



# Thames Water for Wildlife End of Project Summary

**November 2015 – November 2017**





# Thames Water for Wildlife (2015–2017)

**Thames Water for Wildlife**  
**November 2015–November 2017**  
**Freshwater Habitats Trust**  
Produced by Hannah Worker & Penny Williams

Supported by Thames Water and  
the Heritage Lottery Fund

Results from the project are available  
through the Freshwater Habitats Trust's  
webportal: WaterNet

[www.freshwaterhabitats.org.uk](http://www.freshwaterhabitats.org.uk)

Freshwater Habitats Trust Registered Charity  
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Number 5317683

Thames Water for Wildlife has been an outstanding success—helping thousands of people to connect with their local freshwater environment. The heart of the project is community involvement—increasing people's knowledge, enjoyment and appreciation of the freshwater habitats around them. To do this the project worked with groups, schools and individuals across the Thames Water region involving people with three initiatives:

1. Clean Water for Wildlife
2. Monitoring Freshwater Wildlife
3. Upskilling Events

**In total the project directly engaged with over 4110 people.**

## Thames Water

As a responsible steward of the natural environment, Thames Water fund community projects across the Thames region. Their support has provided the opportunity to engage with thousands of volunteers and to undertake the first region wide surveys of water quality.

## Thames Water Region

Nearly a quarter of the UK population - 15 million people - live in the Thames Water area which is the most densely populated region in the UK.

The area also holds an enormous wetland resource – there are about



30,000 ponds, 1500 lakes (almost all man-made in this part of England), and about 10,000 km of ditches, streams and rivers.





HANNAH WORKER

# 1. Clean Water for Wildlife

Are the ponds, streams and ditches in your neighbourhood good enough for wildlife?

Through the Thames Water for Wildlife project citizen science volunteers used quick test kits to measure the levels of two widespread nutrient pollutants, nitrate and phosphate, in their local ponds, streams, ditches, rivers, lakes and canals.

- The aims of the initiative were to:
- Discover fantastic clean water habitats where wildlife is thriving
  - Uncover the true extent of nutrient pollution—by checking thousands of waterbodies for the first time

Over 7700 kits sent out to 3242 volunteers, who undertook over 3200 tests at over 3070 freshwater habitats across the Thames Water region!

This included groups, schools and individuals.

**Why is clean water important?**

Clean water is vital for freshwater wildlife to thrive. Clean water habitats support rich plant and animal communities including some of our rarest species. Sadly it only takes a little pollution to lose much of this wildlife.

Nutrient pollution is a particular concern, and has rapidly become one of the greatest threats to freshwater life.

At the moment only rivers are regularly checked for pollution so very little is known about the water quality in the vast majority of our freshwater habitats.

Thames Water for Wildlife is one of the first widespread surveys of water quality and provides vital information to fill this knowledge gap.

## Key Findings

- Clean (unpolluted) water can still be found across the Thames Water landscape, even in areas highly impacted by urbanisation and agriculture.
- The clean water is mostly found in still waterbodies – particularly small waters, like ponds. This is a new discovery – not widely known because ponds are not currently included in statutory monitoring programmes.
- Larger running waterbodies are very widely polluted, with very few rivers and streams found to be free of pollution.
- The exception is tiny headwater streams which can sometimes have clean water if they rise in semi-natural habitats, such as woodland or heathland.
- There is a huge amount of support and interest to protect and improve the freshwater environment.



Over **4110** volunteers directly took part in the project.



Students from the Alec Reed Academy take part in the Clean Water for Wildlife Survey

NATHAN BIRD



# The Results

Over 3200 waterbodies were tested for nitrate and phosphate in the Thames Water region. Out of these, 37% were clean water habitats that were low in both nitrate and phosphate. 13% showed some signs of pollution and half were highly polluted.

## Where was the clean water found?

Even in the heavily urbanised and intensively farmed Thames region, clean water was still in evidence. It appears that most is concentrated in the standing waterbodies (the ponds and lakes); with almost all rivers and most streams suffering serious nutrient pollution.

The likely reason for this difference is that river networks drain water from such huge areas of land. Some of this water is inevitably polluted with nutrients from roads, factories and agricultural land. In contrast some ponds and smaller headwater streams can escape pollution because they only collect water from small local areas. If these small drainage areas are mainly woodland, fen or unimproved grassland, the ponds and streams stay clean.

Gravel pit lakes—dug into gravel aquifers—are also a place where clean water can be found.

## Key Findings

- Nutrient pollution is widespread amongst all freshwater habitat types.
- Clean (unpolluted) water is concentrated in standing water bodies, particularly ponds but also lakes.
- There are issues with the running waters (streams and rivers), with few found to be free from nutrient pollution.

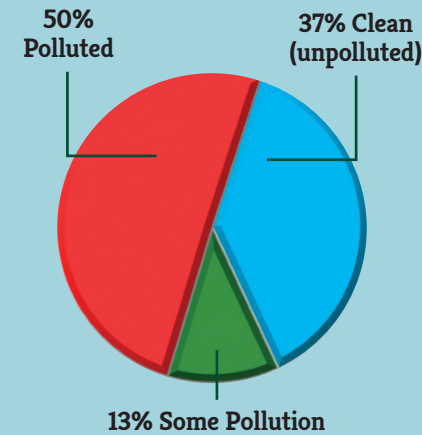
## Implications

We now know much more about clean-water hotspots: the areas that we should be protecting as wildlife refuges, and locations where we could extend the network of clean waters by making ponds, or extending downstream from clean streams or ditches.

Waterbody type	Clean (unpolluted)	Some Pollution	Highly Polluted
Lake	235	38	84
Pond	877	182	342
Ditch	65	45	190
Stream	89	75	496
River	13	32	367
Other	51	24	81
<b>Total</b>	<b>1330</b>	<b>396</b>	<b>1560</b>

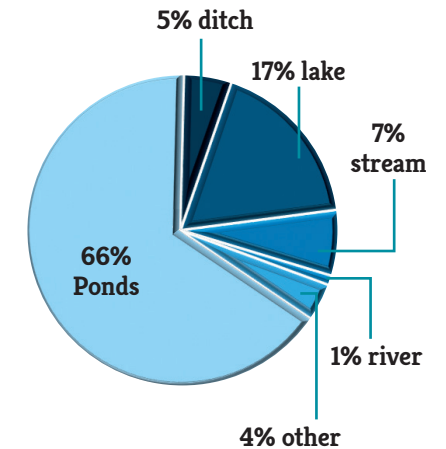
## How much clean water is in the landscape?

The level of nutrient pollution in all tested freshwater habitats across the landscape.

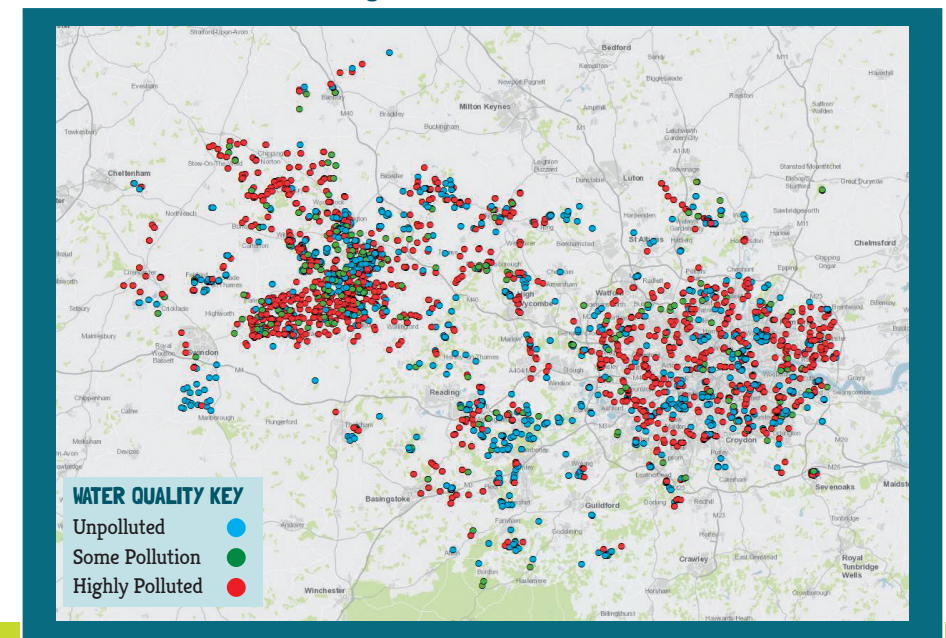


## Where is the clean water?

The percentage of freshwater habitat types in which clean water was found



## Sample sites for the Clean Water for Wildlife survey across the Thames Water region





# 2. Monitoring Freshwater Wildlife

Over 564 volunteers undertook monitoring surveys for over 10 species at a total 488 ponds. The surveys included:

- Great Crested Newt
- Common Toad & Common Frog
- Rare Wetland Plants
- Freshwater Invertebrates

## Great Crested Newt surveys

Volunteers had the opportunity to use the new exciting technique of environmental DNA (eDNA) to survey for Great Crested Newts during 2016 & 2017.

The eDNA kits work by detecting DNA left in the water by newts when they visit ponds. These simple kits mean that anyone, from complete beginners to experts, could take part and collect credible data of national importance.

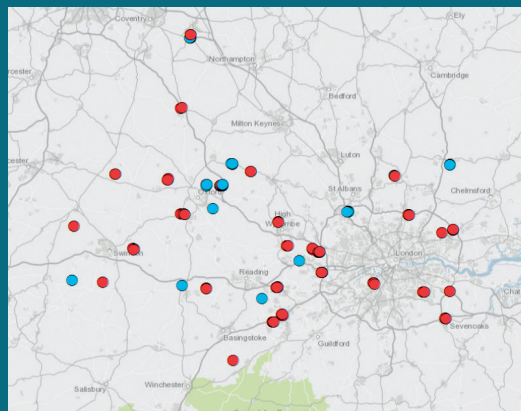
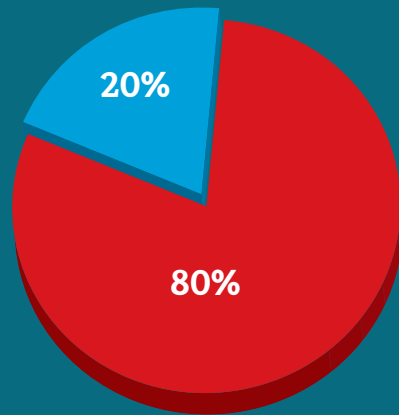
Over the two years volunteers used eDNA kits to survey 162 ponds for Great Crested Newts across the Thames Water region.

Results from the 2016 survey suggest that the Thames Water area is an important hotspot for Great Crested Newts with one in five ponds (20%) supporting these protected amphibians.

*More results are available on the Freshwater Habitats Trust website.*

### GCN KEY

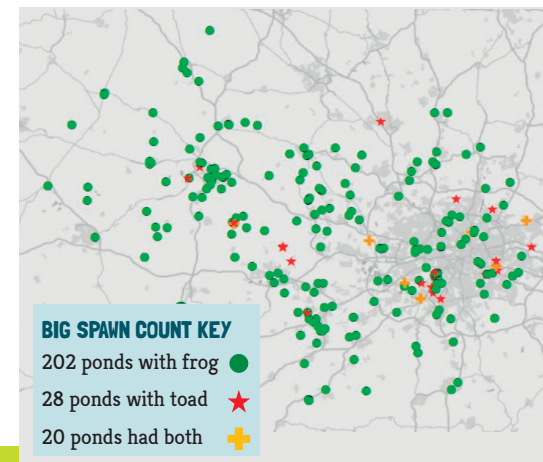
- Great Crested Newt DNA found ●
- No evidence of Great Crested Newt ●



PATRICK CLEMENT

## The Big Spawn Count

During the spring of 2017 volunteers were asked to send in their sightings of both common frog and common toad spawn from their local ponds. The response was wonderful with 237 records sent in from over 400 volunteers across the region. Toads were not recorded as much as frogs - perhaps because more garden ponds were surveyed or possibly reflecting fears that toads are declining in Southern England.



### BIG SPAWN COUNT KEY

- 202 ponds with frog ●
- 28 ponds with toad ★
- 20 ponds had both ✚

## Rare Wetland Plants and Inverts

Volunteers undertook population monitoring surveys for some of the regions most threatened plants and freshwater invertebrates at 76 ponds.

Species surveyed included:

- Tubular Water-Dropwort
- Pillwort
- Brown Gallinagale
- Water Violet
- Great Water-Plantain



*The results from these surveys are available on WaterNet, the Trust's web portal.*

JEREMY BIGGS





Volunteers on Headley Heath collecting water sample for great crested newt eDNA analysis



Training volunteers to identify pond invertebrates at High Elms Country Park

## 3. Upskilling Events

Over 310 volunteers were trained in chemical and biological survey skills through 27 training events. The events covered a range of topics that included:

- Great Crested Newt identification and survey methodology
- eDNA survey methodology
- Wetland plant identification
- Freshwater macroinvertebrate identification and surveying methods
- Importance of clean water for freshwater wildlife
- Clean Water for Wildlife workshop



Above: Children search for the endangered plant Brown Galingale – their keen eyes were often better than the adults!

### Training Video Series

Volunteers were also provided with support through a series of training videos available through the Freshwater Habitats Trust YouTube channel: [www.bit.ly/FHTchannel](http://www.bit.ly/FHTchannel)

Many of these events also trained volunteers as community group leaders to act as facilitators and mentors within their community groups - building knowledge, confidence and sense of responsibility within the groups themselves.



Thames Water's Hanna Jenkins shows the results of nutrient tests from Pinkhill Meadow Nature Reserve, adjacent to Farmoor Reservoir



Above: Over 30 volunteers collected water samples from Cothill Fen Nature Reserve to help discover how to protect the site from pollution

Left: Volunteer invertebrate surveyors in action at Wimbledon Common







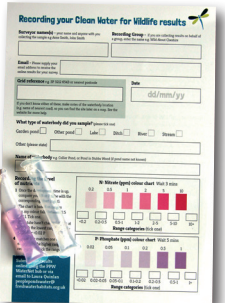
# Evaluation of Citizen Science

Through the power of citizen science the project aimed to gather information on water quality from all types of freshwater habitat, to monitor some of our rarest wetland plants and animals, and to raise awareness of the current issues threatening freshwater life. Has this been achieved?

Over 4110 volunteers directly took part in the project. We estimate project dissemination has reached an additional 4000 people, reaching a total of 8110 people. Volunteers measured water quality in over 3000 waterbodies across the whole Thames Water region. The sheer scale of this has only been possible through volunteer engagement.

## Successes

- Water quality data was collected from over 3000 sites.
- Trialled new eDNA technology with volunteers - highly successful and popular.
- Trained and upskilled volunteers in biological and chemical surveying— increased validity of results.
- Created a legacy through the community group leaders.
- Raised awareness of the importance of the freshwater environment to over 8110 people.



## Feedback from volunteers

“Easy, fun, informative and working together to make a difference”

“Easy and fun to use the kit”

“Enjoyed working as part of a team and learning how to carry out a scientific survey”



HANNAH WORKER

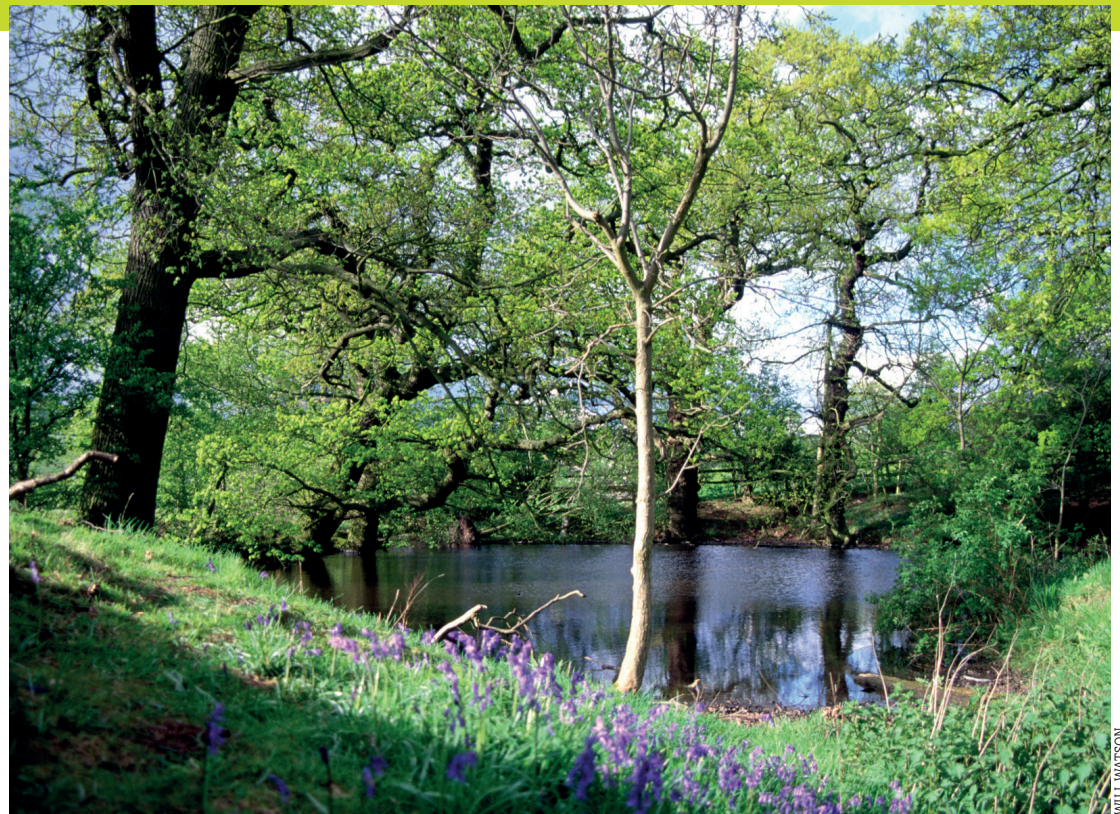
PENNY WILLIAMS



# What can we take forward into the future?



LOUIS GRANT



WILL WATSON

- The Clean Water for Wildlife test kits identified many new clean water sites. We can now focus on the best of these and use these areas to create more clean water, for example through pond creation.
- Work can be undertaken downstream from identified clean water ditches and streams to clean up and extend the clean water habitat.
- We now have water quality data from over 3000 sites. This adds weight of evidence to advocacy work promoting the importance of the smaller waters.
- Wildlife monitoring surveys used best practice methodologies. This data now provides a baseline for future surveys.
- The use of the eDNA technique was both incredibly effective and very popular with volunteers. Its success can be used to provide a springboard that encourages use of eDNA to discover more about other hard-to-survey species.
- All of the data collected is open access and compatible with similar surveys. This means that everyone can use and share the findings.



PATRICK CLEMENT



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The success of the project is down to the marvellous volunteers; the individuals and schools who gave their time to Thames Water for Wildlife. We would just like to say ...

# A Huge Thank You!

The results from all the surveys are available on WaterNet  
[www.freshwaterhabitats.org.uk/projects/waternet](http://www.freshwaterhabitats.org.uk/projects/waternet)

