

Water vole Newsletter

WATER VOLE, MINK AND NON-NATIVE INVASIVE SPECIES NEWS IN HERTFORDSHIRE AND MIDDLESEX



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Introduction

Welcome to the 2019 Newsletter. This is the annual end-of-year report on the situation within the Trust's area – Hertfordshire and the boroughs of Barnet, Enfield, Harrow and Hillingdon. In addition to the regular updates, this newsletter features contributions from David Kirk, Bob Thornton and Dr Marion Seier.

Water vole

Water vole update

At the time of writing, 63 sites were surveyed in 2019, down on the number surveyed in 2018 and not necessarily the same sites as in 2018. There might be records for other sites still to come in.

The proportion of positive sites is higher than any of the previous years and the table below seems to show an upward trend. However, caution is needed when looking at the data.

There has been a fall-off in surveyor effort and negative sites are more likely to be un-surveyed. In addition, when newly positive sites are found, it is likely that nearby sites will be checked and they too could well be positive. Therefore, although the table shows that over 50% of sites have water voles most probably less than this proportion of randomly selected sites would be positive.

YEAR ON YEAR WATER VOLE SURVEY RESULTS

	2019	2018	2017	2016	2015	2014	2013	2012	2011
Number of sites surveyed	63	85	85	78	78	68	79	60	46
Number with water voles	35	34	37	24	31	27	24	19	12
% with water voles	56	40	44	31	40	40	30	32	26
Number with possible signs	0	3	4	5	8	4	7	1	0
% with possible signs	0	4	5	6	10	6	9	2	0
Number with no water vole signs	28	48	44	49	39	37	48	40	34
% with no water vole signs	44	56	52	63	50	54	61	66	74

Nevertheless, there are signs that water voles are expanding their range. A population of water voles has been known about on the Colne and the Fray's Rivers for many years in the Denham Country Park area. In 2019, water voles were found in various places on the Colne as far as Stocker's Lake.

Similarly, water vole evidence was found on the River Ash on the meadows below Widford. They have been moving up the river over the last few years from the River Lea at Amwell and again this is further up than ever before and about 7km

from the Lea so around 2km per year on average.

The third discovery is not even in Hertfordshire or Middlesex but is just over the border in Bedfordshire on the River Ivel near Stotfold Mill. The area here has been monitored for many years, but, even though occasional signs have been found during this time, in 2019 it became clear there was a population on the site. The distance needed to move upstream into Hertfordshire could be covered by a water vole in one night! However, as with many of our rivers, the Ivel has been dry this year in Hertfordshire.



Key Site Surveys

So far seven sites across the two counties have been identified as key sites for water voles. These sites, often nature reserves, contain a complex of water bodies within a relatively small area. Instead of surveying 500m of river, up to a dozen strips of bank, each about 100m long, are surveyed. The aim is to survey twice a year, once in the spring and once in the autumn.

The table below shows the results from the various surveys at Amwell Nature

Reserve both spring and autumn from 2018 and 2019. Sections 4, 5, 6, 7 and 8 are all on the River Lea with section 3 on the bit of the River Ash just before it joins the Lea and all these are shown in bold. Sections 1, 2, 9, 10, 12 and 13 are from four of the lakes within the Amwell complex. Although some of the river sections are blank on some of the surveys, nearly all the water vole evidence comes from the rivers and only the very occasional

sign from the lakes, despite some of the lakeside sections with seemingly excellent water vole habitat of thick sedge margins. However, in 2019 there was evidence that water voles were using parts of the lakes with reed beds or reed margins while ignoring the sedge margins. To better assess the use of Amwell by water voles we will be looking to change the survey sections to include more of the reed habitat.

	Section	1	2	3	4	5	6	7	8	9	10	12	13
Latrines	17.4.18	0	0	0	0	1	0	3	0	1	0	0	0
	30.10.18	0	0	0	0	4(+2)	6(+2)	2	0	0	0	1	0
	11.4.19	0	0	0	0	0	3(+7)	1	3	0	0	0	0
	21.11.19	0	0(+1)	1(+3)	3(+3)	9	5	7	4(2)	0	0	0	0
Feeding	17.4.18	0	0	0	10	9	0	17	0	2	0	0	0
	30.10.18	0	0	0	0	14	12	1?	0	0	0	1	0
	11.4.19	0	0	1	11	0	0	8	3	0	0	0	0
	21.11.19	0	0(+1)	1	7	4	4	15	3	0	0	1	0
Holes	17.4.18	0	0	0	1	0	0	0	0	0	0	0	0
	30.10.18	0	0	0	0	0	2	0	0	0	0	0	0
	11.4.19	0	0	1	1	0	3	0	2	0	0	0	0
	21.11.19	0	0	8	0	0	0	0	1	0	0	0	0



© Mike Dunks

A young water vole at Gadesprings

Survey Training

There were four survey training sessions in 2019 with 38 attendees. If you would like to be trained to survey for water voles please get in touch with Martin Ketcher. If you are an existing surveyor but are not longer able to contribute to the surveying, please let the Trust know.



Amwell Nature Reserve



Water vole at Rushy Mead

Water Vole re-introduction on the River Bulbourne

After four years of planning with the help of Herts and Middlesex Wildlife Trust, the Box Moor Trust (BMT) introduced 177 water voles to a one-mile stretch of the River Bulbourne in Hemel Hempstead in September 2019.

The sites also included old Cressbeds and the Grand Union Canal. Contributions from Affinity Water and the Canals and Rivers Trust and a local bequest made this possible.

Mink had reduced to minimal numbers in this period as witnessed by many raft inspections. Also, otters had moved in which appears to have deterred mink. A number of habitat improvements had also taken place as most of the land in the area of the introduction belongs to the BMT. Much of the initial work and the introduction itself was carried out by the Trust's large band of volunteers with overall supervision from the Trust's small employee team. The voles were captive bred in Devon by consultant Derek Gow who has been involved with several introductions across the country.

The good news is that at least one pair bred and young were photographed 10 weeks later. Sadly, though, there was considerable predation by herons which visited in some numbers for a few weeks during the autumn. The extent of this could never have been imagined, but it's a learning curve. A lesson to others here is to ensure that voles are introduced near steep banks where herons can't perch that have deep water below which deters herons from wading. Sadly that cuts down opportunities in our shallow chalk streams. Luckily, the winter has been mild which will aid the success rate of any young.

The Box Moor Trust has a large area of benefit covering Hemel Hempstead and Bovingdon so they hope to carry out two further phases elsewhere in the

Bulbourne and Gade Valleys in 2020 and 2021 if funding can be raised and mink surveys prove negative. It's a long shot, but if successful breeding can return at this end of the Colne Catchment, it could be a catalyst for another introduction further down the Gade closer to the Chess and Ver to encourage the return of the water vole to a much wider area. One step at a time, though, the spring survey comes first!

If you would like to know more or possibly be involved in future plans to introduce water voles in the Gade Valley between Water End and Watford, please contact David Kirk via admin@boxmoortrust.org.uk.

David Kirk, Chair, The Box Moor Trust



American Mink

The main cause of the decline in water vole populations is predation by the invasive non-native American mink (*Neovison vison*) so controlling mink numbers is paramount for water vole conservation.

The positions of mink rafts within the county that are known to have been in use in the last five years are shown on the map below. There may be others that are still functioning but are not included on the map. If you know of any please get in touch. As you can see, there are large gaps and some rivers where there are very few rafts.

At least 10 mink were caught in 2019. One animal was shot in the Colne

Valley and one was trapped at Rye Meads, otherwise all the rest were on the Essex side of the border in the Stort and Lee valleys. This is about half the 2018 total and closer to a third of the totals from many of the previous years. Nevertheless, there were footprints on rafts in other areas that did not lead to capture. In the earlier part of the century when the mink population was expanding rapidly and mink numbers were high, large numbers of mink were

caught when mink control was brought in. It is possible that it was the more wary mink that survived to breed in later years and now much of the population is more trap shy than ten years ago. This could be contributing to the reduction in the number of mink being caught. If not, then it means that the population has decreased significantly. Probably both factors are contributing to the reduced number of captures in the last two years.

MINK CAPTURES			
YEAR	TOTAL	HERTS	ESSEX
2019	10	2	8
2018	18	6	12
2017	27	7	20
2016	23	14	9
2015	33	14	19
2014	33	7	26
2013	40	20	20
2012	34	26	8

If you would like a new raft or if you know someone who might be able to take a raft, anywhere in the county, again please do get in touch. For guidance on the use of the raft or the safe dispatch of captured mink, please refer to the Game and Wildlife Conservation Trust's website at www.gwct.org.uk.



Invasive non-native plants

The details of the survey results of Invasive Non-native Species (INNS) are shown in the table below.

Himalayan balsam was recorded from far fewer sites than 'normal'. Does this reflect efforts to remove this very common and widespread invasive plant?



PERCENTAGE OF INNS IN SURVEYED SITES

	2019	2018	2017	2016	2015	2014	2013
Himalayan Balsam	19	53	47	35	40	33	47
Japanese Knotweed	0	0	2	2	2	3	2
Giant Hogweed	2	0	3	6	6	8	8
Floating Pennywort	8	17	8	18	8	9	4
Water Weeds	0	0	0	5	2	2	2
Water Fern	2	6	0	5	2	0	2
Parrot's Feather	0	5	0	0	0	2	0
New Zealand Pigmyweed	3	6	2	0	0	0	0
Orange Balsam	15	0	10	n.s.	n.s.	n.s.	n.s.

Over half the water vole survey sites either had no INNS or the surveyor did not attempt to record them. Floating pennywort *Hydrocotyle ranunculoides* is still a problem on the River Stort in the NE and the River Colne in the SW. The excellent work of Jenny Rawson, Senior Reserves Officer, Robert Phillips, Thorley Wash volunteer reserve warden and others to control floating pennywort is shown in the two photographs on the right. Both were taken from the bridge over the River Stort at Spellbrook, one looking north on to the reserve and the other looking south and not on the reserve.

Orange balsam *Impatiens capensis* was recorded from a higher proportion of sites than before. It seems to be increasing, especially on the Rivers Chess and Colne, but is less dominant than Himalayan balsam. Part of this increase could be down to Jane Archer who organises the water vole surveyors on



the Chess and the Gade. Jane is very good at making sure all the sites are surveyed and therefore increases the chances of orange balsam being recorded.

If you are a water vole surveyor

- Use the DAFORN categories for the invasive non-native species.
- Put a line through the INNS box on the water vole survey form to show that no invasive plants were found or write N in each individual box. If the INNS box is blank it is difficult to tell if invasive plants were looked for.
- Be very conscious of "Check, Clean, Dry" - nonnativespecies.org/checkcleandry - to avoid spreading plant (and animal!) material of any kind from one site to another.

Thank you!

Giant Hogweed in the UK and other INNS

By Marion Seier, CABI

The first European record of giant hogweed (*Heracleum mantegazzianum*, *Apiaceae*), a species native to the western Caucasus, came from Kew Gardens in 1817. Widely introduced as an ornamental curiosity, giant hogweed is by now present and invasive in many European countries.

With a height of up to 5m, the invasive is dwarfing indigenous herbs and early germination in spring gives it an advantage above the resident vegetation. Individual plants produce up to 80,000 flowers leading to an equally high number of seeds which most commonly spread along waterways. Furthermore, giant hogweed poses a serious health risk due to its phototoxic sap causing severe skin burns after contact and subsequent exposure to sunlight.

Generally, control is undertaken by mechanical or chemical means as well as grazing. Options for biological control were first explored as part of the EU-funded “Giant Alien” project running from 2002-2005. The aim of this multidisciplinary initiative was to use giant hogweed as a model species for European collaboration in control of invasive alien species. During surveys conducted in the western Caucasus, natural enemies associated with *H. mantegazzianum*, and other *Heracleum* species were recorded,

collected and assessed for their suitability as classical biological control agents. Research showed that whilst a number of insects and fungal pathogens were found to attack *H. mantegazzianum* in its native range, none was sufficiently damaging to have a significant impact on the species. Amongst other factors, none of the natural enemies assessed was able to be considered as a classical biological control agent for giant hogweed in its introduced range. Thus, currently the only option is long-term mechanical and chemical control together with landscape management and revegetation.

However, substantial progress has been made with biological control of other INNS in the UK. The gall-forming mite *Aculus crassulae*, an approved classical biological control agent against **Australian swamp stonecrop** (*Crassula helmsii*), was mass released in 2019. Releases were successful with galls developing and spread recorded over time from all sites. Monitoring of the sites will continue in 2020.



Since its first release as an approved classical biocontrol agent against **Himalayan Balsam** (*Impatiens glandulifera*) in the UK in 2014, the rust *Puccinia komarovii* var. *glanduliferae* has been mass produced and released across England and South Wales. The pathogen is now considered to be established at several sites showing overwintering over two consecutive years with the development of good levels of leaf infection during the following growing seasons and natural spread of up to 50 meters.

Mass releases of the approved classical biocontrol agent *Aphalara itadori* against **Japanese knotweed** (*Fallopia japonica*), undertaken since 2010, have led to limited field establishment and overwintering of the psyllid. In 2019, a new psyllid strain was collected from Japan, which is currently being assessed at CABI. A second agent, the fungal leaf-spot pathogen *Mycosphaerella polygoni-cuspidati* is currently undergoing research into its use as a potential mycoherbicide against the invasive weed. An experimental field trial was conducted with the agent in the CABI grounds, Egham, in 2019 following the Defra approved release of the pathogen from quarantine and a field trial permit issued by the Chemicals Regulation Division, UK.

While to date no classical biocontrol agent has been released against the highly invasive weed **floating pennywort** (*Hydrocotyle ranunculoides*), the weevil *Listronotus elongatus* from the native range of the weed in Argentina and Paraguay is waiting in the wings in the quarantine facilities at CABI. The beetle has undergone thorough research and specificity testing and a pest-risk assessment for its release in the UK will be submitted to Defra for assessment in early 2020.



Digitising survey information from the River Beane

By Bob Thornton, River Champion for the Beane

In 2016, Herts and Middlesex Wildlife Trust approached the River Beane Restoration Association, RBRA, about exploring the idea of reintroducing water voles to the Beane valley. The first task was to ascertain whether the river channel and its surrounds were suitable for supporting a population of water voles. A group of RBRA volunteers were trained to carry out river corridor surveys.

The river and other channels were divided into 500m reaches (about 70 in all). Sketch maps were drawn up for each reach using 1:10,000 Ordnance Survey maps. In the field, the surveyors sketched the key features of the river corridor which are considered important to shaping the water vole habitat as well as other information about the morphology of the river channel. Figure 1, minus the coloured line, is an example of a completed sketch map.

The data were digitised to produce a model of the valley which would give an instant picture of the suitability of the valley habitat for water voles. Despite being very time-consuming, the digitisation would be of greater use than a simple visual inspection of the survey sheets, also allowing to drill down into the data at specific points along the river. With guidance from Alex Waechter from the Herts Environmental Record Centre, HERC, the digitising was done by Bob and Anthea Thornton.

The software used for the digitisation

was QGIS. Five key attributes – land use, bank profile, bank surface composition, tree/shrub cover and herbaceous cover – were selected and the data for these attributes were entered separately for each bank. Three other attributes – channel depth, fencing and in-channel vegetation – were selected for the channel as a whole.

Each attribute is subdivided into a number of descriptors, each of which has a positive or negative score according to its influence on water vole ecology. The data for each attribute were arranged in the software in layers so that the habitat value at any particular point along the river channel can be calculated by summing the attribute values at that point. The values can be superimposed on an Ordnance Survey map in the form of a colour-coded line running along the river (Fig 2). Features such as good marginal vegetation, fencing to prevent cattle poaching the banks and no shading from trees contributed positively leading to one of the green colours.

The precise detail for any of the features recorded in the field surveys can be found by interrogating the data to reveal

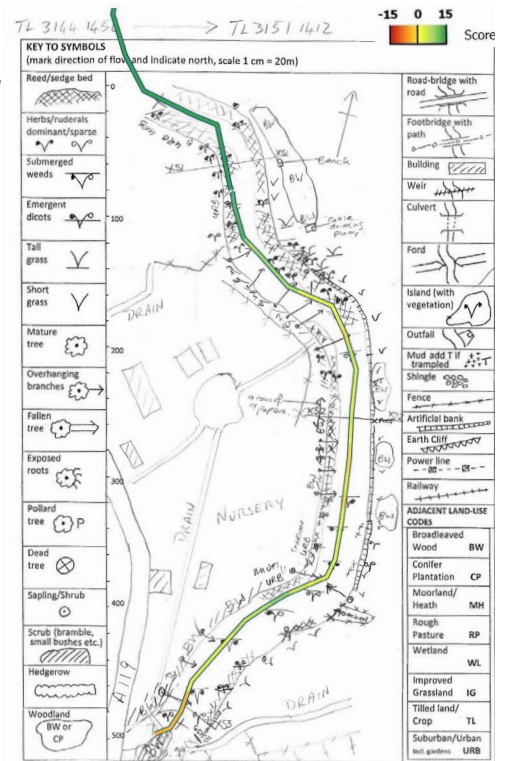


Figure 1: Superimposed on the field survey sheet is the coloured line showing the accumulated effects of the features recorded. Dark green is good water vole habitat.

the conditions of the river channel at that point (Fig 2). This can now be used as a tool in the planning of any restoration work necessary prior to the reintroduction of water voles.

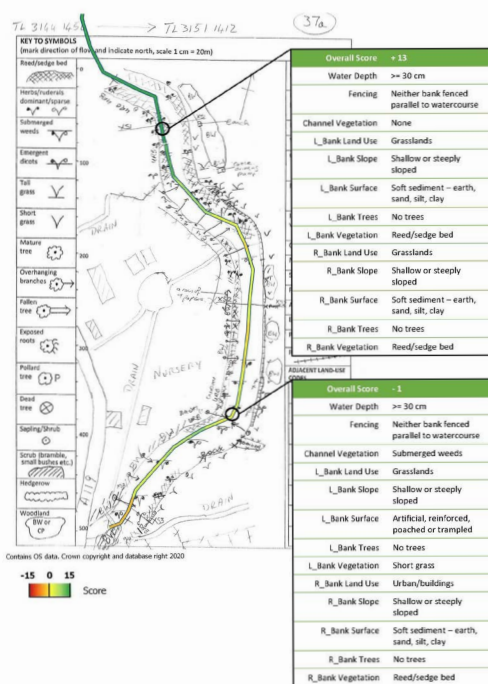


Figure 2: Two points from the map shown in figure 1 highlighted to show the detail of the various features and how they contribute to the overall scores.



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Water Vole, Mink and Invasive Species Conference

The Water Vole, Mink & Invasive Species Conference 2019 took place at Affinity Water in Hatfield in December 2019. Thank you to Affinity Water for their continuing support, particularly from Alister Leggatt, and to all speakers and attendees.

Chair & Introduction

Tim Hill, Herts and Middlesex Wildlife Trust

Giant Hogweed is invincible – were Genesis right?

Dr Marion Seier, CABI

Lee Valley update

Cath Patrick, Lee Valley Regional Park Authority

The re-introduction of water voles to the River Bulbourne

David Kirk, The Boxmoor Trust

Partnership Projects in the Colne Valley

Gavin Bennett, formerly Herts and Middlesex Wildlife Trust

Monitoring Wetlands in Hertfordshire and North London

Rob Fox, Environment Agency

How can I get involved?

- Train as a **water vole surveyor**.
- Become a **mink raft checker**.
- If you have a **mink raft** that isn't checked as often as it should be, get in touch with the Trust.
- **As a surveyor**, if you come across a raft on a survey please check it and let the Trust know what you find, including evidence of water voles.
- **Let the Trust know** if you see water voles or mink anywhere within the county or if you come across either species killed on the road or in some other way.

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Thank you

The conservation of the water vole in Hertfordshire is dependent on the efforts of volunteers, so whether you are a water vole surveyor or check a mink raft, thank you very much for everything you have done.

Thanks are due to the Environment Agency (EA) and the Lee Valley Regional Park Authority (LVRPA) for their continued funding and commitment to the project.



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