHW) (*Heracleum mategazziaum*) and Japanese knotweed (JK) (*Fallopia spp*)

3.2.1 Giant hogweed (GHW) (*Heracleum mategazziaum*). **Currently not on-site but worth being aware of**

Insect and self- pollinated, GHW flowers and bears fruit just once before dying. A single plant producing 20 000 to 100 000 seeds, which remain viable for+- two years as a seed bank. Almost all seeds fall within 250 cm of mother plant, with longer distance dispersal facilitated by man, water and wind. Up to 2000 seedling germinating per m². With up to 40 plants surviving per m² and developing into the rosette (juvenile) phase. The rosette phase can persist for 3 to 5 years. Plant can regenerate if damaged because of considerable reserves stored in roots.

3.2.1.1 Recommended approach.

Fortunately GHW does not occur at Morden Hall Park, however it should be dealt with when less than a meter high. Plants to be removed by micro mattock roots and bagged and then burnt. Plant in locations where removal is impractical should be stem injected and left to die *in situ*.

3.2.2 Japanese knotweed (JK) (*Fallopia spp*)

Fortunately most of the knotweed in the UK does not produce seed. Reproduction is primarily vegetative. New plant can generate from a stem fragments and fragments of rhizomes as small as 7g. Long distance dispersal is facilitated by man and water along the Wandle.

It is herbaceous perennial that produces new shoots from **rhizomes** and **crowns** (in which all translocated nutrients from one growing season are stored, giving the plant a head start the following growing season). The invasiveness of knotweed is primarily due to vigorous rhizomes, which can increase in length by 3 meters a year. New shoots emerge from spring to late summer. Sprouts are fleshy, pointed at the tip, and slender, resembling asparagus shoots. New shoots may not be hollow until they mature.

Following emergence, growth is rapid: Japanese knotweed stems can grow two to four inches (5-10.2 cm) per day in the spring, coupled with vigorous rhizome growth, JK can easily form extensive, monotypic stands, once established. It flowers in late summer, from late August to early October and is the best time to locate stands at a distance.

3.2.2.1 Recommended approach.

All JK on all three sites will be treated *in situ* by stem injecting.

Stems growing in the river bed, that are susceptible to being washed out and being deposited downstream, will be dealt with immediately once the stems have become hollow in early to mid-summer during 2016.

All other stands will be dealt with by the Ranger at Morden Hall Park and other qualified staff. This will be accompanied with the necessary information and education to ensure the plant is not unwilling spread prior to treatment by the uninformed, and between follow up treatments.

4. Equipment required for each growing season.

Chemical suits and other relevant PPE for all PA license holders.

Waterproof Gloves

Waders

Extendable lance and Berthoud Vermorel 2000 electric constant pressure knapsack (for spraying FPW)

Herbicide

Adjuvant

Plant die

Floating nets/ booms (material to construct the nets)

All chemical and spraying equipment will be stored at Morden Hall Park in the National Trust Compound Pesticides Store. National Trust PA licensed staff will have full access and use to all equipment..

All contaminated material and waste generated during spraying operations will be disposed of by National Trust, when their waste is collected.

Bio-Security

All Staff will be required to clear-off and wash down equipment in the area of work before travelling to another area of the Park or satellite site.

All contractors working in Wetlands or on the River will be required to submit method statements explaining how they will ensure bio-security and avoid carrying invasives to other river sites. The Invasives map of the site will be supplied to contractors and on-site Park staff will make them aware of potential risks of plants in their area of work.

Current on-site Management Matrix

INNS	Managed by	Frequency	Method	Current Status
Pennywort	Ranger	Weekly by Monday Volunteers – March to October each year	Physical removal from River	Watermeads Pike Pond – ¾ removal by herbicide treatment then physical removal 2016 Clear stretch from Snuff Mill to White Bridge - 2016 Clear stretch from Kenley Road Gate to first wooden bridge - 2016
Japanese	Parks and	Twice a year – June	Injection of	2000 stems

Knotweed	Gardens Manager	and September	stem in-situ	injected at Watermeads in June 2015 – follow up Spetember 2016
Himalyan Balsam	Ranger	Weekly from March to June (before seeding) by Wednesday Wetlands/Waterme ads Volunteers	Physical removal from wetlands	5m depth from path into Weltands clear of Himalayan Balsam 2016

