

WILTSHIRE WILDLIFE TRUST

SWINDON FOREST MEADOWS

Markham Banks

August 2025

1 INTRODUCTION

1.1.1 Markham Banks is a 36.3-hectare site comprising a diverse mosaic of calcareous and neutral grassland, mixed scrub, deciduous woodland, hedgerows, and aquatic features. The site includes multiple designated areas, such as Clout's Wood SSSI and six Local Wildlife Sites, and supports a wide range of notable and protected species. It lies within the North Wessex Downs AONB and spans two Local Nature Recovery Strategy theme areas, with high strategic significance attributed to medium-distinctiveness habitats. The Site's varied geology and distinctive habitat types offer strong potential for ecological enhancement and landscape-scale biodiversity gains.

Figure 1: Location Plan



Plates 1 and 2: Site Photos



2 DESK STUDY

2.1.1 Table 1 below contains the results of a desk study undertaken using the DEFRA Multi-Agency Geographic Information for the Countryside tool (MAGIC), with the Wiltshire Local Nature Recovery Strategy (LNRS) web map and the Natural England National Character Area (NCA) Map.

Table 1: Desk Study Search Results

Feature	Result
Statutory Designated Sites	Located within the North Wessex Downs AONB. Clout's Wood SSSI is immediately adjacent/partially within the Site. It is designated for the presence of ancient ash-maple-hazel woodland on steep lower chalk scarp, with a rich ground flora.
Non-Statutory Designated Sites	There are 6 LWS on Site: King's farm wood located to the north, an area of new woodland on former pasture on a north-facing chalk slope; Diocese Land WWT reserve, two fields connecting Clout's Wood and Markham Banks; Church Hill Pastures WWT reserve comprised of neutral and calcareous grassland on east facing slope; Markham Banks WWT, north facing chalk Coombe comprised of calcareous grassland; Clouts Wood WWT Reserve, area of woodland regeneration adjacent to Clout's Wood; and Markham Banks East, small chalk coombe with unimproved calcareous grassland.
Notable Species	There are 82 notable or protected species associated with the Site. This includes bird species such as fieldfare, grasshopper warbler and lapwing. Plants such as bath asparagus, meadow saffron and fly orchid. A multitude of invertebrates including marsh fritillary, small blue and brindled beauty. There are also records of slow worm, grass snake, two species of bat and various small mammals.
Priority habitat	There are multiple priority habitats associated with the Site. This includes deciduous woodland with a large area of ancient woodland (Clouts Wood) and some replanted ancient woodland, calcareous grassland and chalk stream (in the form of the source of the River Ray). There is also a large area of non-priority semi-improved grassland.
Great crested newt pond surveys	One GCN pond survey 300m west of the Site returned a positive result.
Great Crested Newt SOA	The Site is not covered by an SOA.
HLS Target Areas	The Site is not in an HLS target area. It is located in the Southwest Region Theme Area.
CS agreements	Part of the Site is/was in an Environmental Stewardship agreement.
EPS Licenses	One European Protected Species (EPS) license issued by Natural England was identified 500m southeast of the Site. It was granted for the destruction of a resting place of soprano and common pipistrelle bats for the years 2013 and 2015.
National Character Area	Upper Thames Clay Vales – open lowland farmland on Jurassic and Cretaceous clays. Statements of Environmental opportunity include implementing sustainable farming practices with a catchment-based approach.
LNRS	The north of the Site is located in the Swindon Ridge and Clay Lowlands theme area, and the south is located in the Marlborough Downs and Savernake Forest theme area. The Site is an Area of Particular Importance to Biodiversity (APIB). There are multiple HAO across the Site including the creation of more open mixed habitats, SSSI Areas, maintenance and enhancement of chalk and limestone grassland, maintenance and enhancement of woodland and associated habitats, Return Rivers and Streams to a More Natural Morphology, Reconnect them to their Floodplains, Create, Maintain and Restore River and Wetland Habitats and Improve Water Quality and improve the urban environment for wildlife. For this reason, all habitats on Site of medium distinctiveness and above have been afforded high strategic significance.

3 FIELD SURVEY RESULTS

3.1 HABITATS

3.1.1 The UKHab Plan (Figure 2) should be referred to throughout this section. No Schedule 9 Invasive Non-Native Species (INNS) were identified during the survey.

Table 2: Area Habitat Survey Results

Parcel reference	UKHab classification	Secondary codes	Condition	Description
G1	Grassland – other calcareous grassland – g2c	10 – scattered scrub 32 – scattered trees 101 – cattle grazed	Poor	Largest swathe of calcareous grassland. Areas where grazing has been successful have up to 19 species within a m ² (quadrat 1) however much of this parcel is dominated by tor-grass <i>Brachypodium rupestre</i> with low species diversity and a dense sward. Species located in quadrat 1 include common bird's-foot-trefoil <i>Lotus corniculatus</i> , quaking-grass <i>Briza media</i> , upright brome <i>Bromus erectus</i> , red fescue <i>Festuca rubra</i> , Yorkshire-fog <i>Holcus lanatus</i> , oxeye daisy <i>Leucanthemum vulgare</i> , common rock-rose <i>Helianthemum nummularium</i> , hop trefoil <i>Trifolium campestre</i> , common centaury <i>Cantaurium erythraea</i> , wild thyme <i>Thymus polytrichus</i> , selfheal <i>Prunella vulgaris</i> , hoary ragwort <i>Jacobaea erucifolia</i> , prickly sow-thistle <i>Sonchus asper</i> , mouse-ear-hawkweed <i>Pilosella officinarum</i> , ribwort plantain <i>Plantago lanceolata</i> and small scabious <i>Scabiosa columbaria</i> .
G2	Grassland – other calcareous grassland – g2c		Poor	Stretch of grassland with a short sward located between scrub. Abundant false oat grass <i>Arrhenatherum elatius</i> , with occasional tor-grass, lady's bedstraw <i>Galium verum</i> , common knapweed <i>Centaurea nigra</i> , rough hawkbit <i>Leontodon hispidus</i> , field scabious <i>Knautia arvensis</i> , common milkwort <i>Polygala vulgaris</i> , red fescue, meadow cranesbill <i>Geranium pratense</i> , ground ivy <i>Glechoma hederacea</i> , selfheal <i>Prunella vulgaris</i> , common ragwort <i>Jacobaea vulgaris</i> , woolly thistle <i>Cirsium eriophorum</i> , Yorkshire fog, common birds-foot trefoil <i>Lotus corniculatus</i> . Pyramidal orchid <i>Anacamptis pyramidalis</i> was rare throughout the sward.
G3	Grassland – Arrhenatherum neutral grassland – g3c5	32 – scattered trees 521 – unmanaged	Poor	False oat grass dominated grassland. Dense sward and unmanaged with limited forb diversity.
G4, G6	Grassland – Arrhenatherum neutral grassland – g3c5	10 – scattered scrub 32 – scattered trees	Poor	False oat grass dominated grassland with planted scattered trees. Dense sward and unmanaged with limited forb diversity.
G5	Grassland –	521 – unmanaged	Poor	False oat grass dominated grassland. Dense sward and unmanaged with limited forb

Parcel reference	UKHab classification	Secondary codes	Condition	Description
	Arrhenatherum neutral grassland – g3c5			diversity.
G7	Grassland – other neutral grassland – g3c	848 – sustainable drainage system	Poor	SUDS with sparse Yorkshire fog, white clover <i>Trifolium repens</i> , common ragwort, spear thistle and curled dock <i>Rumex crispus</i> .
G8	Grassland – other neutral grassland – g3c	16 – tall forbs 106 – mown	Poor	Area surrounding SUDS with Yorkshire fog, curled dock, spear thistle, common ragwort, cock's foot and woolly thistle <i>Cirsium eriophorum</i> .
G9	Grassland – other neutral grassland – g3c	81 – ruderal or ephemeral	Poor	Recently disturbed area of land. Sparsely vegetated at time of first survey (2024) however rapidly colonised into a species poor other neutral grassland by 2025. Yorkshire fog, cock's-foot, red clover <i>Trifolium pratense</i> , red fescue, creeping thistle, woolly thistle, welbed thistle <i>Carduus crispus</i> , common ragwort, prickly sow-thistle and broadleaved dock <i>Rumex obtusifolius</i> . High abundance of species of suboptimal condition and presence of bare ground. Substrate appears to be base-rich.
G10	Grassland – other neutral grassland – g3c	16 – tall forbs	Poor	False oat grass dominated grassland. Dense sward and unmanaged with limited forb diversity. Species include False oat grass, rough meadow grass <i>Poa trivialis</i> , hogweed <i>Heracleum sphondylium</i> , woolly thistle, creeping thistle, cock's-foot, timothy <i>Phleum pratense</i> and spear thistle.
G11	Grassland – other neutral grassland – g3c	16 – tall forbs 81 – ruderal or ephemeral 521 – unmanaged	Poor	Spear thistle and nettle dominated.
G12	Grassland – other neutral grassland – g3c	16 – tall forbs 101 – cattle grazed	Poor	Cattle grazed grassland dominated by false-oat grass. Low levels of management and evidence of nutrient enrichment in the form of creeping thistle, creeping buttercup <i>Ranunculus repens</i> and white clover.
G14	Grassland – other neutral grassland – g3c	101 – cattle grazed 124 – anthills	Poor	Cattle grazed grassland with mosaic of short (higher species diversity) and long (stands of suboptimal species (e.g.: nettle and thistle)) swards. Presence of anthills signify long-continuity of management. More preferable species present such as birds foot trefoil, yarrow, rough hawkbit and mouse-ear-hawkweed.
G15	Grassland – other neutral grassland – g3c	101 – cattle grazed 505 – inundation vegetation	Poor	Wetter area of grassland demonstrated by the presence of marsh thistle <i>Cirsium palustre</i> , hard rush <i>Juncus inflexus</i> and compact rush <i>Juncus conglomeratus</i> . Frequent nettle and creeping thistle present indicating potential nutrient enrichment.
G16	Grassland – other neutral grassland – g3c		Poor	Cattle grazed grassland with mosaic of short (higher species diversity) and long (stands of suboptimal species (eg: nettle and thistle)) swards. More preferable species present such as birds foot trefoil, lady's bedstraw, rough hawkbit and agrimony.

Parcel reference	UKHab classification	Secondary codes	Condition	Description
G17	Grassland – other neutral grassland – g3c	10 – scattered scrub	Poor	Cattle grazed grassland dominated by false-oat grass. Low levels of management and evidence of nutrient enrichment in the form of stands of creeping thistle and nettle. Occasional presence of preferable species such as red fescue, agrimony and goat's beard.
G18	Grassland – other neutral grassland – g3c		Poor	Cattle grazed grassland dominated by false-oat grass. Low levels of management and evidence of nutrient enrichment in the form of stands of creeping thistle and nettle. Occasional presence of preferable species such as bird's foot trefoil, lady's bedstraw and red fescue.
G19	Grassland – other neutral grassland – g3c		Poor	Area heavily dominated by great horsetail with rare creeping thistle and marsh thistle. Little evidence of management and access by livestock impeded by fencing.
G20	Grassland – other neutral grassland – g3c	521 – unmanaged	Poor	No access but overgrown rank grasses present.
B1	Grassland – bracken – g1c		N/A	Area of dense bracken on woodland edge.
S1	Heathland and Shrub – mixed scrub – h3h	521 – unmanaged	Moderate	Block of mixed scrub with 3 native woody species present, good transition to surrounding habitat with clearings, glades or rides present.
S2	Heathland and Shrub – mixed scrub – h3h	16 – tall forbs 32 – scattered trees 521 – unmanaged	Moderate	Block of mixed scrub with 4 native woody species present, good transition to surrounding habitat with clearings, glades or rides present.
S3	Heathland and Shrub – mixed scrub – h3h	32 – scattered trees 521 – unmanaged	Good	Block of mixed scrub with 3 native woody species present. seeding, saplings, young shrubs and mature shrubs all present. Good transition to surrounding habitat with clearings, glades or rides present.
S4	Heathland and Shrub – mixed scrub – h3h	32 – scattered trees	Moderate	Block of mixed scrub with 3 native woody species present but bramble dominant. Ride created by footpath into reserve. Seeding, saplings, young shrubs and mature shrubs all present. Good transition to surrounding habitat with clearings, glades or rides present.
S5	Heathland and Shrub – mixed scrub – h3h		Moderate	Transition area between grassland, marginal aquatic species and woodland. Abundant bramble with occasional hawthorn, goat willow and rose scattered amongst tor-grass.
S6	Heathland and Shrub – mixed scrub – h3h	505 – inundation vegetation	Good	Hawthorn, wayfaring tree, guelder rose and goat willow growing alongside river Ray.
S7	Heathland and Shrub – mixed scrub – h3h		Good	Block of good condition mixed scrub with 5 native woody species present. Blackthorn, bramble, elder, rosa sp., hawthorn, ash and hazel. Various neutral grassland species such as birds foot trefoil, yellow rattle, field scabious, common knapweed and meadow vetchling present in glades and rides.

Parcel reference	UKHab classification	Secondary codes	Condition	Description
S8	Heathland and Shrub – mixed scrub – h3h		Good	Five native woody species present including ash, hawthorn, bramble, pedunculate oak, blackthorn, white willow.
BS1, BS2	Heathland and Shrub – other blackthorn scrub – h3a6		Moderate	Areas of dense blackthorn scrub with limited species diversity.
WS1	Heathland and Shrub – willow scrub – h3j		Moderate	Crack willow, white willow, elder, hazel and nettle. Good transition to surrounding habitat with clearings, glades or rides present.
BR1	Heathland and Shrub – bramble scrub – h3d		N/A	Area of bramble scrub with occasional nettle
H1	Heathland and Shrub – other hazel scrub – h3b6		Moderate	Hazel coppice with elder and wild cherry. Bath asparagus present.
W1	Woodland and forest – other lowland mixed deciduous – w1f7		Moderate	Seven native woody species present. High grazing pressure evident in field in form of poaching and absence of ground flora/understory. Low level ash dieback.
W2	Woodland and forest – other lowland mixed deciduous woodland w1f7		Moderate	Ash, blackthorn, hawthorn, elder, bramble, populus sp. , dog's mercury, common nettle, false brome and tufted hair grass. High levels of disturbance in form of abundance of nettle.
W3	Woodland and forest – other lowland mixed deciduous woodland w1f7		Poor	Area of woodland located on south facing slope. High levels of ash dieback and therefore limited older growth trees. Species present included hawthorn, ash, bramble, common ivy, sycamore and elder.
W4	Woodland and forest – other broadleaved woodland – w1g	29 – plantation	Poor	Plantation "orchard". All same aged species composed of hawthorn, wild cherry, pedunculate oak, rowan, walnut, crab apple and ash. Understory predominantly grasses including false brome, common nettle and lords and ladies.
W5	Woodland and forest – other broadleaved woodland – w1g		Poor	Area of woodland at eastern boundary of Site comprising ash, elder, blackthorn, wild cherry and bramble. One age class present and high levels of disturbance in form of nutrient enrichment.
F1	Aquatic marginal vegetation – f2d		Moderate	Area of marginal vegetation located around the source of the river Ray. Species present included hard rush, water mint <i>Mentha aquatica</i> , common reed <i>Phragmites australis</i> , marsh thistle <i>Cirsium palustre</i> , floating sweet grass <i>Glyceria fluitans</i> , fool's water cress.

Table 3: Linear Habitats survey results

Parcel reference	UKHab classification	Secondary codes	Condition	Description
H1	Heathland and shrub – other native hedgerow – h2a6		Good	Only 3 woody species present (goat willow, elm and hawthorn). Slightly neglected with nutrient enriched ground flora (nettle).
H2	Heathland and shrub – other native hedgerow – h2a6		Good	Only 3 woody species present (goat willow, elm and hawthorn). Slightly neglected with nutrient enriched ground flora (nettle).
H3	Heathland and shrub – species-rich native hedgerow – h2a5	11 – hedgerow with trees 518 – neglected	Good	Small stretch of remnant hedgerow comprising 5 native woody species (elder, hawthorn, hazel, dog rose, ash). Large ground to base gap (>50cm) with abundance of ground flora species indicative of nutrient enrichment (nettle).

Table 4: Individual Trees

Parcel reference	Size and class	Condition	Description
T1	60cm, medium	Good	Sycamore
T2	33 cm, medium	Good	Hawthorn
T3	33 cm, medium	Good	Hawthorn
T4	37 cm, medium	Good	Crack willow
T5	37 cm, medium	Good	Pedunculate oak
T6	200 cm, very large	Good	Veteran white willow
T7	65cm, large	Good	Pedunculate oak
T8	37 cm, medium	Good	Sycamore
T9	37cm, medium	Good	Horse chestnut
T10	37 cm, medium	Good	Sycamore
T11	20 cm, small	Good	Hazel
T12	20 cm, small	Good	Hazel
T13	37cm, medium	Good	Ash

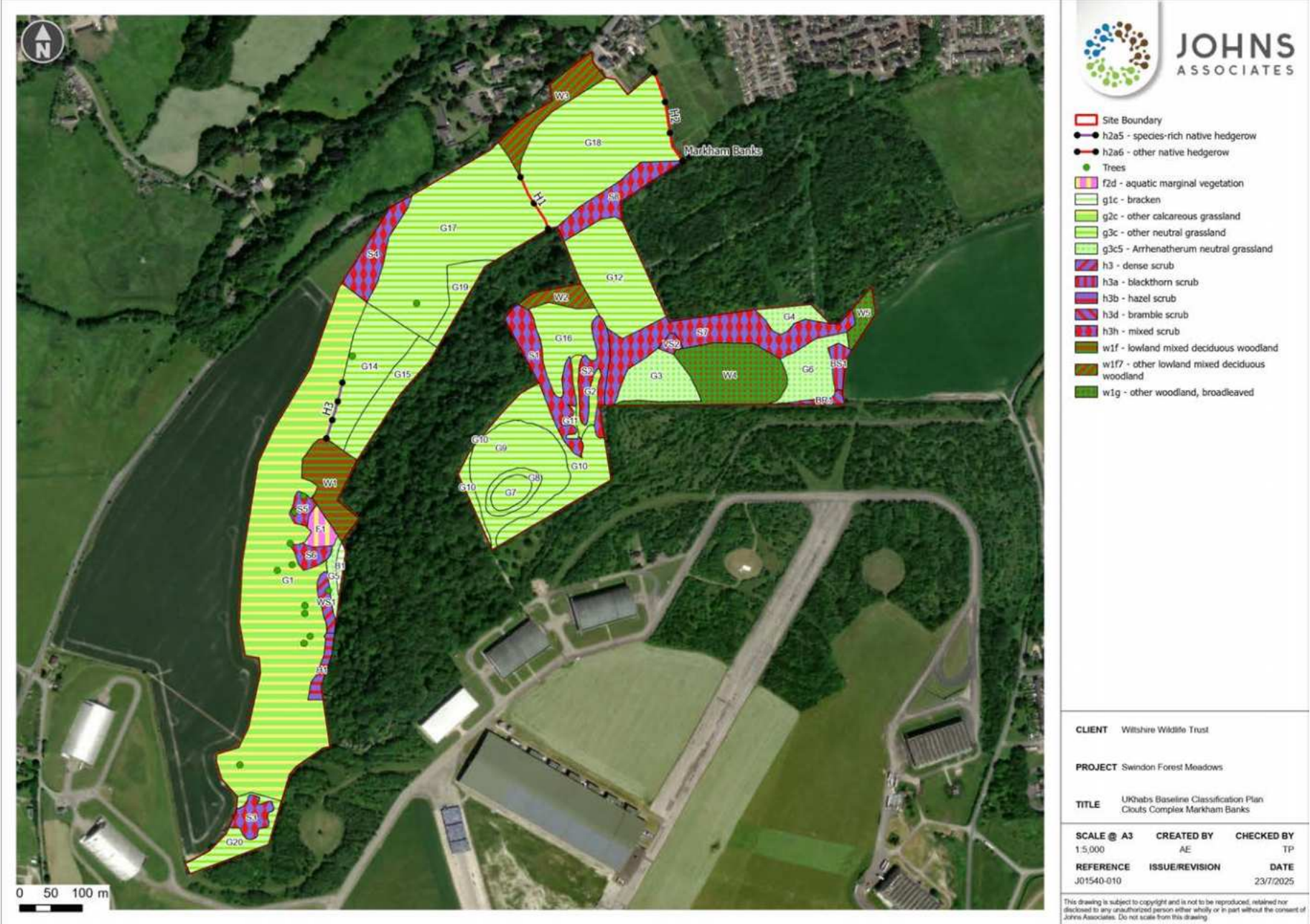
3.2 SPECIES

3.2.1 Table 5 contains the results of an assessment of the available habitats within Markham Banks to support legally protected/ notable species.

Table 5: Species Survey Results

Feature	Result
Great crested newt	One GCN license was returned within 500m of the site; however, due to the major dispersal barrier presented by a road and the absence of suitable waterbodies it is unlikely that this species is present on Site.
Dormouse	Woodland has potential for dormouse; however no records have been returned.
Breeding birds	During the Site surveys three red kites, a blackcap and a pair of bullfinches were recorded. The Site has high suitability for both common and rarer bird species.
Reptiles	The long grass, scrub and tree roots on site provide suitable refugia and there is basking habitat throughout the Site.
Bats	The Site is considered to offer very high suitability habitat for foraging and commuting bats with the presence of hedgerows, trees and watercourses that are connected to the wider local landscape. Trees offer suitability for roosting bats. The site is unlit.
Badger	There is high suitability for badger, but no evidence was noted during the Site survey.

Figure 2: Baseline UKHab Habitat Plan



4 SUMMARY BNG RESULTS

4.1.1 The habitats on Site range from low to high distinctiveness. Hedgerows on site vary from low (native hedgerow) to high (species-rich native hedgerow with trees) distinctiveness and are of good condition. All trees on Site are of good condition. The watercourse on Site was not mapped and will require MoRPH surveying to establish a typology and condition. The site has a total of 230.64 baseline habitat units over 36.44ha and 3.4 baseline hedgerow units over 0.34km.

4.1.2 There is potential to enhance many of the habitats on Site with habitats such as lowland calcareous grassland and lowland deciduous woodland providing a high potential BNG uplift.

Table 6: BNG Headline Results

	Habitats	Hedgerows
Baseline area/length	36.3ha	0.34km
Total baseline units	230.64	3.4

Table 7: Units by Baseline Habitat

Habitat	Baseline area (Ha)/length (km)	Baseline units
Bracken	0.07	0.15
Lowland calcareous grassland	7.71	53.41
Other neutral grassland	19.01	87.77
Blackthorn scrub	0.23	2.13
Bramble scrub	0.08	0.38
Hazel scrub	0.16	1.5
Mixed scrub	4.89	58.5
Willow scrub	0.16	1.49
Wetland	0.22	4.03
Lowland mixed deciduous woodland	1.8	11.04
Other woodland; broadleaved	1.7	7.84
Individual trees	0.27	2.42
Species rich native hedgerow with trees	0.09	1.93
Native hedgerow	0.25	1.47

Figure 3: Habitat Conditions



5 BIODIVERSITY NET GAIN OPPORTUNITIES

5.1 MEASURES

- 5.1.1 The Site is an Area of Particular Importance to Biodiversity (APIB). There are multiple HAO across the Site including The Creation of More Open Mixed Habitats, SSSI Areas; Maintenance and Enhancement of Chalk and Limestone Grassland; Maintenance and Enhancement of Woodland and Associated Habitats; Returning Rivers and Streams to a More Natural Morphology; Reconnect Rivers to their Floodplains; Create, Maintain and Restore River and Wetland Habitats and Improve Water Quality; and, Improve the Urban Environment for Wildlife. For this reason, all habitats on Site of medium distinctiveness and above have been afforded high strategic significance when enhanced.
- 5.1.2 When surveying the calcareous grasslands, there were some areas that achieved species rich status with regards to the number of species within a quadrat (19 species per m²), however, much of the habitat was dominated by tor-grass which suppressed the calcareous indicator species, minimising overall diversity. At present, the grazing regime was not having a significant impact, likely due to the use of low-density cattle grazing on a steep incline. In recent research published by Ridding *et al* it is suggested that tor-grass can be successfully managed through the application of herbicide or a cut and graze technique. Due to the site's proximity to a watercourse, herbicide application is not recommended. Whilst access is limited, pedestrian cutting and removal of arisings from the slopes biannually followed by grazing by a hardier species such as sheep or goats may provide a more effective form of management.
- 5.1.3 Where neutral grassland is to be enhanced, management should focus on reducing nutrient levels, improving species diversity, and maintaining a varied structure. This may be achieved through the implementation of an appropriate grazing regime or cut and collect, introducing appropriate seed mixes, and controlling species such as ryegrass, clover, thistles, docks and nettles. Mowing should be limited to once or twice a year. Bare ground should be re-seeded or protected with fencing, while bracken and bramble should be controlled if they become dominant. Invasive non-native species should be removed and disposed of responsibly, and remedial action taken where signs of damage occur.
- 5.1.4 Where woodland habitats are to be enhanced, older trees should be retained, new planting and thinning should be carried out to create a mix of age classes and maintain at least five native tree species. Lost trees should be replaced with suitable natives, while non-native invasive species should be removed and disposed of appropriately. Management should also address damage from grazing animals with fencing or guards if needed. Light levels can be improved through selective thinning and coppicing, while rides, glades, seed sowing, deadwood retention and small-scale disturbance should be used to encourage natural regeneration. All works should follow the advice of a qualified arborist, with roost features and ecological niches protected.
- 5.1.5 Figure 3 demonstrates that the Site is in an overall poor condition, with some moderate to good condition woodland and scrub habitats. The main measures that can be applied to the Site to achieve good condition are detailed in Table 8 with reference to the codes outlined in the document "Swindon Forest Meadows – Measures".

Table 8: Habitat Parcels for Enhancement and Associated Maintenance Measures

Woodland		Grassland – high distinctiveness	
Measure	Habitat Parcels	Measure	Habitat Parcels
Woodland A	W3, W4, W5	Grassland A	G1 – G20
Woodland B	W1, W4	Grassland B	G3, G4, G5, G7, G10, G11, G20
Woodland C		Grassland C	G1, G7, G8, G9,
Woodland D	W3, W5	Grassland D	G1, G4, G6, G20,
Woodland E		Grassland E	All but G3
Woodland F	W3, W5	Grassland F	G1 – G2
Woodland G	W1 – W5		
Woodland H	W1, W2, W3, W4, W5		
Woodland I	W1 – W5		
Woodland J	W1 – W5		
Woodland K	Not achievable		
Woodland L	W1 – W5		
Woodland M			

Table 9: Targeted Maintenance Measures

Maintenance Measures	
Grassland – Medium – High Distinctiveness	
Measure	Maintenance
Grassland A	Cut and collect and grazing to reduce nutrient enrichment. Introduction of species relevant to habitat type through sowing of appropriate seed mix. Management including removal of perennial ryegrass, white clover and non-desirable species including creeping thistle, spear thistle, curled dock, broad-leaved dock, common nettle, creeping buttercup, greater plantain and cow parsley.
Grassland B	Frequency of mowing kept to once or twice per year. Introduction of low intensity grazing to create diverse sward height.
Grassland C	Re-seed areas where bare ground is present or consider fencing areas where bare ground from damage eg footfall or vehicles is a problem.
Grassland D	Where >20% bracken and >5% bramble is present it will be removed.
Grassland E	Where species indicative of suboptimal condition or physical damage is >5%, remediation measures will be implemented eg. Removal of species, provision of fencing and cessation of damaging activities. Removal of any invasive non-native species (INNS) and dispose of as controlled waste.
Grassland F	Appropriate cutting regime implemented and where possible a suitable seed mix applied.

Maintenance Measures	
Woodland	
Measure	Maintenance
Woodland A	Older trees retained. Trees to be thinned and new trees planted in years 10, 20 and 30.
Woodland B	Monitoring will identify any damage from wild, domestic or feral herbivorous animals. Management as required to address any issues as they arise and may include the use of fencing or tree guards (as appropriate to the size of the tree).
Woodland D	Monitoring to ensure 5 or more native tree species are maintained within the woodland. Where the loss of one species (e.g. through disease such as ash dieback) occurs, new trees will be planted within the woodland to ensure a pass in this criterion.
Woodland F	Creation of rides and glades created where woodland is of sufficient size.
Woodland G	New trees to be planted every 5 – 10 years and woodland thinned where required to enable three age classes to be present
Woodland H	Inspections by a suitably qualified and experienced arborist. Recommendations for necessary tree works to ensure continued tree health will be implemented during the following optimal season. All works to be carried out by an experienced arborist. Potential Roost Features and ecological niches are to be retained or translocated and over management discouraged.
Woodland I	Opening up of canopy to increase light to woodland floor. Coppicing to create temporary open space. Introduction of seed mix relevant to tree species composition where necessary. Rotational management. Small scale ground disturbance to stimulate germination and stacking of deadwood to ensure open ground.
Woodland J	Trees to be thinned and new trees planted in years 10, 20 and 30. Coppicing of individuals to provide structure.
Woodland K	Where possible, older trees can undergo veteranisation by a suitably qualified arborist. This involves the creation of cavities and other ecological features.
Woodland L	All deadwood will be retained within the woodland. Thinned trees will be left on the ground. Dead hedges may be created from brash. Standing deadwood retained where not a health and safety concern.

5.2 TARGETED OPPORTUNITY FOR BIODIVERSITY UNIT UPLIFT

5.2.1 A medium intensity scenario was run through the DEFRA BNG metric. This included:

- Enhancement of poor condition grassland habitats to moderate condition
- Enhancement of woodland to moderate and good condition

5.2.2 As a result, Markham Banks could achieve a 50.66% BNG with a total net unit change of 105.56 and a provision of 23.94 high distinctiveness units and 105.56 medium distinctiveness units.

6 IMPACT ASESMENT OF SUITABILITY FOR TREE PLANTING AND CLIMATE FUNDING

6.1.1 Table 10 presents a range of potential positive and negative factors associated with each landscape element, highlighting both opportunities and constraints for environmental outcomes.

Table 10: Potential Positive and Negative Factors of Tree Planting Intervention

Landscape Element	Positive Factors	Negative Factors
Biodiversity	Supports woodland species; creates habitat diversity; improves resilience; diversifies age range; potential for ecological corridors.	May displace species associated with open habitats; risk of introducing invasive tree species; risk of introducing disease; shading effects on ground flora.
Landscape Character	Enhances visual interest; contributes to landscape structure and seasonal variation.	May alter open character of landscape; potential visual intrusion in sensitive areas.
Soil Health	Improves soil structure and organic matter; reduces erosion.	Tree roots may compete with existing vegetation; potential for soil compaction during planting.
Water management	Improves infiltration and reduces surface runoff; supports natural flood management.	May reduce water availability for adjacent habitats; risk of altering hydrology in wet habitats; use of water resource to establish.
Carbon Sequestration	Long-term carbon storage in biomass and soils.	Carbon benefits may take decades to accrue; initial disturbance may release soil carbon.
Recreational value	Provides shade and shelter; enhances visitor experience; supports nature-based activities.	May restrict open space use; potential safety concerns from falling branches or dense cover.
Conflicts with existing land use	Can complement conservation grazing or buffer sensitive areas.	May conflict with existing management plans; loss of open habitat for ground-nesting birds.

6.1.2 Table 11 below presents an impact assessment evaluating the suitability of onsite habitats for tree planting and eligibility for climate funding. Values ranging from -2 to 2 are used to indicate the degree of impact on each landscape element, with negative values representing adverse impacts, positive values representing beneficial impacts, and values closer to zero indicating minimal or neutral effect. Scores above 3 may be considered as particularly favourable and worthy of further consideration for tree planting.

Table 11: Assessment of Tree Planting Impacts on Relative Habitats

Landscape Element	Grassland		Woodland	
Biodiversity	-1	May reduce open-grassland species, introduce invasives, or limit ground flora through shading, loss of high distinctiveness habitat.	2	Replanting areas subject to ash dieback
Landscape Character	-1	May alter open character of landscape; potential visual intrusion in sensitive areas.	1	Restocking of woodlands to enhance visual interest
Soil Health	1	Improves soil structure and organic matter; reduces erosion.	1	Prevents erosion where thinning and removal has been undertaken
Water management	1	Improves infiltration and reduces surface runoff; supports natural flood management.	1	Reduces surface runoff where removal has been undertaken
Carbon Sequestration	-2	May release soil carbon stocks from unimproved grasslands	1	Replacement for trees being lost to ash dieback
Recreational value	0	Provides shade and shelter; enhances visitor experience; supports nature-based activities. However May restrict open space use; potential safety concerns from falling branches or dense cover.	0	Provides shade and shelter; enhances visitor experience; supports nature-based activities. However May restrict open space use; potential safety concerns from falling branches or dense cover.
Conflicts with existing land use	0	Currently used as grazing pasture so would result in loss of such, low intensity planting may provide shade and shelter	1	Replacement for trees being lost to ash dieback
Outcome of Suitability	0		7	

6.1.3 Based on the results of the impact assessment, woodland has been identified as potentially suitable for tree planting. Such planting could promote regeneration, replace trees lost to ash dieback and prevent erosion and runoff of currently unstable soils. Planting should generally be avoided on the calcareous grassland areas as this could result in the loss of a high distinctiveness habitat and alter the soil biology of unimproved grassland habitat.

7 CONCLUSIONS

- 7.1.1 Markham Banks comprises a rich and varied landscape of unimproved and semi-improved grassland, scrub, woodland, hedgerows, and watercourse features, with habitats ranging from low to high distinctiveness and conditions from poor to good. The site supports a wide variety of notable species, including birds, bats and invertebrates, and contains areas of ancient woodland and calcareous grassland of high ecological value.
- 7.1.2 Designated as an Area of Particular Importance to Biodiversity within the Local Nature Recovery Strategy, Markham Banks is recognised as a priority site for the enhancement of open mixed habitats across calcareous soils. Recommended measures include restoring calcareous grassland through the introduction of a cutting and grazing regime, improving woodland structure and health and maintenance of good-condition scrub habitats. Selective tree planting in open grassland areas may further enhance habitat connectivity and ecological resilience. With targeted management, Markham Banks can deliver substantial biodiversity net gain, strengthen habitat networks, and continue to serve as a key ecological asset within the wider landscape.