

**SURVEY OF BURRADON POND FOR GREAT CRESTED NEWTS**

**Survey and report for Groundwork North East.**

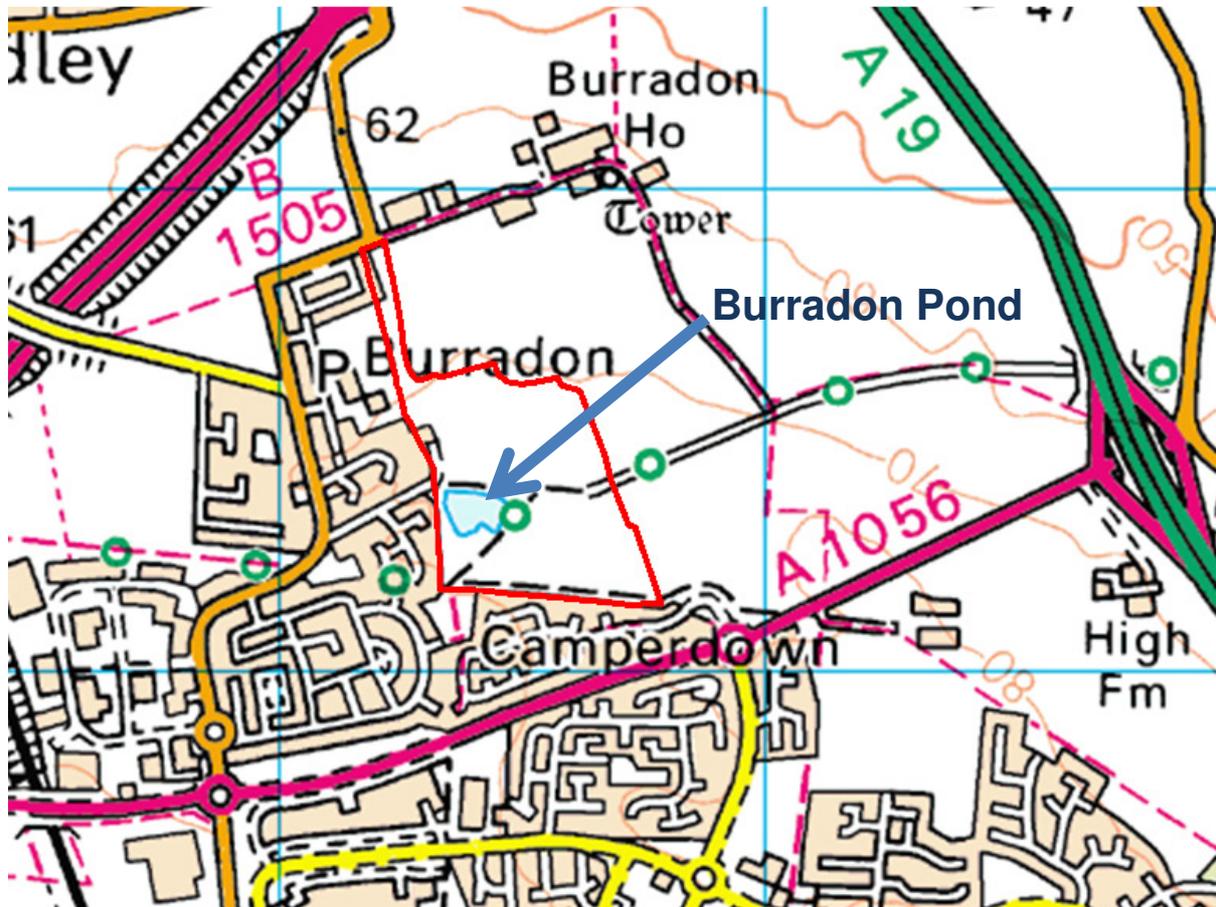
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**July 2013**

## SUMMARY

This study was conducted at Burrodon Pond, North Tyneside centred on grid reference NZ 252718, (1:25,000 Explorer map number 316). The field work was undertaken during the period between 2<sup>nd</sup> May and 5<sup>th</sup> June 2013 and the pond was surveyed for amphibians four times. The survey was undertaken by Kevin O'Hara Registration number CLS 2197 and Naomi Waite Registration number CLS 000634 .

The map below shows the position of the pond.



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The following methods were used to survey the amphibians:

- Visual searches during daylight for eggs in all ponds
- Torch searches after dusk
- Bottle trapping

Suggested improvements have been added at the request of the suppliers to improve the possibilities for amphibians as a whole on the site.

**No great crested newts were recorded during the survey; however smooth newt, common toad and common frog were noted on each survey visit.**

## **BACKGROUND**

Great crested newts have previously been identified in a number of ponds in the area (Environment Practice 2002, Scott Wilson, 2003 etc.). Specialist surveys were therefore undertaken under licence to identify if great crested newt were present at the pond within the Study Area (see Figure 1), and to obtain an assessment of the size of the population.

Legislation affecting great-crested newts Great crested newts and their habitats (both terrestrial and aquatic) are protected under the Wildlife and Countryside Act 1981 (as amended), and under the Conservation of Habitats and Species Regulations 2010.

Under the provisions of the Wildlife and Countryside Act it is a criminal offence in England to:

- Intentionally kill, take or injure a great crested newt;
- Intentionally or recklessly disturb a great crested newt in its place of shelter;
- Intentionally or recklessly damage, destroy or obstruct a place used for shelter.

The EC Habitats Directive implemented through the Conservation of Habitats and Species Regulations 2010 make provisions to protect both a species and its habitat. Under these regulations, it is also an offence to:

- Deliberately disturb a great crested newt;
- Deliberately kill a great crested newt;
- Deliberately take or destroy great crested newt eggs
- damage or destroy a breeding site or resting place, whether intentionally or not.

## **METHODOLOGY**

Survey methodology and timing followed guidelines issued by Natural England (English Nature 2001) for population size class assessment. Survey methods used for this survey involved bottle trapping, egg searches and torch light surveys and were employed on a minimum of four separate occasions to determine the presence or absence of great crested newt and/or other amphibians.

During a preliminary daytime visit to each pond site, survey methods and the accessibility of the shoreline was ascertained, habitat / management information and photographs obtained, and a sketch map produced.

Four torch surveys and four bottle trapping sessions were carried out at the pond, where conditions permitted. Egg searches were conducted on 8 occasions at the pond or until great crested newt (*Triturus cristatus*) eggs were found.

Survey results were recorded on a site record card and included records for great crested, smooth and palmate newts. In addition, data were collected for common frog, common toad and tadpoles.

### **Survey visits**

Survey visits to each site were undertaken between 2<sup>nd</sup> May and 5<sup>th</sup> June 2013. Surveys were conducted at roughly weekly intervals.

The following data was recorded at each visit:

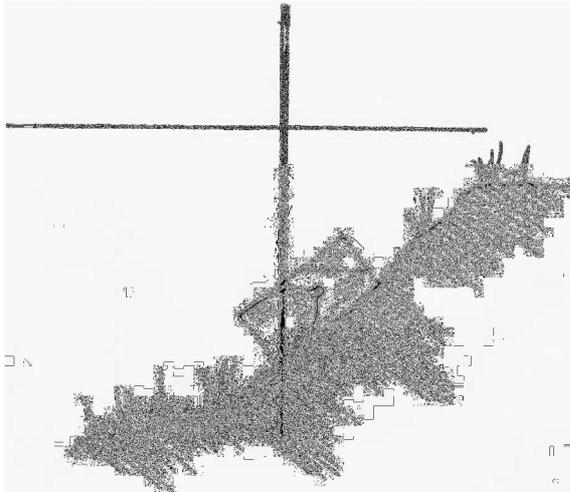
- Water temperature 2cm below surface – using Hanna HI 98127 digital thermometer
- Weather conditions – air temperature, wind direction and strength, precipitation
- Turbidity      1 = clear, torching easily possible  
                    2 = slightly murky, torching just possible  
                    3 = murky, torching not possible
- The number of great crested newts, small newts, frogs and toads observed
- Other observations – fish, wildfowl etc.

Weather during the survey period was favourable, and did not hinder torch surveys. Winds were generally light, temperatures between 7.8°C and 14°C and there was almost no precipitation.

### **Bottle trapping**

Bottle trapping was carried out using a trap design described by Griffiths (Griffiths 1985) and illustrated below, with the tips of fixing canes marked to aid relocation and reduce the risk of injury. Traps were placed approximately two metres apart, where circumstances allowed, and 25 traps were used.

### *Design and placement of bottle traps*



Trapping comprised visiting ponds during the evening when a number of amphibian traps were set around the water's edge. Traps were then re-visited early the following morning to record and release animals, which had been caught. This complied with the recommended maximum amount of time that a trap should be left unattended i.e. 8-10 hours. Traps are primarily used for capturing adults of all three species of newt, but they are also effective in catching many other species which were also recorded.

### **Torch surveys**

A torch light survey was carried out for each water body between 22.00 and 00.00 during each survey visit. Torch surveys were carried out using a Cluson Engineering CB2 hand lamp (1,000,000 candlepower, 12 volts, 50 watts). Continuous observations were made over the accessible shoreline.

### **Egg searches**

A visual search was made around the accessible shoreline of the pond on vegetation and other suitable material, for eggs of all three species of newts. This was undertaken on eight occasions for each pond, during the survey period, or until great crested newt eggs were found.

## RESULTS

A list of aquatic and terrestrial flora recorded on site can be found in Appendices 1 and 3. Appendix 2 lists aquatic macrofauna recorded on site. Appendix 4 contains a list of bird species noted during the surveys.

### Amphibian survey

No great crested newts were recorded during the survey; however smooth newt were found on each bottle trapping survey, eggs were also found and common frog and common toad tadpoles were noted during each torch-light survey. Gudgeon and dragonfly larvae were also recorded in the bottle trapping survey, whilst horse leaches were noted in the torch-light surveys.

The following table gives the full results of the survey:

Date	Torch-light	Egg search	Bottle-traps
01 - 02/05/13	common frog and common toad tadpole	Smooth newt, common frog, common toad	Adult gudgeon, dragonfly larvae, 6 smooth newt
08 - 09/05/13	common frog and common toad tadpole	Smooth newt, common frog, common toad	Adult gudgeon, dragonfly larvae, 8 smooth newt
28 - 29/05/13	common frog and common toad tadpole	Smooth newt	dragonfly larvae, 7 smooth newt
04 - 05/06/13	common frog and common toad tadpole	Smooth newt	6 smooth newt

### Description of Surrounding Habitats

Burradon pond is situated on the site of a former coal mine and landfill site. The habitats that surround the pond have therefore had some planting possibly through the restoration of the site.

The dominant habitat surrounding the site is semi-improved grassland. Small areas of scrub are present in the area immediately east of the pond.

The scrub is dominated by alder, osier willow and blackthorn (in the drier areas). Whilst it appears that much of the scrub has been planted and it is mostly immature, it will offer diversity in the habitats on site and should be retained where possible.

The grassland is a mosaic of rank grassland, more species rich areas and sections that are influenced heavily by high soil moistures.

The less species-rich parts of the grassland tend to be on the higher ground, further from the pond. Here the species mix is dominated by grasses such as cock's foot and herbaceous species including spear thistle, common vetch and cow parsley. Towards the pond edge, where there is compaction and less top soil, the grassland becomes more species rich. Here there are early pioneer species such as common bird's foot-trefoil (the host plant of the dingy skipper butterfly) and black meddick can be found alongside species including northern marsh orchid and sweet vernal-grass. Drainage is

impeded in parts of the site, particularly to the south and east of the pond. Here the grassland communities alter. This is particularly evident towards the south-east of the pond where hare's tail cotton-grass and hard rush were recorded. A large area of butterbur on the eastern edge of the pond also suggests that there is impeded drainage here also.

### **Pond description**

Burradon pond forms part of the wider Burradon Colliery Local Wildlife Site. It is approximately 0.88ha in size. The pond is stocked with fish and as such the water is turbid reducing the effectiveness of torch-light surveys. The eastern portion of the pond is densely vegetated producing areas where larger fish cannot access and as such the majority of macroinvertebrates and amphibians were found here. The vegetation within the pond is dominated by lesser reedmace *Typha angustifolia*, as species uncommon in North Tyneside, Newcastle and Northumberland area. The more common reedmace *Typha latifolia* is also present but at much lower densities. Other plants of note were bogbean *Menyanthes trifoliata* and grey bulrush *Schoenoplectus tabernaemontani*, both uncommon in the area.

New Zealand pygmyweed *Crassula helmsii* was also recorded within the pond, along the southern edge (at OS grid reference NZ7736 8960). This species is listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This means it is a non-native invasive species that if released into the wild a criminal offence can be caused. Recommendations for safe working practices where there are issues with this species can be found at <https://secure.fera.defra.gov.uk/nonnativespecies/checkcleandry/> and methods to remove this species can be found at [http://www.pondconservation.org.uk/pond\\_hap/Controlling+Crassula+helmsii](http://www.pondconservation.org.uk/pond_hap/Controlling+Crassula+helmsii).

## CONCLUSIONS AND RECOMMENDATIONS

The results of the survey suggest that the pond does not support great crested newt. Therefore works to the pond and surrounding area would not require a licence.

The pond does support smooth newt and common frog. The presence of fish in the pond will be limiting the breeding success of these two species and as such the following is recommended to improve the site for amphibians.

Shallow ephemeral and semi-ephemeral ponds are recommended around the existing pond. Periodic drying out of ponds helps keep them clear of predatory fish. The design of ponds should look to include undulating micro and macro topography to maximise the different environmental conditions within the pond. It is suggested that these ponds are situated in areas that already support high soil moistures (for example see below).



Ponds can be planted to produce additional diversity. Planting should be native species of local provenance. This can be achieved by taking small amounts of vegetation from the main pond and transplanting it into the new ponds. However, as the main pond supports New Zealand pygmyweed, this is not advisable as it cause this non-native to spread and an offence under the Wildlife and Countryside Act 1981 (as amended) be committed. For further advice on New Zealand pygmyweed see below.

Alternatively, the ponds could be left to vegetate naturally. This will ensure local provenance. However, as this can be unsightly interpretation boards are recommended to allow visitors to the site to understand why the ponds have been left.

It is highly recommended that the New Zealand pygmyweed is removed from the site. This species can out-compete native flora and form large mats of vegetation across the pond, thus reducing light and oxygen in the pond. As this species can regenerate from 2mm of plant material it is important

that **all** working practices on site follow approved guidelines  
<https://secure.fera.defra.gov.uk/nonnativespecies/checkcleandry/>.

## Appendix

### Species lists

#### Appendix 1. Wetland plant species recorded at Burradon Pond

English name	Latin binomial	National status
<b>Submerged species</b>		
Fragile Stonewort	<i>Chara globularis</i>	Common <sup>1</sup>
Canadian Waterweed	<i>Elodea Canadensis</i>	Introduced
Mare's-tail	<i>Hippuris vulgaris</i>	Common
Spiked Water-milfoil	<i>Myriophyllum spicatum</i>	Common
Fennel Pondweed	<i>Potamogeton pectinatus</i>	Common
Duck-potato	<i>Sagittaria latifolia</i>	Introduced
<b>Floating-leaved species</b>		
Fringed Water-lily	<i>Nymphaoides peltata</i>	Nationally Scarce <sup>2</sup>
Broad-leave Pondweed	<i>Potamogeton natans</i>	Common
<b>Emergent species</b>		
Creeping Bent	<i>Agrostis stolonifera</i>	Common
Water-plantain	<i>Alisma plantago-aquatica</i>	Common
New Zealand Pigmyweed	<i>Crassula helmsii</i>	Introduced
Common Spike-rush	<i>Eleocharis palustris</i>	Common
Great Willowherb	<i>Epilobium hirsutum</i>	Common
Marsh Willowherb	<i>Epilobium palustre</i>	Common
Marsh Cudweed	<i>Gnaphalium uliginosum</i>	Common
Yellow Iris	<i>Iris pseudacorus</i>	Common
Sharp-flowered Rush	<i>Juncus acutiflorus</i>	Common
Soft Rush	<i>Juncus effusus</i>	Common
Hard Rush	<i>Juncus inflexus</i>	Common
Bogbean	<i>Menyanthes trifoliata</i>	Common
Water Mint	<i>Mentha aquatica</i> agg.	Common
Monkeyflower	<i>Mimulus guttatus</i>	Introduced
Tufted Forget-me-not	<i>Myosotis laxa</i>	Common
Amphibious Bistort	<i>Persicaria amphibia</i>	Common
Reed Canary-grass (variegated)	<i>Phalaris arundinacea</i>	Common <sup>2</sup>
Lesser Spearwort	<i>Ranunculus flammula</i>	Common
Water-cress	<i>Rorippa nasturtium-aquaticum</i> agg.	Common
Common Club-rush	<i>Schoenoplectus lacustris</i>	Local <sup>3</sup>
Branched Bur-reed	<i>Sparganium erectum</i>	Common
Lesser Bulrush	<i>Typha angustifolia</i>	Local <sup>3</sup>
Common Bulrush	<i>Typha latifolia</i>	Common
<b>Submerged plant species</b>	<b>6</b>	
<b>Floating-leaved plant species</b>	<b>2</b>	
<b>Emergent plant species</b>	<b>23</b>	
<b>Total plant species</b>	<b>31</b>	

<sup>1</sup> This species is a new record for Northumberland (Nick Stewart, pers.com.).

<sup>2</sup> There is evidence that this species was planted at this site.

<sup>3</sup> There is evidence that this species is *likely* to have been planted at this site.

## Appendix 2. Macroinvertebrate species recorded at Burradon Pond

English name	Latin binomial	National status	Number recorded
<b>Snails</b>			
White Ram's Horn	<i>Gyraulus albus</i>	Common	161
Smooth Ram's Horn	<i>Gyraulus laevis</i>	Local	3
Great Pond Snail	<i>Lymnaea stagnalis</i>	Common	6
Jenkins's Spire Shell	<i>Potamopyrgus antipodarum</i>	Common	210
<b>Bivalves</b>			
Horny Orb Mussel	<i>Sphaerium corneum</i>	Common	30
<b>Leeches</b>			
A leech	<i>Glossiphonia complanata</i>	Common	4
A leech	<i>Helobdella stagnalis</i>	Common	332
A leech	<i>Theromyzon tessulatum</i>	Common	53
<b>Shrimps and slaters</b>			
A water slater	<i>Asellus aquaticus</i>	Common	23
A freshwater shrimp	<i>Crangonyx pseudogracilis</i>	Common	750+
<b>Mayflies</b>			
Angler's Curse Mayfly	<i>Caenis horaria</i>	Common	210
The Pond Olive	<i>Cloeon dipterum</i>	Common	160
<b>Dragonflies and damselflies</b>			
Common Blue damselfly	<i>Enallagma cyathigerum</i>	Common	12
Blue-tailed damselfly	<i>Ishnura elegans</i>	Common	70
<b>Water bugs</b>			
A lesser water boatman	<i>Callicorixa praeusta</i>	Common	4
A pond skater	<i>Gerris odontogaster</i>	Common	2
A lesser water boatman	<i>Sigara distincta</i>	Common	24
A lesser water boatman	<i>Sigara dorsalis</i>	Common	33
A lesser water boatman	<i>Sigara falleni</i>	Common	22
A lesser water boatman	<i>Sigara fossarum</i>	Common	136
A lesser water boatman	<i>Sigara semistriata</i>	Common	4
<b>Water beetles</b>			
A crawling water beetle	<i>Haliphys confinis</i>	Common	2
A crawling water beetle	<i>Haliphys ruficollis</i>	Common	2
A diving beetle	<i>Hygrotus inaequalis</i>	Common	17
A diving beetle	<i>Ilybius fuliginosus</i>	Common	1
A diving beetle	<i>Noterus clavicornis</i>	Common	35
A scavenger beetle	<i>Laccobius colon</i>	Common	3
<b>Caddis flies</b>			
A caddis fly	<i>Athripsodes aterrimus</i>	Common	10
A caddis fly	<i>Trinodes bicolor</i>	Common	1
<b>Total macroinvertebrate species</b>			<b>29</b>

## Appendix 3

### Species recorded in surrounding grasslands

#### Shrub species

Alder	<i>Alnus glutinosa</i>
Birch, Silver	<i>Betula pendula</i>
Blackthorn	<i>Prunus spinosa</i>
Gorse	<i>Ulex europaeus</i>
Osier	<i>Salix viminalis</i>
Rowan	<i>Sorbus aucuparia</i>
Willow, grey	<i>Salix cinerea</i>

#### Grassland

Angelica, Wild	<i>Angelica sylvestris</i>
Butterbur	<i>Petasites hybridus</i>
Buttercup, Meadow	<i>Ranunculus acris</i>
Colt's-foot	<i>Tussilago farfara</i>
Cottongrass, Hare's-Tail	<i>Eriophorum vaginatum</i>
Crested Dog's Tail	<i>Cynosurus cristatus</i>
Dock, Curled	<i>Rumex crispis</i>
Hair-grass, Tufted	<i>Deschampsia cespitosa</i>
Horsetail, Field	<i>Equisetum arvense</i>
Meadow-grass, Smooth	<i>Poa pratensis</i>
Mouse-ear, Common	<i>Cerastium fontanum</i>
Parsley, Cow	<i>Anthriscus sylvestris</i>
Ragwort, Common	<i>Senecio jacobaea</i>
Sorrel, Common	<i>Rumex acetosa</i>
Thistle, Spear	<i>Cirsium vulgare</i>
Tormentil	<i>Potentilla erecta</i>
Vetch, Bush	<i>Vicia sepium</i>
Vetch, Common	<i>Vicia sativa</i>
Vetch, Tufted	<i>Vicia cracca</i>
Vetchling, Meadow	<i>Lathyrus pratensis</i>
Willowherb, great	<i>Epilobium hirsutum</i>
Willowherb, marsh	<i>Epilobium palustre</i>
Yorkshire fog	<i>Holcus lanatus</i>
Bird's-foot-trefoil, Common	<i>Lotus corniculatus</i>
Bramble	<i>Rubus fruticosus</i>
Buttercup, Creeping	<i>Ranunculus repens</i>
Clover, Red	<i>Trifolium pratense</i>
Clover, White	<i>Trifolium repens</i>

Cock's-foot	<i>Dactylis glomerata</i>
Cuckoo Flower	<i>Cardamine pratensis</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum sp.</i>
Fescue, Red	<i>Festuca rubra</i>
Medick, Black	<i>Medicago lupulina</i>
Orchid, Northern Marsh	<i>Dactylorhiza purpurella</i>
Plantain, Ribwort	<i>Plantago lanceolata</i>
Rush, Hard	<i>Juncus inflexus</i>
Sweet vernal-grass	<i>Anthoxanthum odoratum</i>
Thistle, Creeping	<i>Cirsium arvense</i>

## **Appendix 4**

### **Bird species recorded on site**

Blackbird  
Chiffchaff  
Common tern  
Coot  
Goldfinch  
Greenfinch  
Grey heron  
House martin  
House sparrow  
Jackdaw  
Linnet  
Little grebe  
Mallard  
Meadow pipit  
Moorhen  
Mute swan  
Pochard  
Sedge warbler  
Skylark  
Song thrush  
Starling  
Swallow  
Swallow  
Swift  
Tufted duck  
Whitethroat  
Willow warbler