



**Water Vole & Crayfish Survey  
Land off Lundhill Road, Wombwell, Barnsley**

Report reference: R-2667-02  
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Report Title:	Water Vole and White-clawed Crayfish Survey Land off Lundhill Road, Barnsley
Report Reference:	R-2667-02
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### Summary Statement

Dedicated survey has demonstrated the likely absence of both water vole and white clawed crayfish from the Elsecar Canal adjacent to the Site. Proposed development presents minimal risk of impacting upon these species.

## Introduction

1. Subsequent to the recommendations made in Brooks Ecological Ltd. Preliminary Ecological Appraisal (R-2667-01.2), detailed White-clawed Crayfish and Water Vole survey was commissioned along a stretch of the Elsecar Canal adjacent to the Land off Lundhill Road, Wombwell, Barnsley, SE 405 018.
2. Survey was required to provide information on the likelihood of impacts on water vole and freshwater white clawed crayfish, arising from proposals to create 161 residential housing units.

**Figure 1** Site Boundary (Red) and extent of survey (dashed white)



### *Site Proposals*

3. Proposals see the construction of 2, 3 and 4 bed houses, associated curtilage and amenity space, with 161 units in total.

### *Habitat*

4. The area of Elsecar Canal adjacent to the Site has briefly been described within the Ecological Appraisal Report R-2667-01. However, for the purposes of this report, a more detailed description of this section is presented.
5. Although this part of the Elsecar Canal is a dead arm of the whole canal, it seems likely that it takes some flow of water, however this is imperceptible close to the Site. At the time of the Ecological Appraisal, the canal was steep sided in most places with the banks colonised by riparian vegetation including reed mace, greater willowherb (*Epilobium hirsutum*) and burr reed (*Sparganium erectum*). Although dense in other parts of the canal, at the time of the spring water vole and crayfish survey, floating duckweed was less apparent at around 20% cover and riparian vegetation was at an earlier stage of growth.
6. The survey covered the length of the canal that runs adjacent to Site; survey began off site c. 50m to the east, where the canal runs south of residential development to the north, in which many gardens back onto the canal itself. The survey continued south-west past the adjacent boundary of the Site and a further c. 50m to the west.



**Figure 2**

Looking north towards residential housing and gardens from the northeast end of the surveyed area.



**Figure 3**

Looking north towards the Site from the far bank of the canal.

7. The canal is of similar profile along the survey extent; around 10m at the narrowest point and 15m at its widest, depth is likely to be well over 1m deep. The canal has steeply sloping banks - highest in areas associated with the scrub and ruderal vegetation of the adjacent Site. At the south-west end of the surveyed area, where the canals' stone revetted sides are apparent vegetation is reduced. It seems likely that this type of revetment continues along the entire Site boundary with the canal - but has become overgrown by vegetation and covered in time by the resultant soils.



**Figure 4**

Walled sections to the south west.

## Water vole

### *Background information*

8. Water voles are protected under the Wildlife and Countryside Act 1981 Schedule 5 (as amended April 2008) in respect to Section 9 which makes it an offence to:
  - intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection;
  - intentionally or recklessly disturb water voles whilst occupying a structure or place used for that purpose;
  - intentionally kill, injure or take water voles;
  - possess or control live or dead water voles or derivatives;
  - sell water voles or offer or expose for sale or transport for sale;
  - publish or cause to be published any advertisement which conveys the buying or selling of water voles.
9. Where water voles are found within a potential construction site, a license from Natural England needs to be secured if works that could otherwise contravene legislation are to be carried out. These licenses are only issued where Natural England is satisfied that works are unavoidable and would not have a negative impact on the favourable conservation status of water vole.

### **Methodology**

10. The beck was surveyed on two separate occasions through the active period of this species – 11<sup>th</sup> October 2016 (land based) and 19<sup>th</sup> April 2017 (boat based).
11. The survey followed Strachan (2006) and attempted to locate evidence of water vole including:
  - *Sightings of water vole;*
  - *Water vole tunnel entrances;*
  - *Water vole “lawns”;*
  - *Water vole feeding stations\*;*
  - *Water vole latrines;*
  - *Waterside paths;*
  - *Runs in vegetation;*
  - *Water vole footprints; and*

- *Sounds of water vole 'plopping' into the water.*

\* Recent research (Ryland and Kemp 2009) would suggest that this source of evidence can be easily confused and should not on its own be seen as definitive evidence of the presence of water vole.

### Records

12. Records were returned within a 2km radius of the Site, the nearest records being at Gypsy Marsh LWS in 2010 and the Elsecar Canal in 2012, in the form of feeding piles, latrines burrows and sightings. The records closest to the Site consist of feeding piles and latrines present some 450m north east of the Site Boundary (2012).

### Results

13. The more natural section of Elsecar Canal, the north-east bank adjacent to Site, represents the highest value habitat for this species close to Site. Banks covered in riparian vegetation and scattered scrub providing cover, food and suitable conditions for digging burrows where soil overlies the stone revetment. Despite this suitable habitat, no evidence of water vole could be found during either survey.
14. To the south west the walled area of the canal bank represents lesser value habitat for water vole. The tops of the banks are vegetated with rough grassland and scattered scrub, providing cover and a food resource – but burrowing here would not be possible. Again, no evidence of water vole activity was noted along this section of beck during either survey.



**Figure 5**

Boat based survey.

15. The far bank of the canal is next to the towpath so is subject to much higher levels of disturbance. It is well vegetated but has a much lower slope and is considered to be largely unsuitable for burrowing. Again, no evidence of water vole activity was noted along this section of beck during either survey.

## **White-clawed Crayfish**

### *Background information*

16. White-clawed Crayfish (*Autropotamobius pallipes*) is listed in Appendix III of the Bern Convention and Annexes II and V of the EC Habitats Directive. It is classed as Globally Threatened by IUCN/WCMC. It is protected under Schedule 5 of the Wildlife and Countryside Act (1981) in respect of taking from the wild and sale.
17. One of the significant factors thought to be leading to a decline in *A. pallipes* is crayfish plague, a fungal disease caused by *Aphanomyces astaci*. Direct competition for food and habitat from non-native crayfish is also thought to play a part in its decline with three non-native crayfish species breeding in the wild. The Signal Crayfish (*Pacifastacus leniusculus*) is by far the greatest competitive threat.
18. Whilst crayfish plague and competition are thought to be the most significant threat to *A. pallipes* they are also vulnerable to pollution, particularly pesticides and sewage, and habitat modification.

### **Methodology**

19. The survey encompassed the area of Elsecar Canal highlighted in Figure 1 above and was carried out over the period 18<sup>th</sup> -19<sup>th</sup> April 2017.

### *Crayfish pots*

20. During the survey, a total of 9 licensed traps were evenly positioned along the watercourse in a range of different microhabitats. The traps were licensed by the Environment Agency for the purpose and duration of the survey. WCC are readily detected through use of this protocol in canals.

### *Records*

21. No records were returned for white-clawed crayfish or signal crayfish within 2km of the Site. This could either mean an absence of these species from the local area or could be due to a lack of survey effort for them. Canals can provide important refuges for this highly threatened species

## Results

**Table 1** Results of Crayfish Survey

Survey 1 19/04/2017									
Trap number	1	2	3	4	5	6	7	8	9
Crayfish present?	No	No	No	No	No	No	No	No	No

22. Overall, the canal is considered to represent reasonable crayfish habitat. Walled sections and tree roots within the watercourse provide good potential refuges for crayfish to shelter beneath and the other wildlife present will result in a ready supply of food for detritivores such as WCC.
23. Despite the deploying of crayfish pots, no crayfish (white-clawed or signal) could be found.

## Evaluation and Recommendations

24. Despite a thorough survey of Elsecar Canal running through adjacent to the Site, no evidence of water vole or white clawed crayfish was found; the results therefore point to a likely absence of these species from the Site boundary with the Elsecar Canal.
25. It is concluded that the proposed development can proceed with minimal risk of impacting upon these species. However, watervole are known to be present within the wider Elsecar Canal and this species can expand their populations (and occupied habitat) dramatically within any given season and suitable habitat is present along the Site's boundary with the canal. Should any outfall to the canal be proposed where works will take place beyond summer 2017, the works area should be re-checked for evidence of water vole.
26. A Construction Environment Management Plan (CEMP) should be created to demonstrate how development can proceed without releasing contaminants into the watercourses, along with details on how materials will be stored and used on the site and how surface water will be settled and removed from the site.
27. A 'green buffer'  $\geq 10\text{m}$  wide should be created between the canal and the development. Ideally this buffer zone would be planted with a grading of habitats from grassland up to shrubs and trees and would include wetland habitats such as ponds or wet grassland. A management plan should be put in place for this corridor.

## References

Ryland, K and Kemp, B (2009) Using Field Signs to Identify Water Voles ...  
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Strachan and Moorhouse (2006), *Wolverine Mitigation Handbook*, University of Oxford.

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