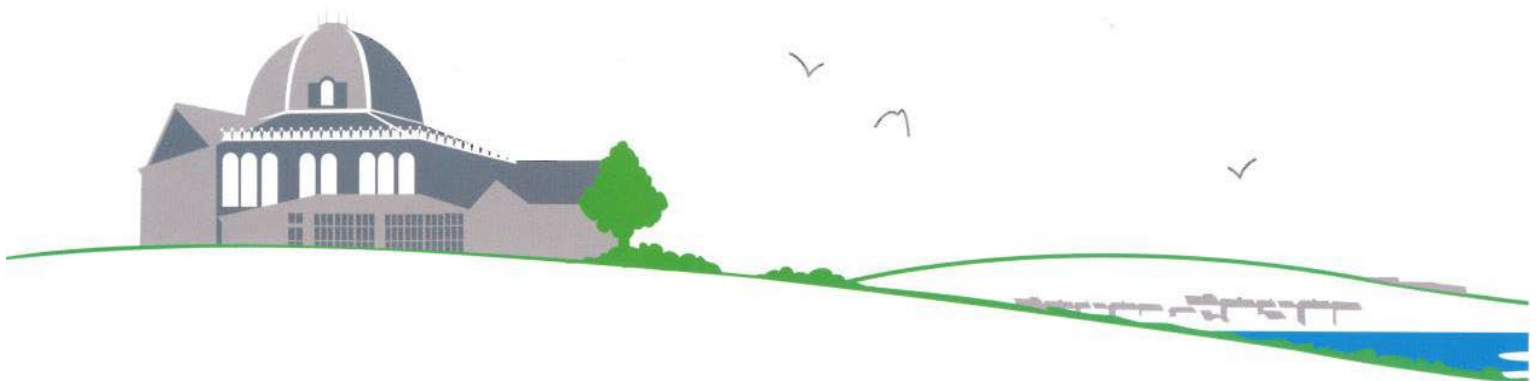




BURY COUNCIL

MILLTOWN STREET

OTTER AND WHITE-CLAWED CRAYFISH
SURVEY REPORT



BURY COUNCIL

MILLTOWN STREET

OTTER & WHITE-CLAWED CRAYFISH SURVEY REPORT

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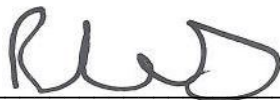
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June 2025

This project has been undertaken in accordance with PAA policies and procedures on quality assurance.

Signed: _____



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1	Summary Protected Species Legislation
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1. INTRODUCTION

- 1.1 Penny Anderson Associates (PAA) was commissioned by Bury Council to undertake a baseline ecological survey for otter (*Lutra lutra*) and a baseline ecological survey and Environmental DNA (eDNA) sampling for white-clawed crayfish (WCC, *Austropotamobius pallipes*), at Milltown Street (approximate central grid reference SK 36808 22967). This follows recommendations previously set out in the *Update Preliminary Ecological Appraisal*¹ undertaken by PAA (2025).
- 1.2 This report details the methods and results of the surveys as well as making any further recommendations as necessary.

Site Details

- 1.3 The site is located within the eastern part of Radcliffe, south of Bury. The immediate surroundings comprise disused grassland to the east and the residential areas of Radcliffe to the north and west. The south of the site comprises an industrial area which is separated from the rest of the site by the River Irwell. Based on current development proposals, a new footbridge would be installed across the River Irwell to replace an existing bridge which collapsed during flooding in 2015. The new crossing point will be slightly altered from the previous bridge and will support both pedestrian and cycle traffic.

Legislative Context

- 1.4 A range of international and national legislation has been established in the UK to protect important nature conservation sites and priority species. At the international level, European Union (EU) Directives require individual member states to implement their conservation provisions nationally for the benefit of Europe as a whole. These Directives have been transposed into UK law by the Conservation of Habitats and Species Regulations 2017 (amended).
- 1.5 Other international conventions include: the Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979), which requires the maintenance of populations of wild flora and fauna, giving particular protection to endangered and vulnerable species; and the Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979), which requires the protection of migratory species throughout their entire range. The above conventions are implemented in England and Wales via the Wildlife and Countryside Act (WCA), 1981 (as amended) and Countryside and Rights of Way (CROW) Act 2000. This legislation also protects important habitats and sites such as Sites of Special Scientific Interest (SSSI).
- 1.6 At the national level, Biodiversity 2020 (Defra 2011) forms England's national biodiversity strategy. Building on the Natural Environment White Paper² published in 2011, this provides a means of delivering the UK's commitments to maintaining and protecting biodiversity. Under Biodiversity 2020, the Priority Species and Habitats referred to are those of 'Principal Importance' for the conservation of biodiversity in England as listed on Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006 (amended).

¹ PEA

² <https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature>

- 1.7 More recently, the Environment Act 2021 further supports this commitment to, and strengthens the legislation in respect of, maintaining and also enhancing biodiversity in England, and Part 6 Nature and Biodiversity includes the following key areas:
- Strengthened biodiversity duty for public authorities in England;
 - Biodiversity net gain to ensure developments deliver at least 10% increase in biodiversity;
 - Local Nature Recovery Strategies to support a Nature Recovery Network;
 - Duty upon Local Authorities to consult on street tree felling;
 - Strengthen woodland protection enforcement measures; and
 - Protected Site Strategies and Species Conservation Strategies to support the design and delivery of strategic approaches to deliver better outcomes for nature.
- 1.8 Finally, the National Planning Policy Framework (NPPF 2024) provides guidance for local authorities on the content of the Local Plans and is a material consideration in determining planning applications. Briefly, with an overall focus on sustainable development, the NPPF states that developments should aim to engender positive outcomes for habitats and biodiversity, with a particular focus on the maintenance and creation of ecological networks.
- 1.9 The NPPF identifies the following principals that should be applied by local planning authorities when determining planning applications:
- a. if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
 - b. development on land within or outside a SSSI, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSI;
 - c. development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
 - d. development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.
- 1.10 The NPPF states that the planning system should contribute to and enhance the natural environment through a range of actions, including:
- Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
 - Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
 - Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swift (*Apus apus*), bats and hedgehog (*Erinaceus europaeus*);
- Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

1.11 To protect and enhance biodiversity and geodiversity, plans should:

- Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

Protected Species Legislation

1.12 A summary of the protected species legislation relevant to otter and WCC can be found in Appendix 1.

2. METHODS

Desk Study

- 2.1 Protected species records were obtained from the local record centre, Greater Manchester Local Record Centre (GMLRC) as part of the update PEA in March 2025. The parameters of the data search were for a 1 km radius around the site centre.
- 2.2 Additionally, the Multi-Agency Geographic Information for the Countryside (MAGIC³) website was reviewed to locate any protected species licences within 1km of the site. The desk study was compiled by Assistant Ecologist Rebekah Pipes. The desk study data obtained relevant to otter and WCC has been included in this report.

Otter Survey

- 2.3 The otter survey was undertaken by Principal Ecologist Rob Lamb, and Assistant Ecologists Rebekah Pipes and Izzy Tomkinson on 21st May 2025. The surveyors are appropriately experienced and qualified to undertake a survey of this type (CIEEM⁴ 2013a). There is currently no published methodology for undertaking otter surveys, although a range of publications relating to otter ecology and conservation do exist (e.g. Environment Agency 1999; Highways Agency 2001; Chanin 2003; Strachan and Jefferies 1996). Signs indicative of the presence of otter were searched for, including otter spraint (faeces), footprints, sign heaps (piles of earth or sand scraped together by an otter), resting sites such as underground 'holts' and above ground 'couches'; and feeding remains, e.g. fish carcasses or crayfish carapaces.
- 2.4 The otter survey area encompassed the works area and a buffer of approximately 50m around the works, where access allowed.
- 2.5 Any field evidence of any other mammals, e.g. bank vole (*Myodes glareolus*), brown rat (*Rattus norvegicus*) and American mink (*Neogale vision*) was also recorded.

White-clawed Crayfish Field Survey

- 2.6 A habitat suitability assessment and torching survey for WCC was undertaken by Rob Lamb on the 21st May 2025 under suitable weather conditions. Rob is suitably experienced and competent to undertake these surveys (CIEEM 2013b) and holds a Natural England WCC survey licence (licence no. 2024-12366-CL11-WCC).
- 2.7 All survey methods used for crayfish were based on the methods described in Peay (2003) and Reynolds *et al.* (2010).
- 2.8 Habitat suitability was assessed based on this guidance, with consideration of substrate available, bank conditions, pollution levels, and any known presence of invasive crayfish species. The surveyor also searched for visual observations within the water channel for crayfish and evidence of their presence such as burrows. Habitats were described and recorded, with any limitations noted.
- 2.9 Accessibility constraints within the south bank (due to lack of access and dense non-native invasive vegetation) restricted the ability for surveyors to complete a detailed habitat assessment.

³ <https://magic.defra.gov.uk/MagicMap.aspx> (last accessed 30th March 2025)

⁴ The Chartered Institute of Ecology and Environmental Management

Therefore, a night-viewing search for WCC was undertaken on the 21st May 2025 and further eDNA sampling undertaken.

- 2.10 The night search commenced 30 minutes after sunset and continued for approximately one hour, until a detailed search of the survey area had been completed.

Environmental DNA Field Sampling Protocol

- 2.11 Water samples were collected by Principal Ecologist Rob Lamb and Assistant Ecologists Rebekah Pipes and Izzy Tomkinson on the 21st May 2025.
- 2.12 The survey method followed technical advice and field protocols for staff collecting water samples (Biggs *et al.* 2014, Natural Resources Wales 2016). Sampling kits were obtained from United Kingdom Accreditation Service (UKAS) accredited SureScreen Scientifics Laboratory.
- 2.13 The field kits include sampling tubes with preservative, sterile gloves, sampling ladle, transfer pipette and a self-supporting Whirl-Pak bag. Care was taken during the sampling to ensure there was no cross-contamination of water. In order to prevent disturbance of the river sediment, surveyors did not enter the water. The sampling protocol followed the steps outlined below:
- Twenty samples were taken around the banks of the River Irwell, spaced evenly and, within the River, taken in an upstream diagonal pattern where possible. Areas were targeted that offered suitable habitat for WCC and, therefore, were deemed most likely to support the species;
 - Water samples were collected using the ladle and were taken from the middle of the water column where possible, or at least 5 to 10cm deep;
 - Once all water samples had been collected and transferred into the sampling bag, the sample was sealed shut and shaken vigorously for ten seconds to ensure any eDNA was mixed evenly throughout the sample;
 - Using the large syringe, up to 500ml (minimum required volume = 150ml) was passed through the filter unit;
 - The syringe was then emptied and filled with air. Air was repeatedly passed through the filter until the filter was free of water;
 - 2ml of preservative solution was then pushed into the filter casing, caps applied, and the filter placed into a storage tube;
 - This process was completed for the waterbody scoped in for WCC eDNA sampling; and
 - Samples were then sent to SureScreen Scientifics for laboratory analysis.

Limitations

- 2.14 The banks of the River Irwell could not be fully surveyed for otter and WCC due to dense vegetation including the invasive non-native species giant hogweed⁵ (*Heracleum mantegazzianum*) and Japanese knotweed (*Reynoutria japonica*). As these are species that can be easily spread via rhizomes, and that coming into contact with giant hogweed is a health and safety hazard, surveyors did not enter areas where these species were present. The north bank had some accessibility and could be partially surveyed, and the south bank could be observed from the north bank. Surveyors did not enter the channel due to unknown depth and

⁵ Botanical species names follow Stace (2019)

predominantly silt-based substrate present. The survey is considered sufficient to undertake broad habitat assessments for otter and WCC.

3. RESULTS

Desk Study

Otter

- 3.1 One record of otter was returned from the 1km data search, recording a field observation of an otter swimming within the River Irwell from a camera trap on the northern bank of the river. The record is dated from 2022 and is located 150m east from the centre of the site.
- 3.2 During the PEA survey (PAA 2025) feeding remains of an unidentifiable crayfish species were found, whilst it cannot be confirmed if these remains are from a foraging otter, it does show presence of an otter food source making the habitat suitable for otter. The in-channel morphological features such as side bars and riffles provide suitable habitat for otters, in addition to tree roots within the bank providing suitable habitat for holts

Crayfish

- 3.3 No records of WCC were returned from the 1km data search.
- 3.4 During the PEA survey (PAA 2025), unidentifiable crayfish species remains were discovered. The presence of these remains indicated that crayfish are present within the River Irwell, which itself provides some suitable habitat.

Survey Results

Otter

- 3.5 No evidence of otter was found during the survey. This includes otter spraint (faeces), footprints, sign heaps (piles of earth or sand scraped together by an otter), resting sites such as underground 'holts' and above ground 'couches'; and feeding remains, e.g. fish carcasses or crayfish carapaces.
- 3.6 The habitats within the River Irwell are considered suitable for otter. The river has in-channel morphological features such as side bars and riffles which are preferable for otter, as well as vegetation alongside the banks which provides shelter. It is likely that transient otter will be using the river for commuting and foraging.

White-clawed Crayfish

- 3.7 The habitat of the River Irwell was assessed to have sub-optimal suitability for WCC. Sediment was predominantly silt-based with limited benthic refuge opportunities, however, there were some localised areas of cobbles and exposed tree roots.
- 3.8 During the night-viewing search, a single signal crayfish (*Pacifastacus leniusculus*) was observed from the northern bank, confirming the presence of the non-native invasive species.
- 3.9 The laboratory analysis results from eDNA sampling can be found in Table 1, with the full report presented in Appendix 2.

Table 1 Environmental DNA Analysis Results

Waterbody	OS Coordinates	Target Species	Sample Integrity Check	Result	Positive replicas (out of 12)
River Irwell	SD 79117 07252	White-clawed crayfish	Pass	Negative	0
		Signal crayfish	Pass	Positive	12

- 3.10 Provided the water samples are taken correctly to avoid cross-contamination, eDNA analysis is considered to be extremely accurate.
- 3.11 The sample integrity check includes an initial check when the samples are received in the laboratory for any leakage and suitability of the sample for analysis (e.g. not too much mud or weed etc), this is then followed by a Degradation and Inhibition Check.
- 3.12 The Degradation Check examines the sample to see if there has been degradation of the sample kit, and the Inhibition Check verifies the quality of the result. In all cases the sample was found to be acceptable.

4. DISCUSSION AND RECOMMENDATIONS

Otter

- 4.1 No evidence of otter was found during the dedicated otter scoping survey. However, with a relatively recent record of otter within the River Irwell returned from the desk study, and limitations to the survey effort due to dense vegetation, it is recommended that a precautionary approach is applied to ensure that risk of disturbance to otters is minimised.
- 4.2 Suitable precautionary working measures to safeguard and limit impacts on transient otter should be set out in an ecological Method Statement for the works.

White-Clawed Crayfish

- 4.3 No evidence of WCC was found during the evening-torch survey, and results from the eDNA sampling did not confirm that WCC DNA was present within the River Irwell.
- 4.4 The confirmed presence of signal crayfish also significantly reduces the chances of WCC being present at the location.
- 4.5 Overall, WCC are assessed to be absent and there are no further recommendations for the species.

Survey Validity

- 4.6 The findings of the survey should be considered valid for a period of 12 months from the date of survey (May 2025). If works have not commenced by May 2026, then the surveys should be updated to ensure the ecological advice given is based on up-to-date information.

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6. ABBREVIATIONS

CIEEM	Chartered Institute of Ecology and Environmental Management
CRoW	Countryside and Rights of Way
eDNA	Environmental DNA
EU	European Union
GMLRC	Greater Manchester Local Record Centre
MAGIC	Multi Agency Geographic Information for the Countryside
NERC	National Environment and Rural Communities
NPPF	National Planning Policy Framework
PAA	Penny Anderson Associates Ltd
PEA	Preliminary Ecological Appraisal
SSSI	Site(s) of Special Scientific Interest
UKAS	United Kingdom Accreditation Service
WCA	Wildlife and Countryside Act
WCC	White-clawed Crayfish

APPENDICES

APPENDIX 1

Summary Protected Species Legislation

SUMMARY OF THE LEGISLATION RELATING TO OTTERS

Otters (*Lutra lutra*), also known as European otters, are protected under the Wildlife and Countryside Act (WCA) 1981 (amended), which has also been amended by various later legislation including the Countryside and Rights of Way (CROW) Act 2000, and this legislation is applicable to England and Wales. Otters are listed on Schedule 5 of the WCA and are, therefore, subject to some the provisions of Section 9 which, with the amendments, make it an offence to:

- Intentionally or recklessly disturb an otter while it is occupying a structure or place which it uses for shelter or protection (S9:4b).
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by an otter (S9:4c).

There are additional offences in relation to buying and selling (S9:5) any live or dead animal of this species or anything derived from them.

Otters are also listed under Annexes IIa and IVa of EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, also known as the 'Habitats Directive'. Inclusion on Annex IVa means they are consequently identified as European Protected Species (EPS) and protected under the Conservation of Habitats and Species Regulations 2017 (amended).

The Conservation of Habitats and Species Regulations 2017 (amended) state that a person commits an offence if they:

- (a) deliberately capture, injure or kill any wild animal of a European protected species,
- (b) deliberately disturb wild animals of any such species, in such a way as –
 - (i) to impair their ability to survive, to breed or reproduce, or to rear their young, or
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate, or
 - (iii) to affect significantly the local distribution or abundance of the species to which they belong;
- (c) deliberately take or destroy the eggs of such an animal, or
- (d) damage or destroy a breeding site or resting place of such an animal.

Under these Regulations it is an offence to damage or destroy a breeding site or resting place, whether the animal is in occupation or not, and protection extends to all life stages of the animal in question. There are additional offences relating to possession, control and sale of a live or dead otter or part of such an animal.

In addition, otters are listed as a 'species of principal importance' for the conservation of biodiversity in England under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006 (amended). They are also included in Section 7 of the Environment (Wales) Act 2016 that provides a list of organisms of 'principal importance for maintaining and enhancing biodiversity in Wales'.

Please note: the above text provides a brief summary of the legislation in relation to otters for England and Wales and the original Acts, Regulations and any amendments should be referred to for the precise wording.



SUMMARY OF LEGISLATION RELATING TO WHITE-CLAWED CRAYFISH

The white-clawed crayfish (*Austropotamobius pallipes*) is afforded protection under the Wildlife and Countryside Act (WCA) 1981 (amended). This species is listed on Schedule 5 of the Act and is afforded part protection under Section 9(1) making it an offence to intentionally kill, injure or take any of these species. There are additional offences in relation to buying, selling or exchanging any live or dead animal of this species or anything derived from a white-clawed crayfish, under Section 9(5).

White-clawed crayfish are listed on Annex II(a) of the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, also known as the 'Habitats Directive'. This means that the UK is required to establish Special Areas of Conservation (SACs) to protect the habitat of this species. These sites form part of the Natura 2000 network. In addition, its inclusion on Annex V of this Directive also restricts the taking, capture or killing of this species in the wild. Inclusion on these Annexes means they are consequently protected under the Conservation of Habitats and Species Regulations 2017 (amended).

In addition, white-clawed crayfish, are listed as a 'species of principal importance' for the conservation of biodiversity in England under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006 (amended). They are also included in Section 7 of the Environment (Wales) Act 2016 that provides a list of organisms of 'principal importance for maintaining and enhancing biodiversity in Wales'.

Please note: the above text provides a brief summary of the legislation in relation to white-clawed crayfish for England and Wales and the original Acts, Regulations and any amendments should be referred to for the precise wording.

APPENDIX 2

eDNA Technical Report

Folio No: 1781-2025
Purchase Order: PO126
Contact: Penny Anderson Associates
Issue Date: 06.06.2025
Received Date: 22.05.2025

eDNA Report

Technical Report



SureScreen Scientifics

Folio No: 1781-2025
Purchase Order: PO126
Contact: Penny Anderson Associates
Issue Date: 06.06.2025
Received Date: 22.05.2025

eDNA Analysis

Summary

When aquatic organisms inhabit a waterbody such as a pond, lake or river they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm the presence or absence of the target species within the waterbody.

Results

Lab ID	Site Name	OS Reference	Target Species	Sample Integrity Check	Result	Positive Replicates
FK3179	Milltown Road - Buco1.1	SD 79117 07252	Signal crayfish (Pacifastacus leniusculus)	Pass	Positive	12
			White-clawed crayfish (Austropotamob ius pallipes)	Pass	Negative	0

Matters affecting result: none

Reported by: Lauryn Jewkes

Approved by: Consuela Sopronyi

Methodology

Samples have been analyzed for the presence of target species eDNA following readily available and scientifically published eDNA assays and protocols.

The analysis is conducted in two phases. The sample first goes through an extraction process where the filter is incubated in order to obtain any DNA within the sample. The extracted sample is then tested via real-time PCR (also called q-PCR) for each of the selected target species. This process uses species-specific molecular markers (known as primers) to amplify a select part of the DNA, allowing it to be detected and measured in 'real time' as the analytical process develops. qPCR combines amplification and detection of target DNA into a single step. With qPCR, fluorescent dyes specific to the target sequence are used to label targeted PCR products during thermal cycling. The accumulation of fluorescent signals during this reaction is measured for fast and objective data analysis. The primers used in this process are specific to a part of mitochondrial DNA only found in each individual species. Separate primers are used for each of the species, ensuring no DNA from any other species present in the water is amplified. If target species DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If target DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent the risk of false positive and false negative results. True positive controls, negative controls, and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared. Stages of the analysis are also conducted in different buildings at our premises for added security. SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

Interpretation of Results

Sample Integrity Check: Laboratory Arrival:

When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results. Any samples which fail this test are rejected and eliminated before analysis.

Degradation and Inhibition check:

Analysis of the spiked DNA marker to see if there has been degradation or inhibition of the kit or sample, between the date it was made to the date of analysis. Degradation of the spiked DNA marker may indicate a risk of false negative results. If inhibition is detected, samples are purified and re-analyzed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result:

Presence of eDNA (Positive/Negative/Inconclusive)

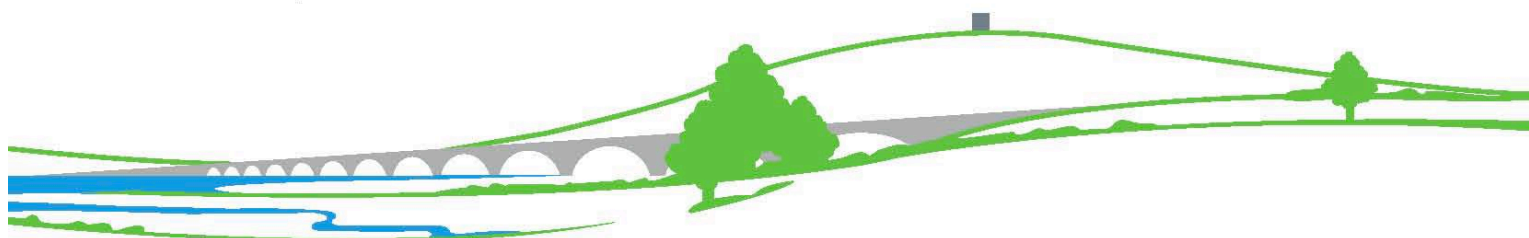
Positive: DNA was identified within the sample, indicative of species presence within the sampling location at the time the sample was taken or within the recent past.

Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for species presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. Even a score as low as 1/12 is declared positive. 0/12 indicates negative species presence.

Negative: eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of species absence, however, does not exclude the potential for species presence below the limit of detection.

Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for species presence or absence.

Penny Anderson
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