Nigel Hand
Central Ecology
45 Albert Road
Ledbury
Herefordshire
HR8 2DN
01531 636033

Bromyard Downs Reptile Survey

April - August 2014

Commissioned by Bromyard Downs Project

Herefordshire Nature Trust

Bromyard Downs Reptile Survey

Survey undertaken by Nigel Hand

1.0 Executive Summary

1.1 Three of the 'widespread reptile species' were located on this survey; grass snake, slow-worm and viviparous lizard. All are National BAP species.

The total counts were:

40 x reptiles
31 x Viviparous lizards *(Zootoca vivipara formerly Lacerta vivipara)*
6 x Grass snakes *(Natix natrix helevetica)*
3 x Slow worms *(Anguis fragilis)*

1.2 The most conclusive evidence from this short survey was the fact the viviparous lizard is well dispersed across the site, but particularly so on the less disturbed areas. The viviparous lizard is a localised species within Herefordshire and Worcestershire.

Herefordshire is very much an agricultural landscape and the viviparous lizard is indicative of good heath and bracken habitats - a rapidly declining habitat in the West Midlands.

1.3 No adders *(Vipera berus)* were located on this survey and there are no historical records for the species here currently held within the Herefordshire Biological Records Centre. It could have been here in the past and there are anaecdotal reports but snakes and reptiles generally are some of the most miss-identified wildlife species. The complete change of the landscape over the last century with two major roads fragmenting the common and growth in-housing leading to greater footfall across the Downs will have exacerbated extinctions

1.4 There are no records for adder on any of the other nearby areas of Brockhampton Estate, Bringsty, and Badley Wood. Once habitat is fragmented, isolated and important foci areas lost local extinctions are inevitable. This is a species highly sensitive to change. As the adder has not been found on any of the other local sites recently it is unlikely to colonise and increase in numbers on The Downs.

1.5 As a site for possible reintroduction/introduction of adder I would certainly not think it wise as the habitat is now too fragmented with increasing public pressure and would therefore not support a good genetically diverse population structure. I feel this is unlikely to become any less pressured in the near future.

1.6 It is recommended that local people living on The Downs are encouraged to appreciate reptiles and send in records of any reptile sightings to help confirm species presence and locations.

1.7 Management of bracken should be undertaken sensitively and not to the detriment of the current reptile populations due to greater focus on other species. The aim should be to improve connectivity and linkage between areas by retaining long and short vegetation and not huge expanses of 'tidy, short' grassland which become more attractive as amenity areas.

The future aim must focus on improving habitat connectivity for the current species of reptiles on Bromyard Downs linking to other near suitably managed areas the Brockhampton Estate and Bringsty Common by forging good relationships and creating 'habitat bridges' This will lead to greater genetic variability amongst species.

1.8 In the long term the management regime should be reviewed by further herpetofauna survey to understand if the targeted works are benefitting the three species.

2.0 Introduction

2.1 Bromyard Downs Reptile Survey was commissioned by Hannah Welsh, project officer for The Bromyard Downs Project Herefordshire Nature Trust to record reptile species presence and locations to ensure correct future management.

2.2 Bromyard Downs is an area of common land north east of Bromyard in Herefordshire. The Downs form a long 's' shaped hill, rising to over 700 feet high, closely linked to the National Trust's Brockhampton Estate, on to Bringsty Common and historically Badley Wood Common.

2.3 The Downs have always been popular as a recreational area in the past with a golf course and in Victorian Times a race course situated on the largest area of the common between the B4203 and the A44. Today the Downs are popular as a scenic walk with huge numbers of tourists and dog walkers.

2.4 The Council managed Bromyard Downs until 2012 when a commons association formed the Bromyard Downs Common Management Association (BDCA) and after the success of the Herefordshire Community Commons Project approached the Nature Trust to work in partnership with them to restore habitats and wildlife.

2.5 Bromyard Downs covers an area of 114 hectares consisting of a mosaic of habitats. The Downs has large areas of south west facing slopes of grassland & bracken, small areas of gorse and heather heathland, quarries and scattered woodland areas. The Common is bisected by the A44 Bromyard to Worcester road and scattered housing on the lower slopes of the Common closest to Bromyard.

2.6 The Downs, as with Bringsty Common, is split at the southern tip by the A44 Leominster to Worcester road. The Downs is again also bisected at the northern end by the B4203. Housing is scattered along the western boundary lower slopes closest to Bromyard. Improvements in road access has made the Downs and surrounding Bromyard areas easily accessible to more people from a wider area.

3.0 The Widespread Reptile Species

3.1 Adder or Northern Viper *(Vipera berus)*

- This is Britain's only venomous snake, measuring 50 – 75cm. The male has a silvery white background colour which is most apparent between April and May. The male is smaller than the female, which is more thick set, brown and with a lighter zigzag both sexes have a distinctive zig zag line down their back. Recent long term monitoring studies have indicated that the adder can live to over 30 years.

- It is found primarily on heathlands, acid grassland and woodland rides. The adder's active period in the Midlands is from mid February through to October. Male adders emerge first when the temperature steadies at between 8°C and 10°C. In the winter months they hibernate at regular sites where aggregations are possible and can often be found hibernating with other species of reptile or amphibian. Female adders give birth to live young in late summer and early autumn, usually close to or at the hibernaculum. In a cool summer the adders can delay birth until the following spring (*Hand N, Herpetological Bulletin 125 2013*).

- Prey species for the adder include voles, mice, amphibians, lizards and occasionally small birds or fledglings. Predators are birds of prey, corvids, pheasants, foxes, hedgehogs, badgers and other mustelids, but also persecution by mankind. Their national decline is very evident in the Midlands with low population numbers of this BAP priority species. Many

grassland and scrubby hillside sites have been overgrazed, heavily cut or lost to development, denuding reptile sites of good cover, foraging areas and hibernaculums. In Worcestershire and Herefordshire the adder has a Local Biodiversity Action Plan. The adder was recently declared the UK reptile species under the most dramatic decline across the UK in 2011.

3.2 Grass snake or Ringed Snake *(Natrix natrix)*

- At 60 – 120cm in length this is Britain's largest snake. They have an olive or grey green background colour with a black and white chequered pattern underside and a black and yellow/orange collar behind the neck, although on older specimens this isn't always as noticeable. They are egg layers; using compost heaps, collapsed vegetation and manure piles to lay up to 40 leathery shelled eggs between June and August. Grass snake habitat is usually near water or damp areas but they can, surprisingly, be found on dry heath land. Prey items include frogs, toads, newts, fish, rodents and small birds. They are a National BAP Priority Species.
- Grass snakes are predated on by buzzards, pheasants, corvids and mustelids. Hazards can also come from crossing roads on the search for egg laying sites or favourable summer foraging areas and from general persecution that all snakes face.

3.3 Slow-worm *(Anguis fragilis)*

- The slow-worm is a legless lizard of 30-50cm in length. It has a polished, cylindrical appearance with a copper, bronze or mahogany body colour. The females tend to have darker flanks and a smaller head. Although regularly mistaken for snakes these have the short, broad tongue and eyelids of all lizards. When handled they are not as supple or as sinuous as snakes.
- They are live bearers, having between 5 and 25 young during August/September and can be found in large populations. They prey mainly on slugs, earthworms and other invertebrates. Slow-worms are long lived reptiles with a record of a captive animal living for over 50 years. Their predators are birds; raptors, corvids and pheasants. Slow-worms are less conspicuous than other reptile species spending the majority of their time hidden in top layer of vegetation and soil. The slow-worm has a Local Biodiversity Species Action Plan in Worcestershire.

3.4 Viviparous or Common Lizard *(Zootoca vivipara/Lacerta)*

- This is a small typical lizard of 10 – 15cm in length. It has a brown or greenish body colour, broken up by light and dark spots. The underside of the belly is yellow or orange with dark spots on the male and cream coloured on the female. The vertebral stripe is also usually more pronounced on the female.
- Prey species include spiders, grasshoppers and other invertebrates. The viviparous lizard has the ability to shed its tail and regrow another, like the slow-worm. They are live bearers, having between 3 and 11 young, born covered in a thin membrane, as with the slow-

worm and adder.

- The viviparous lizard is sparsely distributed throughout the West Midlands. And as much a concern as the adder as both species being linked to the same habitats. Loss of habitat, overuse of chemical herbicides, insecticides and gradual tidiness have led to losses in viviparous lizard numbers.
- If a site is grazed heavily or over-managed lizard numbers dramatically drop over a short period as has been observed on other sites in the UK. They obviously need a good diverse habitat structure of long and short vegetation with plenty of invertebrate species.

4.0 The law and reptiles

4.1 The four widespread reptile species have recently become Priority Biodiversity Action Plan Species due to concerns in their national decline. The adder and slow-worm are Local Biodiversity Action Plan Species in Worcestershire and the adder LBAP species in Herefordshire due to local scarcity.

4.2 The adder and viviparous lizard are two species particularly associated with lowland heathland sites, a Priority Habitat within the Midlands.

4.3 Reptiles are covered by the Wildlife & Countryside Act 1981 (as amended) and the Countryside & Rights of Way Act 2000 (CRoW), protecting them from reckless and intentional harm, killing or sale. The U.K. Priority Biodiversity Species Action Plan 2007 includes the following common reptile and amphibian species:

Slow-worm *(Anguis fragilis)*
Viviparous lizard *(Lacerta/Zootoca vivipara)*
Adder *(Vipera berus)*
Grass snake *(Natrix natrix)*
Common toad *(Bufo bufo)*

5.0 Historical knowledge of adder distribution in Herefordshire and Worcestershire

5.1 There are no records held for adders past or present at Bringsty Common, Brockhampton, or Bromyard Downs in the Herefordshire Biological Records Department. Local anecdotal knowledge indicates historical presence in these areas. Some reports may result from misidentification. This species would certainly have had a larger distribution in the past and was likely present within this landscape before Bromyard's population grew and the landscape more intensively managed.

5.2 Adders were said to occur on Badley Wood Common. I surveyed this site for the Herefordshire Nature Trust Community Commons Project in 2006 and adder were not found, although the other three widespread reptile species were present. Numbers of released pheasants have been observed on this common over recent years and these will have had a negative effect on the numbers of young lizards and snakes.

5.2 I have since surveyed both Bringsty Common and the woodlands of Brockhampton. During those surveys I found no adders or even signs to their presence (sloughed skins). There is anecdotal reports for their previous existence on both locations but I believe they have followed the familiar trend of the West Midlands and declined to such an extent on both sites

that a viable population is unlikely.

5.3 Adders still occur on the contiguous range of the Malvern Hills but are still fairly localised to particular spots. They were recorded on many more sites in Herefordshire and Worcestershire in the past but agricultural intensification, urbanisation, along with human persecution, has taken a heavy toll on this snake species. Adders are localised within the West Midlands and have been completely lost from some counties (Warwickshire) and are down to less than a handful of populations in Staffordshire and throughout Central England. They appear to be maintaining minimum viable populations within the larger woodland blocks such as the Wyre Forest or wilder border habitat within Herefordshire and Worcestershire. This is a particularly worrying trend. Unfortunately the species receives only scant protection with habitat or hibernacula not protected. There is an urgent need for greater priority for this species in the west Midlands.

5.4 A source for past local records is the book (*The Life History of British Serpents and Their Local Distribution in the British Isles.* Gerald R. Leighton William Blackwood and Sons Edinburgh and London MCM1 1901). Leighton compiled knowledge of adder sightings by corresponding with various county naturalists throughout the UK. Old Storridge is mentioned as a site with adders and I have seen a photo of a female adder there taken in early 2006, but they are now likely lost or numbers so low that the population is not viable. Ankerdine Hill and Knightwick were also referenced in Leighton's book. There were probably many more populations over Herefordshire and Worcestershire when the landscape was linked with woodland and less intensively grazed and farmed.

6.0 Survey methodology.

6.1 A reptile survey should be conducted in optimum weather conditions; 10-18°C, intermittent sunny spells or sunny periods between showers and undertaken during the main reptile activity months of March to Early October. Hibernation for most reptile species is from November to March brought on by the onset of colder conditions. The adder and viviparous lizard are active from mid February as these species are more cold tolerant with a more northerly distribution over Europe compared to the other species

6.2 To aid detection a combination of refuges (felt squares and old corrugated tin sheets) are located in suitable areas. Reptiles are attracted to these refuges for thermoregulation. Reptiles are ectotherms and will utilise a warm substrate for basking and use any advantage such as tin or felt to maximise heat absorption over a shorter period, especially during milder overcast periods. It is important that refuges are situated in correct areas for reptiles to find them and to warm effectively. As well as refuges the most suitable reptile habitat would be noted and transects walked and scrutinised on every visit.

6.3 The survey was commissioned in 2014. Refuges were laid in early April 2014 and the survey visits undertaken during April, May & July, ensuring the optimum reptile activity periods were covered

6.4 Five survey visits were made, following current recognised survey methodology (*Herpetofauna Workers Manual, Froglife*). A total of 39 refuges were laid over the comXmon, 7 tins and 32 felts. The felts were large, up to a 50cm x 100cm and tins 117cm x 83cm.

6.5 Parkhead, above the B4203, was an area focused on due to the abundance of heathland vegetation species here. The southern end of the common, below the A44 was also an area of interest as this was isolated from the main common by the road.

6.6 Refuge locations (see table)

6.6 Refuge location table

Refuge No:	Grid Ref	Location	Acc. Mtrs	Elev. Mtrs.
Park Head Area				
FELT 1	6705 5637	Park Head	5	200
FELT 2	6713 5635	In gorse & bramble	6	193
FELT 3	6715 5634	Near bracken	6	195
FELT 4	6707 5639		5	200
FELT 5	6716 5638	Lower down site towards road	5	192
TIN 1	6706 5635	Grass land, edge of bracken	7	212
TIN 2	6710 5636	Bracken area	5	198
TIN 1	6695 5637	Gorse with grass & ant hills	7	201
TIN 2	6697 5639		7	203
FELT 6	6697 5638	In amongst tree saplings & gorse	8	203
FELT 7	6696 5639		8	205
FELT 8	6696 5640		9	203
FELT 9	6695 5640		10	203
FELT 10	6695 5640		9	202
Racecourse 9				
FELT 11	6725 5581	Within rosebay willowherb	9	201
FELT 12	6729 5582	Top of racecourse, within bracken	8	210
FELT 13	6730 5583	Within gorse	7	217
FELT 14	6727 5583		10	218
FELT 15	6725 5589		11	216
Near Brockhampton Primary				
FELT 16	6738 5452		9	204
FELT 17	67385462		11	209
FELT18	67385460		10	210
TIN 17	6737 5460		9	208
FELT 19	6738 5452	Descending down hill, on bank in bracken & grass	7	196
FELT 20	6735 5450		7	195
FELT 21	6782 5447	Further down hill	5	193
FELT 22	6744 5451	Near birch, oak, bramble & bracken	16	203
FELT 23	6743 5450		16	198
FELT 24	6744 5448		15	199
FELT 25	6744 5446	Bracken	15	198

Refuge No:	Grid Ref	Location	Acc. Mtrs	Elev. Mtrs.
FELT 26	6741 5443	Just above 27, off path	15	154
FELT 27	6741 5443		14	191
Below A44, lowest section of common				
FELT 28	6779 5427	Bracken, nettles & bramble	9	155
FELT29	6779 5427		9	155
FELT 30	6777 5424	Off side of track, on bank	8	181
FELT 31	6768 5420	Amongst young birch & bracken	10	178
FELT 32	6768 5418	Lower down from 31	9	163
TIN 1	6776 5419	Bracken area, middle of site	11	171
TIN 2	6775 5421		13	174

7.0 Results

7.1 Tables of results

Species	Grid ref	Date	Qty	Comments
Viviparous lizard Adult male	SO6692 5505 Acc. 7m, Elev. 201m	29/04/14	1	Found off descending path in bracken, bramble & rosebay willowherb
Grass snake Male	SO6692 5505 Elev. 200m	29/04/14	1	Basking in bracken. Just fed as recent prey item visible. Seen below road, near quarry
Viviparous lizard 2013 young	SO6688 5508 Acc. 8m, Elev.181m	29/04/14	1	
Viviparous lizard	SO6693 5513 Elev. 211m	29/04/14	1	In bracken, honeysuckle, dead wood & moss
Viviparous lizard 2013 young	SO6704 5634 Acc. 7m, Elev. 197	29/04/14	1	He was at Parkhead, in long grass, gorse & heather
Viviparous lizard Juvenile	SO6706 5637	29/04/14	1	On Park Head, on felt refuge 1
Viviparous lizard Juvenile	SO6705 5638 Acc. 5m, Elev. 204	29/04/14	1	Within tussocky grass land. Parkhead
Viviparous lizard Adult	SO6706 5639 Acc. 5m, Elev 204m	29/04/14	1	Parkhead. On gorse & grassland
Viviparous lizard Adult	SO6709 5643 Acc. 5m, Elev. 202m	29/04/14	1	Parkhead. Near wall between Estate & Common
Viviparous lizard Juvenile	SO 6706 5633 Acc. 5m, Elev. 205m	29/04/14	2	
Viviparous lizards Juvenile	SO6699 5640 Acc. 5m, Elev. 204m	29/04/14	1	Parkhead. Across the track from houses. Basking on ant mound
Common Toad Juvenile	SO 6695 5637 Acc. 5m, Elev. 202m	29/04/14	1	Under a tin Park Head
common Lizard Juvenile	6695 5637 Acc.5m, Elev. 202m		1	Tusocky grassland gorse & heather
grass snake Juvenile	SO6777 5424 Acc. 5m, Elev. 185			Section of Common south A44

species	Grid ref	date	Qty.	comments
Grass snake Sub adult	SO6691 5505 Acc. 8m, Elev. 169	20/05/14	1	Off path in bracken & rosebay willowherb. Coming up to sloughing skin
Viviparous lizard Juvenile	SO6715 5633 Acc. 6m Elev. 201m	20/05/14	2	Park Head
Grass snake juvenile	SO6697 5639 Acc. 6m, Elev 201m	20/05/14	1	Park Head. Under felt 6. Prey bulge visible
Viviparous lizards	SO6697 5639 Acc. 6m, Elev 201m	20/05/14	3	
Viviparous lizards	SO6724 5595 Acc. 5m	20/05/14	3	In gorse & heather. Top of racetrack
Viviparous lizards Juvenile	SO6724 5595 Acc. 5m Elev. 217m	20/05/14	3	Top of common in scrub area.
Viviparous lizard Juvenile	SO6705 5639 Acc. 6m, Elev.	03/07/14	1	Park Head in gorse & heather
Viviparous lizard Juvenile	SO6706 5640 Acc. 5m, Evev. 207m	03/07/14	1	
Grass snake adult	SO6779 5427 Acc.9m Elev.155	03/07/14	1	Under felt 28. Below telegraph on south side of A44
Slow worm adult male	SO6738 5462 Acc. 11m, Elev.	03/07/14	1	Under Felt 17
grass snake Juvenile	6777 5424 Acc. 8m, Elev. 181	03/07/14	1	Under felt 30. Situated near track. South side of A44
Viviparous lizard Sub adult male	SO6737 5460 Acc. 13m, Elev.	15/07/14	1	Under tin
slow worms Juvenile	SO6738 5452 Acc. 7m, Elev.	15/07/14	2	Felt 19
Viviparous lizards Gravid female	6741 5459 Acc. 17m, Elev. 171m	15/07/14	2	Edge of Path approx. 50 feet from road
Viviparous lizard Adult female	6742 5459	15/07/14	1	Basking edge of path near bench
Viviparous lizard Newborn	SO669 555 Acc. 6m, Elev.	06/08/14	2	On roadside verge

7.2 This Survey revealed conclusive presence for 3 of the four widespread reptile species Viviparous lizard slow-worm and grass snake (2 lizard species and 1 snake species) and evidence all presently breeding.

7.3 Adder results summary

- No adders were recorded during the five visits undertaken on this survey.
- Report of a possible adder sighting was made at the northern edge of the Downs. This is yet to be confirmed with a photo.
- No sloughed skins of adders were found over the survey period. Adult adders shed their skins 3-4 times throughout a year particularly in mid April and no skins were ever found over the site.
- A record search was undertaken by Herefordshire Biological Records for any past recorded sightings of adders on Bromyard Downs, Bringsty and Brockhampton. There are no documented sightings on record. Perhaps in the past they were known on the sites but none bothered to document locations. This highlights the need for wildlife recording .
- There is anecdotal talk of adders on all of these sites with locals recalling adder presence in the past. This could well be true as the habitat is typical for the species and much the same as current adder habitat on the nearby Malvern Hills. Correct identification of any reported snake sightings is essential information and must be encouraged from the local public particularly if validated by good photo.
- Significant adder prey evidence with numbers of lizards found across the Downs. Viviparous lizards are a predominant initial prey of juvenile adders.
- Voles and pygmy shrews were found under most tins and felts and nearly every refuge had evidence of rodent activity or nests so there is no lack of suitable small mammal prey species.

7.4 Grass snake results summary

- 6 grass snakes were found; 2 adults, 3 juveniles and 1 sub adult. The variation in age class is evidence this species is currently breeding on the Downs.
- No sloughed skins were found on this survey.
- This species was found both on the northern section, southern section and within the central common. It is likely this species is over the whole site as it is more mobile than most of the other reptile species, particularly slow-worm and adder. Grass snakes will move large distances to locate egg-laying sites and wetter foraging locations.
- Grass snakes were found under refuges on this survey felt at Parkhead .and under felts on northern end below the A44, the rest were visual observations.
- Two of the grass snakes found on this survey had recent prey bulges indicating they had recently fed It is strongly suspected toads are the mainstay on the downs . Toads are a significant part of the Malvern Hills grass snake prey.

7.4 Slow-worm results summary

- There were only 3 slow-worms recorded; 1 adult male and 2 juveniles

- Numbers of slow-worm sightings was very low considering the quality of the habitat. There is possibly good cover amongst collapsed bracken thatch making detection harder. Perhaps previous bracken control operations may have severely impacted this species as it the least able to avoid compaction and crushing .

- All slow-worm sightings were under felt and within the middle area of the common. Surprisingly the species was not detected at Parkhead or below the A44 in the south. No slow-worms were observed in the open on walked transects.

7.5 Viviparous lizard results summary

- Viviparous lizards were the most regularly seen reptile species over the whole site. This is extremely positive as this, along with the adder, are much more restricted in the county due to the largely agricultural landscape. They are a typical heathland species which Herefordshire has little of.

- 31 sightings in total across the Bromyard Downs.

- They were found at every location surveyed. The best location for lizards was Parkhead, amongst the gorse, heather, bracken and rough grassland good numbers were also seen along the head land area above the race course on the middle section of the common again this is a structure of gorse, heather and bracken. They may not be so abunndant on the other areas to the northern end of the common as this area has received more intensive management in the past. Generally close to houses they are subjected to predation by free range chickens or domestic cats which can become proficient at catching reptiles.

- The age structures recorded were: 13 adults, 1 sub adult, 13 juveniles, 2 young (2013) and 2 x newborn (2014).

- Young and adult viviparous lizards were recorded. Including young from 2014, indicating this species is currently breeding on this site. This is encouraging information.

- Two of the lizard sightings were at a refuge placement, 1 lizard found under tin, and 1 on top of felt.

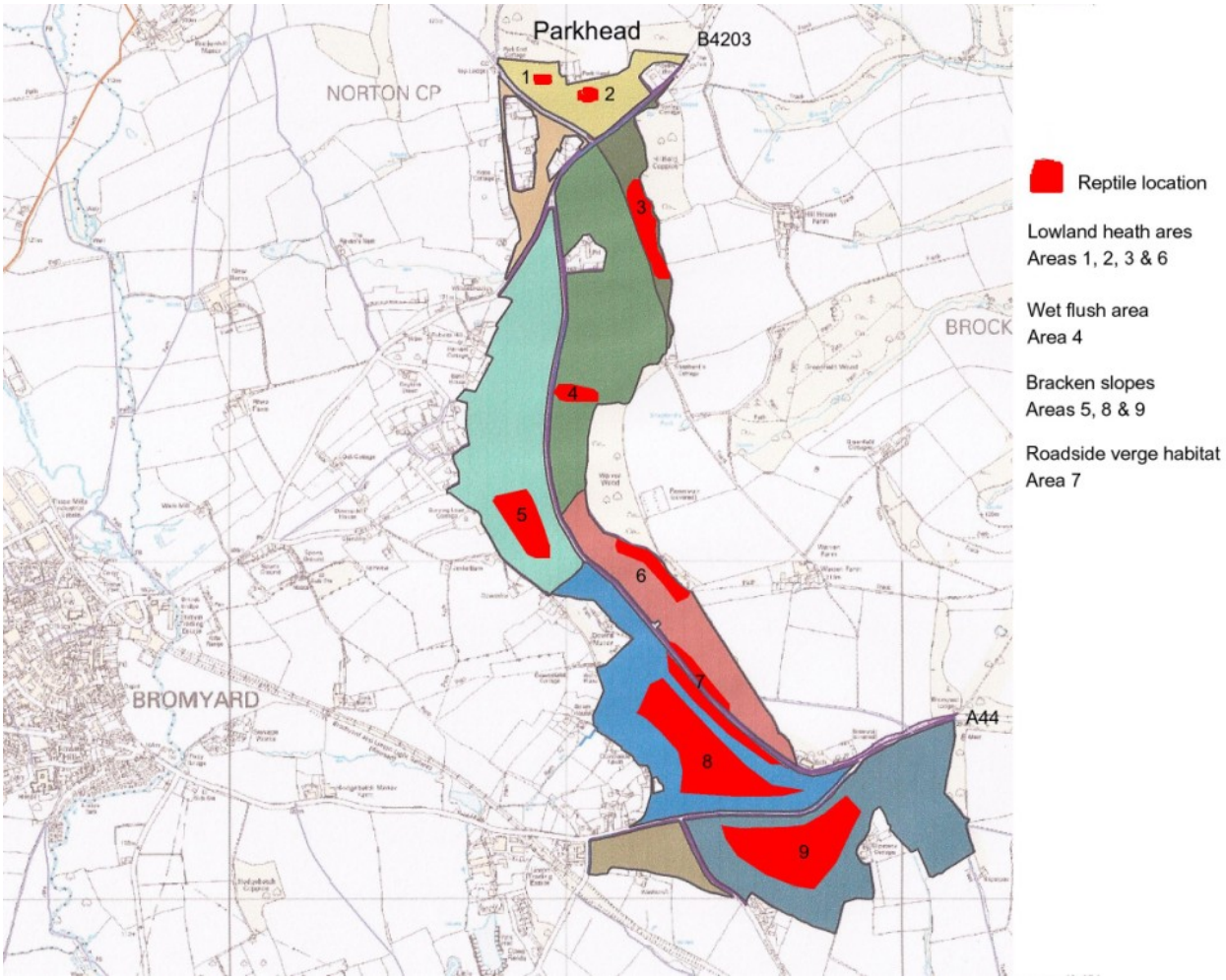
- 29 of the lizard sightings were visual transect observations amongst vegetation proving the need to search suitable habitat in addition to using refuges.

- Lizards were particularly found on bracken litter and within long grassland in both wet and dry areas. Most lizard observations were on the interface areas of long and short vegetation near path transect edges. Thy were also found regularly along the roadside verge which runs through the middle of the common from Brockhampton Primary School to Parkhead.

8.0 Reptile Habitat Map

See next page

8.1 Reptile locations found on survey



9.0 Summary

9.1 Five survey visits were undertaken following currently recognised survey methodology. Refuges (7 tins and 32 felts) were placed over the common and positioned in the most suitable locations. Refuges were given over two weeks bedding in period before they were checked on the first survey visit. As well as checking refuges, favourable reptile habitat and transects were identified and checked on every visit . All visits were carried out during favourable reptile weather conditions and temperatures (min temp. 10°C, max temp. 20°C) during the peak reptile activity seasons of Spring /early Summer 2014.

9.2 The survey found the three 'widespread' species; Grass snake, slow-worm and viviparous lizard currently breeding on the common. Viviparous lizard was the most regularly seen reptile species on the Bromyard Downs. Slow-worm numbers were unexpectedly low during the survey. No adder or evidence of adder (sloughed skins) were located on any of the five survey visits.

9.3 The northern section on this survey was the most productive.

9.4 Refuges produced low results, particularly for viviparous lizard and grass snake. These species were observed out basking on transects rather than under or on refuges, but refuges proved beneficial for slow-worm and grass snake observations.

9.5 Bromyard Downs currently has three species of reptile and this is very much seen as a rarity within the West Midlands. The fact viviparous lizard were the most commonly recorded species on this survey is particularly significant as this once common species has become particularly rare along with the adder in the urban West Midlands. Both species generally associated with the same habitat of bracken, heathland, grassland on sandy soil. Bringsty; has bracken, good grassland sward, gorse and short scrub so ideal reptile species habitat.

9.6 There are no records held at the Herefordshire Biological Records Centre for adder on Bringsty, Bromyard Downs or Brockhampton. In a recent survey for the Community Commons Project, Herefordshire Nature Trust at Badley Wood Common, a nearby site with ideal habitat, no adders were found. Local knowledge claimed they had been known on site.

9.7 The main adder prey species, viviparous lizard are present on Bromyard. The other lizard species, the slow-worm, was found in low numbers which is surprising as this species when located on favourable habitat can occur in relatively high numbers.

9.8 It is likely this species has the largest range of all the reptiles, even frequenting gardens on the common, particularly if they have ponds with amphibians and compost heaps for egg incubation.

9.8 No grass snake egglaying sites were identified on the Downs but it is known they utilise garden compost heaps across the Downs including those at Parkhead and I would expect to find these in gardens that border the common providing the right conditions of good incubation temperatures and are relatively undisturbed.

9.9 Slow-worms were the least recorded of the three reptile species, but this does not necessarily mean it is scarce on the Downs. The limiting factors of the survey were the low number of visits plus a very warm, dry spring and summer which can result in this species becoming more fossorial and therefore harder to detect. I believe if house owners who live on the Downs were consulted as to slow-worm presence in gardens this may lead to more confirmed records.

9.10 Slow worms were never found on surveys in Brockhampton woods but they were found again in low numbers on Bringsty Common and on Badley Wood. They have supposedly been found along the stone wall of the Brockhampton Estate in the past. Brockhampton estate has recently had much woodland clearance which should benefit reptiles the less

transient species such as slow-worm are least likely to benefit though.

9.11 Roads, even quiet ones are a dispersal hazard for reptiles. The Downs are bisected by two busy major roads at the extreme north and south of the site. There is also a minor road straight through the middle of the common from the south at Brockhampton Primary school running north toward Parkhead. Dispersal to outlying areas and colonisation on and off this site hazardous due to the roads. The most obvious and least hazardous colonisation routes are towards the National Trust landscape of Brockhampton and the northern area of Bringsty Common.

10.0 Conclusion

10.1 Bromyard Downs are recreationally even more popular than Bringsty Common and have been heavily over managed through mechanised cutting. This overly tidy approach over the years combined with the loss of surrounding areas to agriculture and urbanisation has reduced and isolated fragile reptile populations. Species such as the viviparous lizard are just holding on within the last fragments of remaining favourable areas. Past conservation management has helped reduce and control the extent of bracken and gorse in favour of much coveted grassland and associated flora, but this is generally kept short by regular flailing and heavier grazing regimes resulting in extirpated species such as the adder in favour of other flora and fauna. The decline and the loss of particular habitat foci such as hibernacula, which could have been utilised by several breeding snakes, will result in complete eradication of populations or serious compromise of genetic variability.

10.2 If species such as the viviparous lizard and grass snake are surviving and the lizard is able to maintain good coverage across the site then adder numbers should be encouraged by focused future management; maintaining quieter areas away from heavy public visitor traffic and providing overall better landscape linkage. However adder colonisation will only ever happen if there are breeding animals nearby.

10.3 Large areas of mown or amenity grassland, useless for reptiles, will only encourage public usage for dog walking etc.

10.4 Much habitat has been lost through mechanised agricultural intensification, overgrazing and an over-reliance on herbicides and pesticides. A recent report *The Adder Status Report March 2012 commissioned by Natural England and the Amphibian and Reptile Conservation Trust* stated that the English Midlands are on the whole devoid of adders with only scattered and localised occurrence.

10.5 The Midlands is a region of particular concern as the adder is in greater decline here than elsewhere and to a lesser degree the slow-worm population decline is also evident. Many of the populations are relatively small. A third of adder and almost a quarter of slow-worm populations were reported to consist of fewer than 10 adults. On isolated sites adders showed more population decreases and fewer stable populations (*English Nature report 546 Status of the adder Vipera berus and the slow-worm Anguis fragilis in England Baker. J, Suckling.J, Carey.R*)

10.6 The adder has undergone declines throughout the UK and in November 2011 at a conference at Greenwich University, Kent, dedicated to the species, it was unanimously declared the adder was the reptile species under the most dramatic decline in the UK.

10.7 Reptiles are a species that tend to be sidelined either through ignorance and fear (snakes) or lack of interest and as a consequence management operations focusing on other flora and fauna can be particularly damaging without any witnessed declines by those implementing the work.

11.0 Habitat management recommendations

11.1 It was noted most lizard sightings on this survey were in the bracken and short grass interface of paths indicating the importance of sensitive management in keeping regularly mown tracks narrow with longer grass at the edges of scrub rather than a vast short monoculture.

11.2 It is essential to maintain connective habitat corridors of longer vegetation strips and blocks across the site as wide short grassland areas will inhibit dispersal and colonisation also increasing potential avian predation.

11.3 Driving large, heavy tractors over south facing slopes and wet flush areas will compromise sensitive reptile populations. A more sensitive approach for reptiles should be used; cut small compartments or strips in an east/west direction, ideally with smaller tractors or roll bracken with a light roller that will not compact the soil crushing and entombing reptiles. Gorse banks should be retained on the south facing paths and banks.

11.4 Ash saplings need to be controlled in wet flush areas and this is best done by hand in the Autumn and winter months.

11.5 Low density grazing is less damaging to the landscape than regular use of tractors and flail and is a known method for conservation management, but this may not be a practical option on The Downs common as fencing would be required. Conservation management stocking rates tend to be set too high for reptile conservation. As a general guide 0.2 livestock units per ha is recommended as a maximum, (equivalent to 1 cow per 5 ha). There should be a reason to the grazing, the objectives clear and important and the impacts of the grazing monitored long term.

11.6 When managing the common it is important to consider reptiles and their activity cycles:

- Reptiles emerge from hibernation from mid February and are active until early November depending on climatic conditions. When the first hard ground frosts set in they begin hibernating.
- Reptile hibernacula are located on south facing banks. 57% of adder hibernacula are situated on slopes, and of these 32 % are sited on steep slopes (*Adder Status Project report, March 2012*). Sites are chosen due to their favourable micro-climates, warmth and shelter from wind chill. There is usually a good mixture of young trees, shrubs and long and short ground vegetation. Sandy soils allow good drainage, preventing water logging in the winter months. They may be located in banks, hedgerows and ditches and reptiles will also utilise mammal burrows (rabbit, vole), gaps within root systems and log or rock piles.
- Machinery cutting with tractors and flails can be detrimental resulting in large expanses of short vegetation or scarified areas, killing or leaving the remaining reptiles exposed to increased avian predation through lack of cover.
- During the first weeks of spring hibernation emergence lizards and snakes will be torpid and slow to move off, making them easy targets for raptors, corvids, pheasants and predatory mammals and humans and dogs therefore good ground cover is essential.

11.7 Timing for scrub control

- Scrub clearance of secondary tree colonisation by young birch, ash and sycamore or thick bramble should be undertaken by hand on sensitive reptile areas. There needs to be an awareness of damaging hibernation areas if using heavy tractors which compact the soil, crushing or entombing species.
- Machine scrub cutting operations should be done during the coldest months of late November to early February and ideally when there is a period of hard ground frost. Do not drive tractors over banks and avoid flailing known reptile areas.

- Felled or coppiced timber can be used to build hibernacula and refuge piles (see diagrams). If a large quantity of wood is to be removed over the winter a good idea would be to build a number of refuge piles, building logs and brash into heaps in south facing, sunny undisturbed areas. Chip the brash and mix with cut vegetation to build in piles sited in sunny undisturbed wooded clearings for grass snake (egg laying heap) and slow-worm.

11.8 Bracken Management

- Bracken control has to be undertaken with consideration to the areas sensitivity as reptile habitat. Reptiles do utilise the bracken and in particular collapsed dead bracken thatch which has excellent thermoregulatory properties, ideal during early and late basking periods in the year. According to *Make the Adder Count's* national survey it was found that bracken was one of the most important plant species in adder hibernacula (59%) followed by gorse and birch. (*Make the Adder Count National springtime adder survey, Report information Adder Status Project March 2012.unpublished*)

- Vast areas of tall standing bracken with a short vegetation understory is of no value to reptiles. Ideally a mixture of vegetation with rough grassland and other vegetation communities such as short scrub and bramble amongst areas of bracken are best for reptiles.

Important considerations when controlling bracken are:

- Identification of ideal reptile habitat on bracken areas through survey before implementing long term control. South facing areas such as slopes and banks are the likeliest reptile features and long term, collapsed bracken litter is ideal for hibernacula and therefore care should be taken in managing these areas.

- Management operatives must be aware of reptile sites and valuable features and therefore able to undertake work sensitively at these sites.

- Repeatedly cutting large bracken areas entirely down to a short monoculture will leave no vegetative cover for reptiles on spring hibernation emergence, resulting in net long term reptile declines.

- Best practice is to identify sensitive management areas and either cut small bracken compartments or cut tramlines (strips) leaving nearby long vegetation so reptiles have a varied vegetative structure height.

- Use knap sack or selective herbicide spraying for the control of small areas of bracken. This is a better alternative to heavy machinery and is recommended in the *Reptile Habitat Management Handbook Edgar, P.,Foster,J.and Baker,J. 2010 Amphibian and Reptile Conservation Bournemouth.*

11.9 The possibility of a proposed future follow on pond restoration project on the Downs which will restore lost or neglected ponds will make a significant difference to the Down's grass snake population as more viable ponds should lead to an increase in amphibian prey abundance and also providing more varied wetland habitats that will be utilised in the warmer months. Currently there is poor amphibian pond connectivity on the Downs as many ponds are in poor shape or ephemeral. Palmate newt (*issotriton heleveticus*) and common toad (*Bufo bufo*) are presently breeding in the central area of the Downs but other ponds, largely in the Parkhead area are in poor shape or now non existent. There is a large pond south of the A44 closer to Bromyard known as Washcroft and this has both great crested newt and common toad present but it has sadly been colonised by New Zealand pygmy weed (*Crassula helmsii) .*

The lawn pool on the Brockhampton Estate is a major common toad (*Bufo bufo*) breeding site within the Bromyard locale. Large numbers of emergent toadlets have been seen migrating away from the lawn pool into the surrounding woodland and fields over the years . This abundance of amphibians is particularly important in the local context as the common toad is a major prey source of the grass snake. Grass snakes have also been found regularly around the pool banks and associated woodland of this area.

11.9 Habitat management by site number (see section 8.1, page 14)

Parkhead (areas 1, 2 & 3 on map)

- The lowland heath should be managed by hand, reducing ash saplings. Avoid mowing wide rides and let the grass land grow longer.
- Encourage the gorse and heather growth bordering the wood at Parkhead by reducing tree shading from regenerated tree growth.

Area 3

- This was a good area for reptiles, particularly lizards. Encourage and increase the areas of heather and gorse here and try to reduce or redirect public access through the heathland areas to allow habitat to recover.

Area 4

- This is an area of springs and wet flush. Management is currently undertaken by hand, removing ash saplings. Continue this cutting by hand and create brash and log piles from tree removal.

Area 5

- This area is a mosaic of bracken, scrub & grassland. Grass snake and viviparous lizard were recorded here. Current management appears sympathetic and continue to manage bracken in blocks and keep paths narrow.

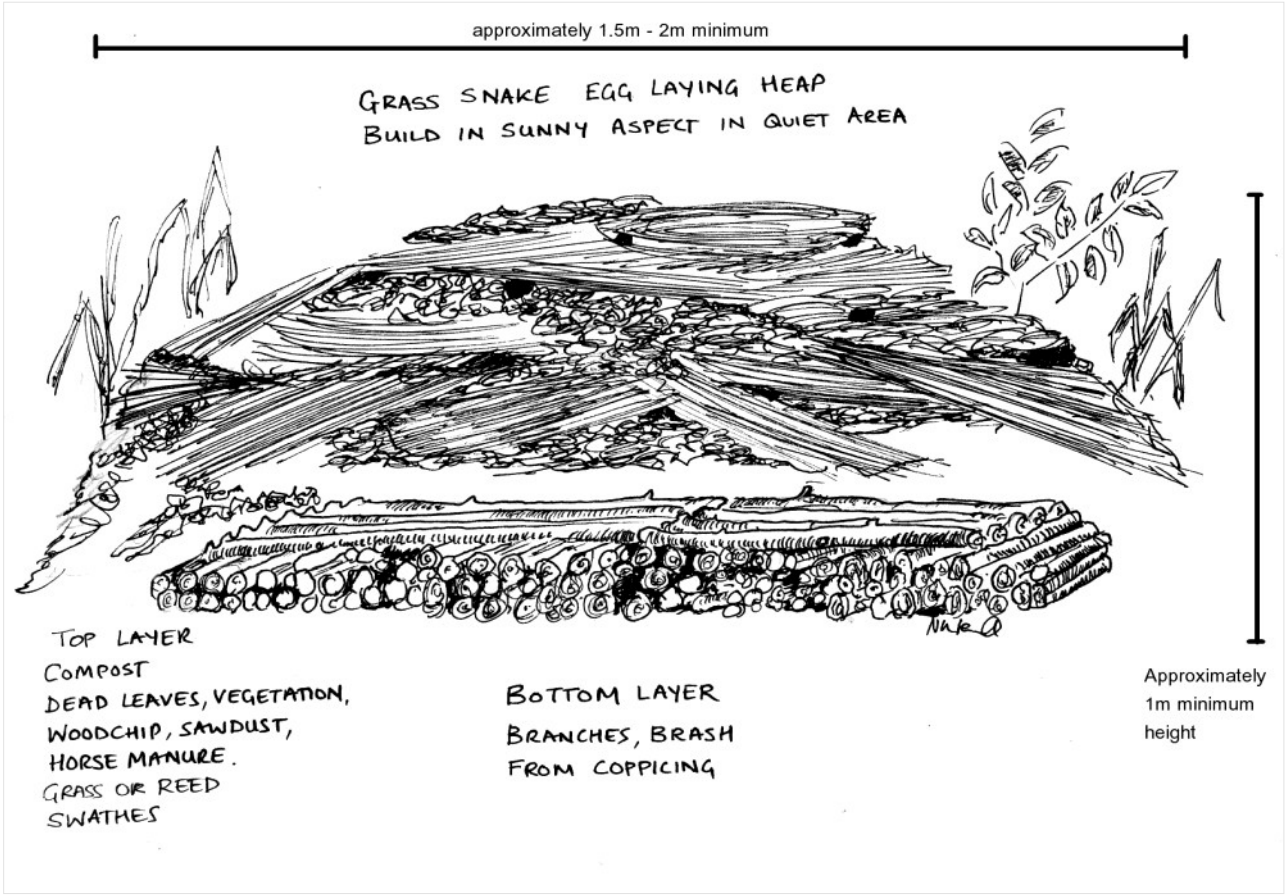
Areas 6 & 7

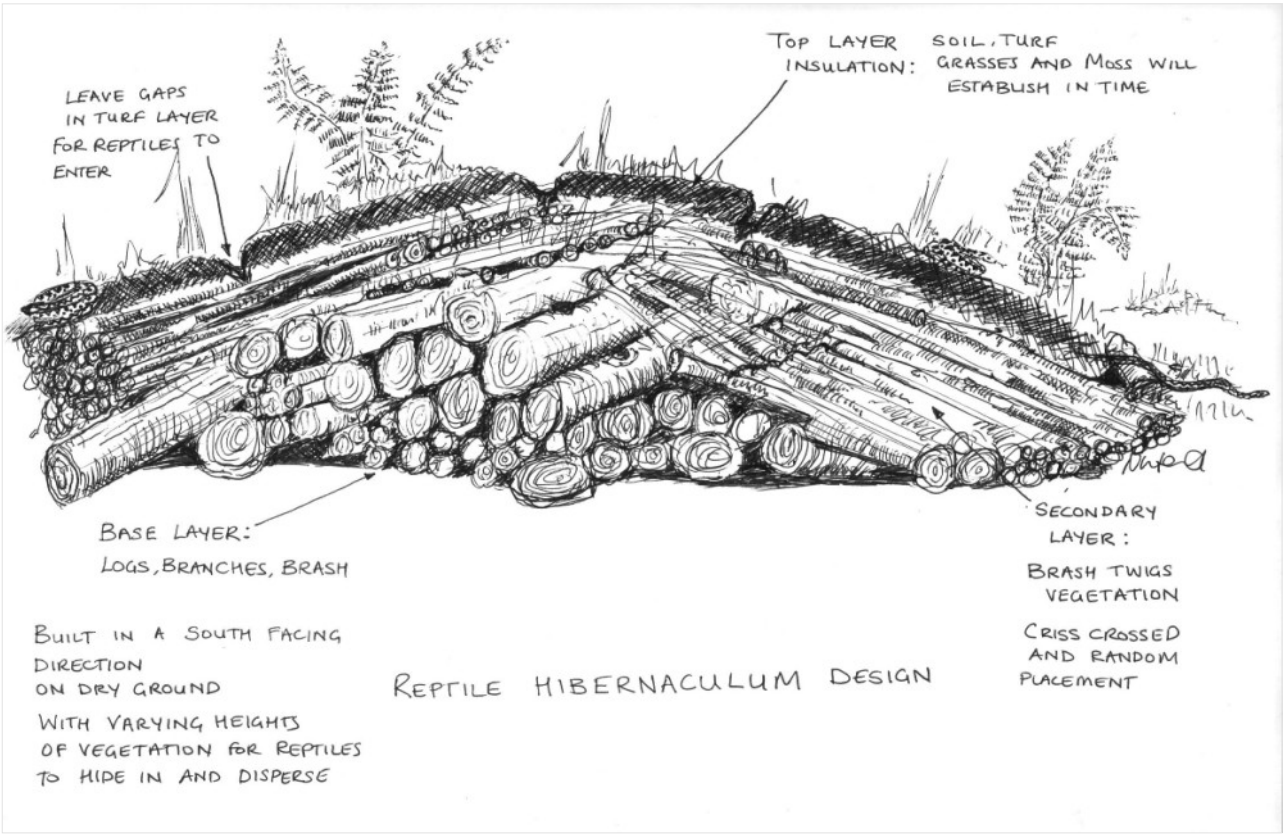
- These areas contain small strips of edge habitat. Do not reduce the gorse or longer grass path edge habitat on area 6, ideally this should be increased.

Areas 8 & 9

- Grass snakes and viviparous lizards were both found here. Maintain scallops and narrow tramlines up through the bracken.

12.0 Grass snake incubation heap and reptile hibernaculum





13.0 Photographs

Area 5. Sloping south facing bracken bank, near quarry. Good habitat for grass snake and lizard.

Area 5. Good habitat structure of bracken covered bank, narrow grass path and scattered trees.

Area 5. Male grass snake with evidence of prey, probably a common toad (*Bufo bufo*)

Below area 6. Short grassland monoculture. Extremely poor herpetofauna habitat. (photographed in May)

Area 7. Narrow verge offers limited herpetofauna habitat.

Area 1. Parkhead woodland edge heathland habitat. Will be shaded out in a few years time.

Area 6. Relic gorse habitat. South facing woodland edge habitat with good gorse and bramble structure. It would be beneficial to increase longer grassland structure to left of the path.

Area 5. Evidence of good volunteer habitat management work, reducing sapling ash and sycamore colonisation. Brash should be piled into tighter packed piles (see hibernacula designs)

14.0 Acknowledgements and references

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