Greenacres
Annual Survey Report 2021

Winchester City Council

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1. Summary

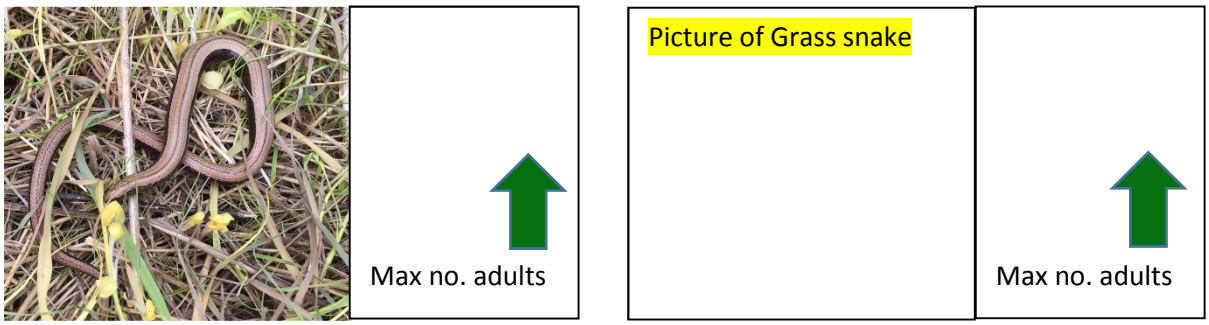

Figure 1. Headline results of 2021 biodiversity surveys at Greenacres. Green arrows show an increase compared to 2020.

Table 1. Results of 2021 surveys compared to previous surveys at Greenacres. This shows the maximum number of adults recorded in one visit.

SURVEY	2019	2020	2021
BOTANY			
TOTAL NO. SPECIES			42
POSITIVE INDICATORS			2
AMPHIBIANS			
SMOOTH NEWTS			5
FROGS			1
REPTILES			
SLOW WORM	1	3	7
GRASS SNAKE	0	1	2

2. Introduction

Greenacres is a relatively small site (0.6 hectares) located within Otterbourne. A stream runs along the southern boundary and matures trees are present at the northern and eastern boundaries. The majority of the site is comprised of dense scrub and grassland. A pond was created by Winchester City Council (WCC) in 2019 to further enhance biodiversity on site.

Surveys of both reptiles and plants started on site in 2019. This year was the third survey season. These surveys are undertaken to monitor the abundance and distribution of species on site which enables WCC to monitor the effectiveness of site management and helps inform future management actions.

These surveys have been undertaken with the help of volunteers and placement students without whom this monitoring work would not be possible.

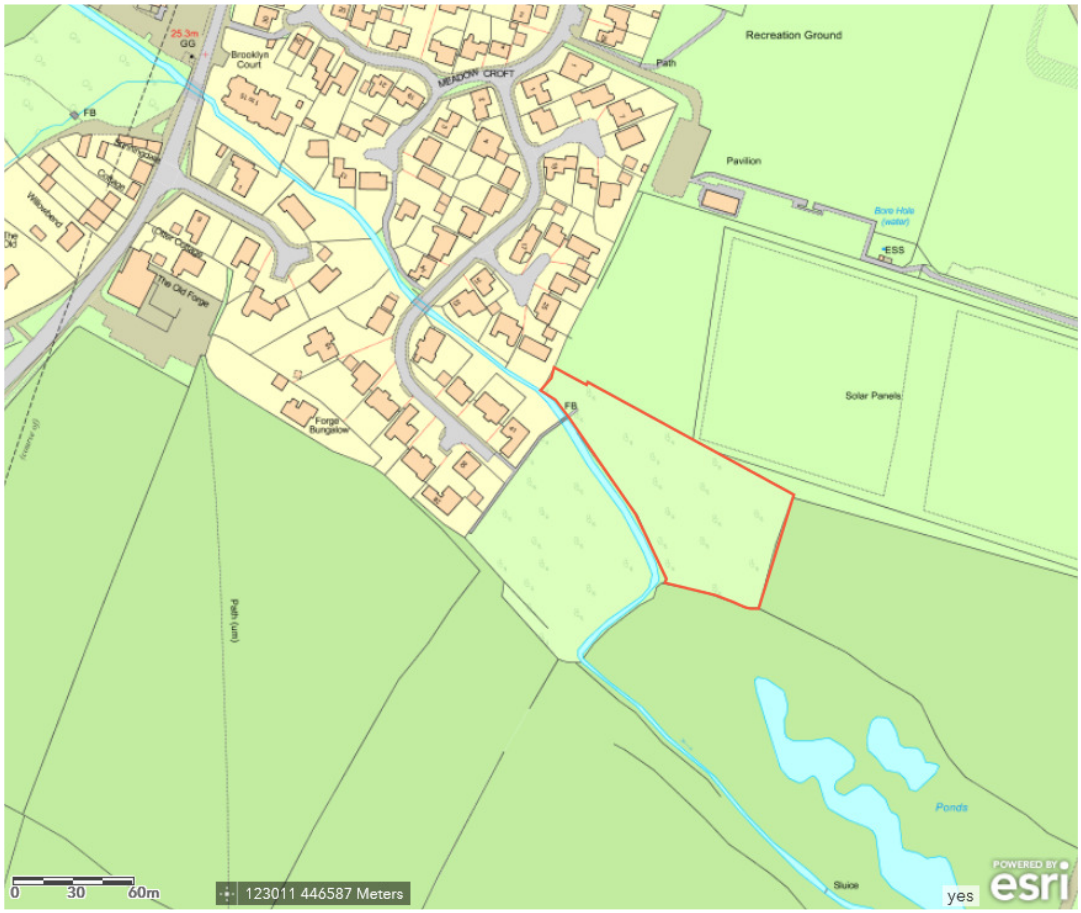

Figure 2: Location Plan for Greenacres reserve, Otterbourne.

Figure 3: Hairy shieldbug (Dolycoris baccarum) on common comfrey (Symphytum officinale) at Greenacres.

3. Methodology

Botany

The methodology was kept as similar as possible to Wheeler et al 2017 (1) to allow comparison across WCC sites. The condition assessment followed the common standards monitoring guidance for lowland grassland habitats (2).

10 quadrat locations were marked on the map prior to the survey in order to get an even coverage across the entire meadow area.

The survey involved identifying as many vascular plants within the 2x2m^2 quadrats as possible and recording the abundance using the DAFOR scale:

- D (Dominant) 50-100%
- A (Abundant) 30-50%
- F (Frequent) 15-30%
- O (Occasional) 5-15%
- R (Rare) <5%

The abundance of negative and positive indicator species for lowland meadow and calcareous grassland were recorded to show the condition of the grassland.

Amphibians

The Habitat Suitability Index (HSI) was used to measure the habitat suitability of the pond for Great Crested Newts and other amphibians. In general ponds with a higher score are more likely to support newts. There is also a positive correlation between HSI score and the number of newts observed.

Five different techniques were used including torching, bottle trapping, netting, egg search and terrestrial search to survey for amphibians within and surrounding the pond. These surveys were undertaken from April to June under suitable weather conditions according to Amphibian and Reptile Conservation (ARC) guidance.

Torching - A high powered torch was used to illuminate the pond. Walking round the perimeter of the pond at a steady pace any amphibians seen within the pond or coming to the surface were recorded.

Bottle trapping – 10 bottle traps were placed within the pond at dusk then checked and collected in 8 -12 hours later. The traps were spaced approximately 2m apart around the edge of the pond and care was taken to ensure an air bubble was left within the trap so that any captured amphibians would still be able to breath. When checking the bottle traps the contents were carefully poured into a pond dipping tray and recorded before returning to the pond.

Figure 4: Bottle trap placed in the pond at Greenacres.

Netting – A net with a rigid frame and a mesh of 2-3mm was used to check for the presence of amphibians within the pond vegetation and areas which could not be seen with the torch. The net was worked round the perimeter of the pond and used to agitate the vegetation in a 2 metre arc. Any captured amphibians or invertebrates were recorded before being released back into the pond.

Egg Search – Submerged or semi submerged vegetation at the edge of the pond was systematically checked for amphibian eggs by hand. This was done for a set period of time (25-30mins). Amphibians fold leaves over their eggs in a distinctive way and the eggs of Great Crested Newts can be distinguished from smooth and palmate newts.

Terrestrial search - Looking under rocks, logs, discarded debris, reptile refuge where moisture is retained. This was used as a supplementary technique only.

Reptiles

25 artificial refugia (squares of roofing felt) were placed across the site in suitable habitat. These refugia increase the chance of finding reptiles because they absorb heat. Reptiles can be found either basking on top or warming themselves up underneath these mats. 10 survey visits were undertaken during the reptile active season (March to September) during suitable weather conditions according to best

practice guidelines (3). All refugia were lifted during each survey visit and any reptiles present were recorded.

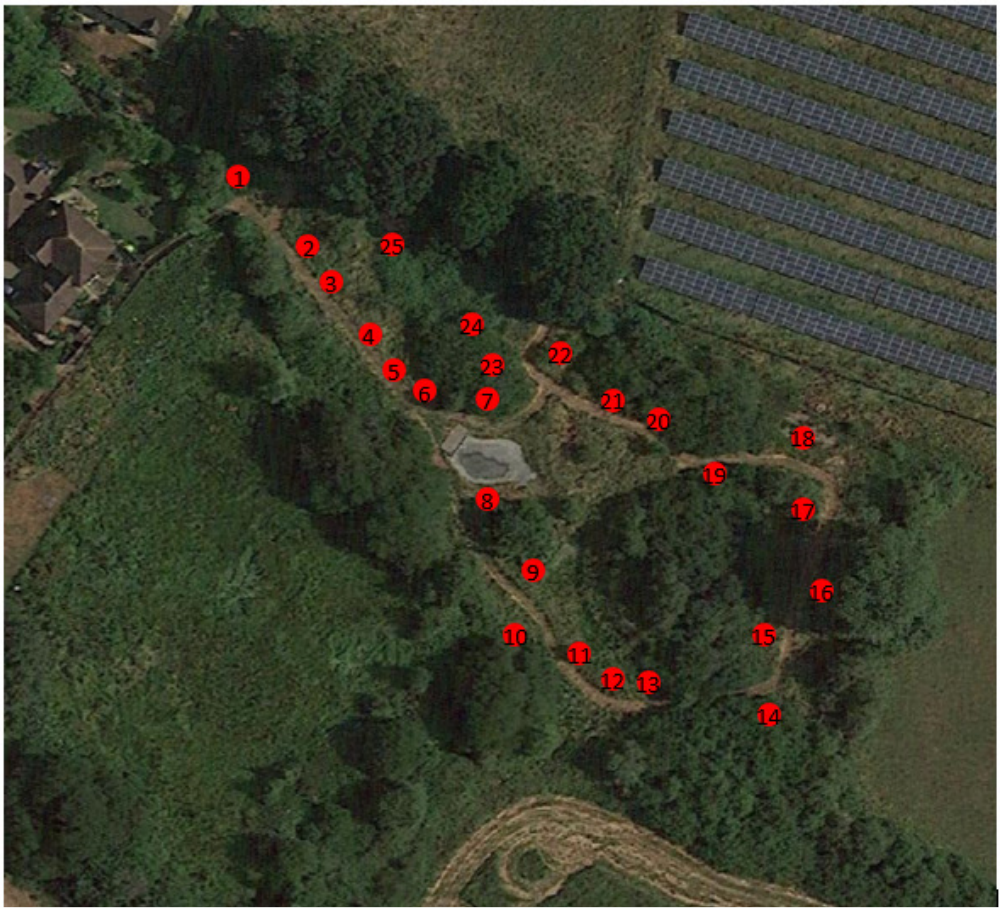

Figure 5: Location of the 25 artificial refugia used to survey reptiles at Greenacres.

4. Results

Botany

Table 2. Abundance of plant species (DAFOR) across 10 quadrats surveyed at Greenacres in June 2021.

Quadrat		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Constancy**	**Cover**
Centaurea nigra	**Black Knapweed**									O		1	O
Medicago lupulina	Black medick									R		1	R
Prunus spinosa	Blackthorn							R				1	R
Rubus fruticosus	Bramble	R	D									2	R-D
Helminthotheca echioides	Bristly oxtongue									R		1	R
Rumex obtusifolius	Broad-leaved dock	O		F		R	R		F	O	O	7	R-F
Anthriscus sylvestris	Cow's parsley				R							1	R
Galium aparine	Cleavers	R			R		R	F				4	R-F
Dactylis glomerata	Cock's-foot			A	A	R	O	R		R	R	7	R-A
Agrostis stolonifera	Creeping bent				R							1	R
Ranunculus repens	Creeping buttercup			R		O						2	R-O
Symphytum officinale	Common comfrey				A	R	F	R			R	5	R-A
Rumex acetosa	Common sorrrel								R	R		2	R
Cirsium arvense	Creeping Thistle				O		O			R		3	R-O
Cynosurus cristatus	Crested dog's-tail										R	1	R
Geranium dissectum	Cut-leaved crane's bill			R						R	R	3	R
Arrhenatherum elatius	False Oat-grass	F	D				F	O	D			5	O-D
Convolvulus arvensis	Field Bindweed						R				R	2	R
Alliaria petiolata	Garlic mustard	R										1	R
Veronica chamaedrys	Germander speedwell								R			1	R
Glechoma hederacea	Ground ivy		R						R			2	R
Oenanthe crocata	Hemlock water-dropwort					D						1	D
Heracleum sphondylium	Hogweed				O			R	F	R	R	5	R-F
Humulus lupulus	Hop				R							1	R
Equisetum arvense	Horsetail						R	R				2	R
Ranunculus acris	Meadow buttercup			R	O	R	O				R	4	R-O

Schedonorus pratensis	Meadow fescue			O								1	O
Alopecurus pratensis	Meadow foxtail								R			1	R
Lathyrus pratensis	**Meadow Vetchling**								O	F		2	O-F
Quercus robur	Pedunculate Oak	R										1	R
Lolium perenne	Perrenial Rye-grass										D	1	D
Senecio jacobaea	Ragwort			R						R		2	R
Trifolium pratense	Red clover			O	R					R		3	R-O
Plantago lanceolata	Ribwort Plantain			O	R					R		3	R-O
Poa trivialis	Rough meadow-grass	A	R			R	F	O		O	R	7	R-A
Phleum bertolonii	Smaller Cat's-tail										R	1	R
Cirsium vulgare	Spear Thistle							R				1	R
Urtica dioica	Common nettle	R	O			R		F				4	R-F
Dipsacus fullonum	Teasel						R			R		2	R
Trifolium repens	White clover										O	1	O
Geum urbanum	Wood avens	R										1	R
Holcus lanatus	Yorkshire Fog				R		O		F	R		4	R-F
Species in **bold black** are positive indicators of UK BAP habitat lowland meadow only; species in **bold blue** are positive indicators of both lowland meadows and lowland calcareous grassland; whilst species in **bold red** are calcareous grassland indicators. + shows presence outside of the quadrats.													

Table 3. Results of Grassland Condition Assessment

Negative Indicator Species		**Total (quadrats)**	**DAFOR**	**LM indicator**	**LCG indicator**
Cirsium arvense	Creeping Thistle	3	O		
Senecio jacobaea	Ragwort	2	R		
Cirsium vulgare	Spear Thistle	1	R		
Positive Indicator Species					
Centaurea nigra	Black Knapweed	1	O	**Y**	
Lathyrus pratensis	Meadow Vetchling	2	F	**Y**	
Trees and Scrub					
Prunus spinosa	Blackthorn	1	R		
Rubus fruticosus	Bramble	2	F		
Quercus robur	Pedunculate Oak	1	R		
Species in **bold black** are positive indicators of UK BAP habitat lowland meadow only; species in **bold blue** are positive indicators of both lowland meadows and lowland calcareous grassland; whilst species in **bold red** are calcareous grassland indicators. + shows presence outside of the quadrats.					

42 plant species were recorded within the quadrats including 2 positive indicators of lowland Meadow UK BAP habitat.

Amphibians

Table 4. ARGUK Great Crested Newt Habitat Suitability Index (HSI)

SI NO	SI DESCRIPTION	GREENACRES
1	Geographic location	1
2	Pond area	0.2
3	Pond permanence	0.9
4	Water quality	1
5	Shade	1
6	Water fowl effect	1
7	Fish presence	1
8	Pond Density	1
9	Terrestrial habitat	1
10	Macropyhyte cover	0.6
HSI SCORE		**0.80**
POND SUITABILITY		***Excellent***

Table 4 shows that the pond at Greenacres is considered to be of excellent suitability for Great Crested Newts and other amphibians.

Table 5. Amphibian Survey Results at Greenacres in 2021

DATE	SURVEY METHOD	TIME START	TIME END	TEMP °C	FROG	SMOOTH NEWT
14 & 15 APRIL	Torching	20:35	21:05	8		4
	Bottle Trapping	19:50	7:30	8		
	Netting	7:40	8:10	4		
	Egg Search	7:40	8:10	4		
29 & 30 APRIL	Torching	20:50	21:20	9	1	3
	Bottle Trapping	20:15	7:00	9		
	Terrestrial	7:15	7:45	4		
13 & 14 MAY	Torching	21:30	22:00	9		1
	Bottle Trapping	21:00	7:05	9		
	Netting	21:10	21:25	9		
	Egg Search	7:15	7:40	9		
2 & 3 JUNE	Torching	21:30	22:00	14		4
	Bottle Trapping	21:30	6:00	10		1

A total of 13 smooth newts and 1 frog were recorded across the 4 visits. A maximum of 5 smooth newts in one survey visit.

Great diving beetles and dragon fly larvae were also recorded in the pond during the survey.

Figure 6: Dragonfly larvae found in one of the bottle traps at Greenacres.

Reptiles

Table 6. Reptile survey results across 10 visits at Greenacres in 2021.

VISIT NUMBER	DATE	TIME START	TIME END	TEMPERATURE (°C)	SLOW WORMS MALE	SLOW WORMS FEMALE	SLOW WORMS JUV	GRASS SNAKE ADULT	GRASS SNAKE JUV
1	04/04/21	16:15	16:45	14	1	1			
2	19/04/21	14:00	14:30	15		1			1
3	26/04/21	12:15	12:45	12	1	2	1	1	1
4	27/04/21	12:10	12:30	13	1	3	1		1
5	05/05/21	12:15	12:45	11	3	4	1	1	
6	24/05/21	16:15	16:40	13	1				
7	11/07/21	13:00	13:30	17	1	2	1		
8	14/08/21	13:00	13:30	22	1				1
9	17/08/21	13:00	13:30	14		2	1		
10	26/09/21	12:00	12:30	19	1	1		2	1
TOTAL					10	16	5	4	5
MAX					7 ADULTS			2 ADULTS	

Other species

Small mammals such as common shrew (*Sorex araneus*), field vole (*Microtus agrestis*) and wood mouse (*Apodemus sylvaticus*) have also been recorded using the reptile refugia.

A variety of birds have been seen on site including nuthatch (*Sitta europaea*), tree creeper (*Certhia familiaris*), bullfinch (*Pyrrhula pyrrhula*), great spotted woodpecker (*Dendrocopos major*), green woodpecker (*Picus viridis*), snipe (*Gallinago gallinago*), robin (*Erithscus rubecula*), blue tit (*Cyanistes caeruleus*), and blackcap (*Sylvia atricapilla*).

5. Discussion and comparison with previous years

This was the first year undertaking both the botany and amphibian surveys. Recording 42 species of flowering plant is a good initial baseline for the site. Only 2 positive indicators for Lowland Meadow were recorded. Whilst this is quite low the site is small and a significant proportion is comprised of blackthorn scrub, trees and ponds. The scrub provides valuable habitat for birds, reptiles and some invertebrates but does need to be managed from every few years to stop encouragement across the entire site. The condition of the grassland is also limited by the frequency of the cutting and the ability to collect the arisings. This has not always been possible in previous years but was undertaken at the end of this summer.

Although the pond is only a few years old the HSI score shows that it is of excellent suitability for Great crested Newts and other amphibians. This is a huge success and shows how beneficial the creation of this pond was for biodiversity on site. The first baseline amphibian survey shows that a small population of smooth newts and frogs are present within the pond along with various invertebrates.

The reptile survey was undertaken for the third year in a row. The highest number of adult slow worms and grass snakes were recorded out of the three survey years. Interestingly less juvenile slow worms were recorded this year compared to 2020.

6. Management Recommendations

- Continue scrub management and cutting of grassland.
- Continue to control Himalayan balsam by pulling in early summer.
- Investigate the need to remove some of the dense weed from the pond to allow other aquatic plants to establish.

7. References

1. Wheeler, B. and Wilson P. (2017). Vegetation Survey and Condition Assessment of Whiteshute Ridge, 2017.
2. JNCC (2004). Common Standards Monitoring Guidance for Lowland Grassland Habitats. ISSN 1743-8160 (online).
3. Froglife (1999) Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.