

West Hill Cemetery Annual Survey Report 2021



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2. Summary



Figure 1. Headline results of 2021 biodiversity surveys at West Hill Cemetery. Green arrows show an increase compared to 2020 and red arrows show a decrease.

Table 1. Results of 2021 surveys compared to previous surveys at West Hill Cemetery. This shows the maximum number of adult reptiles recorded in one visit.

SURVEY	2019	2020	2021
BOTANY			
TOTAL NO. SPECIES	30	29	46
POSITIVE INDICATORS	3	6	9
REPTILES			
SLOW WORM	8	24	34

3. Introduction

The land at West Hill Cemetery is of cultural, historical and ecological importance. This site is therefore managed in a sensitive manor to protect and preserve its value, whilst also enabling visitors to enjoy the site as an important area of open space in the heart of Winchester.

West Hill Cemetery was established in 1839 and has been owned by Winchester City Council (WCC) since 1953. The 6.2 acre site is comprised of unimproved chalk grassland, woodland and mature trees including Yew (*Taxus baccata*), Cedar (*Cedrus sp.*) and coppiced Hazel (*Corylus avellana*).

Since 2016 the majority of the grass has been cut and collected twice annually; once in early spring to knock back dominant grasses and once in early autumn after the wildflowers have dropped their seeds. This guarantees that the grassland is not cut from May to August, when plants are in flower. This is important because it means they are available for pollinators and other invertebrates throughout their life cycle.

The collection of the cuttings is also crucial because this maintains the low nutrient levels within the grassland and provides the correct conditions for a variety of plant species to grow.

Biodiversity surveys of both reptiles and plants started on site in 2018. This year was the fourth survey season. These surveys are undertaken to monitor the abundance and distribution of species on site which enables WCC to monitor the effectiveness of the management plan and helps inform future management objectives.

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 of West Hill Cemetery.



Figure 3. Marbled white (Melanargia galathea) on Field Scabius (Knautia arvensis) at West Hill Cemetery.

4. 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).

12 quadrat locations were marked on the map prior to the survey in order to get an even coverage across the entire site

The survey involved identifying as many vascular plants within the 2x2m² 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.



Figure 4. Quadrat locations for the botany survey at West Hill Cemetery. The location of quadrats 1 & 4 were not recorded.



Figure 5. WCC surveyor undertaking botany survey at West Hill Cemetery. The bamboo canes marking the 4 corners of the 2mx2m quadrat.

Reptiles

25 reptile refugia (roofing felt mats) were placed across the site. 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).

An additional reptile survey was undertaken alongside WCC by a member of ARG (Amphibian and Reptile Group). 10 tins were placed across the site and these were checked 4 times during the survey season.

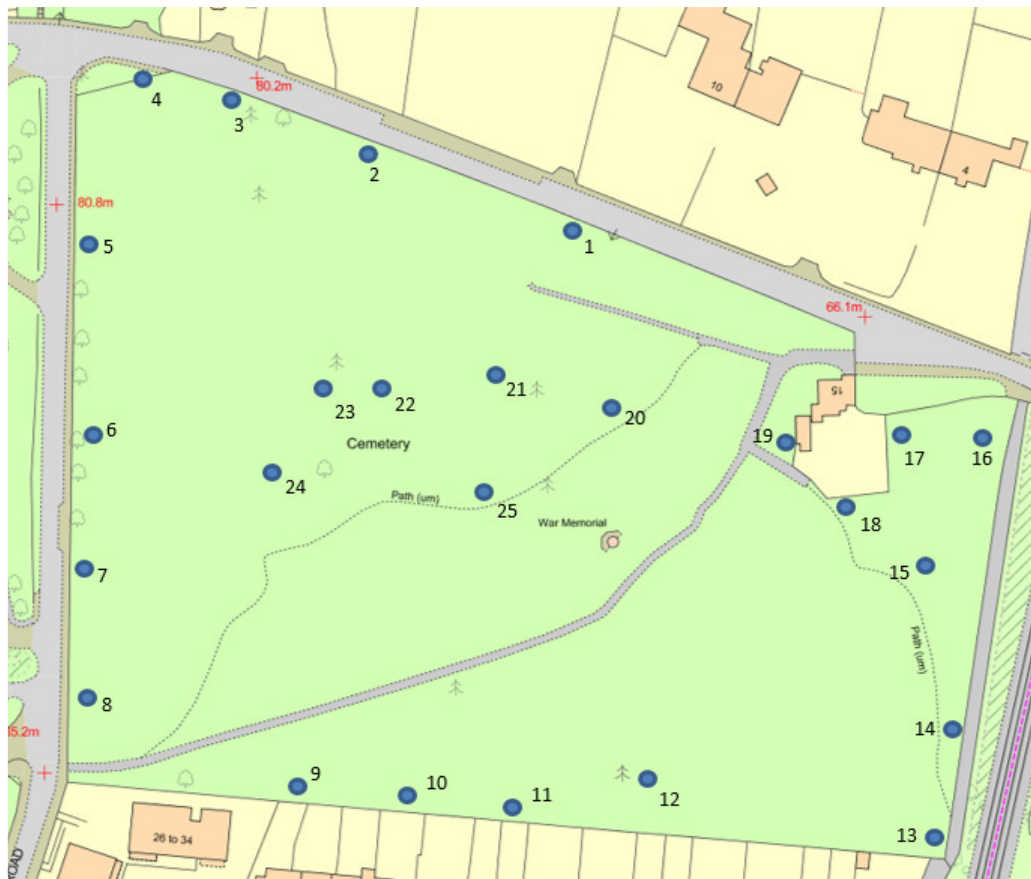


Figure 6. WCC reptile refugia locations at West Hill Cemetery.

5. Results

Botany

Table 2. Abundance of plant species (DAFOR) across 12 quadrats surveyed at West Hill Cemetery in 23 June 2021.

Quadrat		1	2	3	4	5	6	7	8	9	10	11	12	Constancy	Cover
<i>Poa annua</i>	Annual meadow grass			O			O							2	O
<i>Medicago lupulina</i>	Black Medick	O	R			R			F	F	F		O	7	R-F
<i>Dactylis glomerata</i>	Cock's-foot	R		R	R	R	R			R				6	R
<i>Hypochaeris radicata</i>	Cat's-ear		R	R					R					3	R
<i>Cerastium fontanum</i>	Common mouse-ear					O								1	O
<i>Ononis repens</i>	Common Restharrow													+	
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill					R						R		2	R
<i>Primula veris</i>	Cowslip													+	
<i>Taraxacum officinale</i>	Dandelion						R							1	R
<i>Verbascum nigrum</i>	Dark Mullein													+	
<i>Cornus sanguineus</i>	Dogwood													+	
<i>Arrhenatherum elatius</i>	False Oat-grass	R	F	D	A	A	A	O	F	A	A	D	A	12	R-D
<i>Convolvulus arvensis</i>	Field Bindweed	F	F	R			F	R						5	R-F
<i>Knautia arvensis</i>	Field Scabius					O								1	O
<i>Luzula campestris</i>	Field wood-rush							R						1	R
<i>Pilosella aurantiaca</i>	Fox and cubs		R											1	R
<i>Veronica chamaedrys</i>	Germander speedwell		A			O	O	F	R	F		R		7	R-A
<i>Carex flacca</i>	Glaucous sedge	O											R	2	R-O
<i>Senecio Vulgaris</i>	Groundsel	F				R							R	3	R-F
<i>Heracleum sphondylium</i>	Hogweed		R			R								2	R
<i>Hedera helix</i>	Ivy	O												1	O
<i>Galium verum</i>	Lady's Bedstraw					F		R	F					3	R-F
<i>Ranunculus acris</i>	Meadow Buttercup		R	R		R						O		4	R-O

<i>Lathyrus pratensis</i>	Meadow vetchling			D	D						A	A		4	A-D
<i>Leucanthemum vulgare</i>	Ox-eye Daisy	F		R		A	R	R	A		A		F	8	R-A
<i>Conopodium majus</i>	Pignut									R	R		R	3	R
<i>Hypericum hisutum</i>	Perforate St John's-wort			R										1	R
<i>Lolium perenne</i>	Perennial Ryegrass					A				O		F	O	4	O-A
<i>Anacamptis pyramidalis</i>	Pyramidal orchid								R					1	R
<i>Senecio erucifolius</i>	Ragwort		R			R			R	R			R	5	R
<i>Trifolium pratense</i>	Red Clover		O	O		A	A	D	D	A	O	A	F	10	O-D
<i>Plantago lanceolata</i>	Ribwort Plantain	F	F	O	O	A	F	F	F	F	O	A	F	12	O-A
<i>Leontodon hispidus</i>	Rough Hawkbit		R			R								2	R
<i>Poa trivialis</i>	Rough Meadow-grass	R		F	O				F	F	O		F	7	R-F
<i>Prunella vulgaris</i>	Selfheal							R						1	R
<i>Trifolium micranthum</i>	Slender trefoil							A						1	A
<i>Phleum bertolonii</i>	Smaller Cat's-tail					R								1	R
<i>Crepis capillaris</i>	Smooth Hawk's-beard	R				R				R				3	R
<i>Bromus hordeaceus</i>	Soft brome							A	F	F				3	F-A
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass		O			F		O	F					4	O-F
<i>Vicia cracca</i>	Tufted Vetch										F			1	F
<i>Trifolium repens</i>	White clover			O		O								2	O
<i>Reseda lutea</i>	Wild Mignonette													+	
<i>Fragaria vesca</i>	Wild strawberry	O												1	O
<i>Archillea millefolium</i>	Yarrow	F						A	F	R				4	R-A
<i>Holcus lanatus</i>	Yorkshire Fog	R	O	O	O	R	F	R		A	R	F	O	12	R-A

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
<i>Senecio jacobaea</i>	Ragwort	5	R		
Positive Indicator Species					
<i>Primula veris</i>	Cowslip	+		Y	
<i>Knautia arvensis</i>	Field Scabius	1	O		Y
<i>Carex flacca</i>	Glaucous sedge	2	O		Y
<i>Galium verum</i>	Lady's Bedstraw	3	F	Y	Y
<i>Lathyrus pratensis</i>	Meadow Vetchling	4	D	Y	
<i>Conopodium majus</i>	Pignut	3	R	Y	
<i>Anacamptis pyramidalis</i>	Pyramidal orchid	1	R	Y	Y
<i>Leontodon hispidus</i>	Rough Hawkbit	2	R	Y	Y
<i>Fragaria vesca</i>	Wild strawberry	1	O		Y
Trees and Scrub					
<i>Cornus sanguineus</i>	Dogwood	+			
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.					

46 plant species were recorded within the quadrats including 9 positive indicators of lowland Meadow and/or calcareous grassland UK BAP habitat.

Reptiles

Table 4. WCC reptile survey results across 10 visits at West Hill Cemetery in 2021.

VISIT NUMBER	DATE	TIME		TEMPERATURE (°C)	SLOW WORMS		
		START	END		MALE	FEMALE	JUV
1	31/03/21	16:00	16:30	19		1	
2	22/04/21	17:30	18:00	15	1	1	
3	27/04/21	18:15	18:45	13			
4	09/05/21	11:30	12:00	15	1	6	2
5	26/05/21	11:40	12:20	15	2	6	4
6	23/06/21	09:00	09:30	20		4	4
7	15/07/21	11:45	12:40	20	12	22	11
8	17/08/21	17:30	18:15	12	3	5	5
9	01/09/21	17:30	18:30	17		3	2
10	08/09/21	17:30	18:30	23	4		2
TOTAL					23	48	30
MAX					34 ADULTS		

ARG recorded a total of 13 slow worms during the 4 visits with a peak count of 6.

Other species

Marbled white (*Melanargia galathea*), Meadow brown (*Maniola jurtina*), Common blue (*Polyommatus Icarus*), Small skipper (*Thymelicus sylvestris*), Red admiral (*Vanessa atalanta*), Ringlet (*Aphantopus hyperantus*), Gatekeeper (*Pyronia tithonus*) and Cinnabar (*Tyria jacobaeae*) were recorded during the various site visits.



Figure 7. Bordered Sallow (*Pyrrhia umbra*), a rare moth found at West Hill Cemetery.

6. Discussion and comparison with previous years

46 plant species were recorded during the botany survey including 9 positive lowland meadow/calcareous grassland indicators. This is greater than the number recorded in 2020 with positive indicators including Cowslip, Glaucous sedge, Pyramidal orchid and Wild strawberry being recorded in 2021. However bird's-foot-trefoil was not recorded when it has been previously. This increase in plant species and positive indicators is likely to be a result of reduced cutting in 2021. The first cut is usually scheduled for May however a number of flowering species were noticed prior to the cut being undertaken. The cut was therefore avoided and in future will be scheduled for earlier in the year, prior to flowering. This really benefitted earlier flowering species including pyramidal orchids which were recorded throughout the site.

The number of slow worms has continued to increase with a maximum number of adults being 34 in 2021 compared to 24 in 2020. It is likely they also benefitted from the reduced cutting in 2021. Having said this fewer juveniles were recorded in 2021 with a max count of 11 compared to 30 in 2020. The total number recorded across all visits was also higher in 2020 at 176 compared to 101 slow worms.



Figure 8. Collection of slow worms found under one refugia at West Hill Cemetery

7. Management Recommendations

- Continue twice annual cut and collect management regime but do first cut earlier to avoid impacting earlier flowering species.
- Continue management of encroaching dogwood.

8. 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.