West Berkshire Living Landscape

Heathland and Beyond

Report for REPTILES,

2012

(Including Summary of Surveys 2009 to 2012)

Rod d'Ayala, December 2012

Female Adder ("Adder 8"), Bishop Green Heath, 17 September 2011. (Also present in 2012 when photographed on 6 occasions.)

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SECTION ONE – SURVEY RESULTS 2012

Survey Dates, Methods and Personnel

(With reference to Appendices 1, 2, 3 and 3.1)

The 2012 survey began on 18 February 2012, and extended until the autumn with the last survey on 27 October 2012. The surveys were spread more or less evenly over the course of the season with good conditions for most of the survey dates.

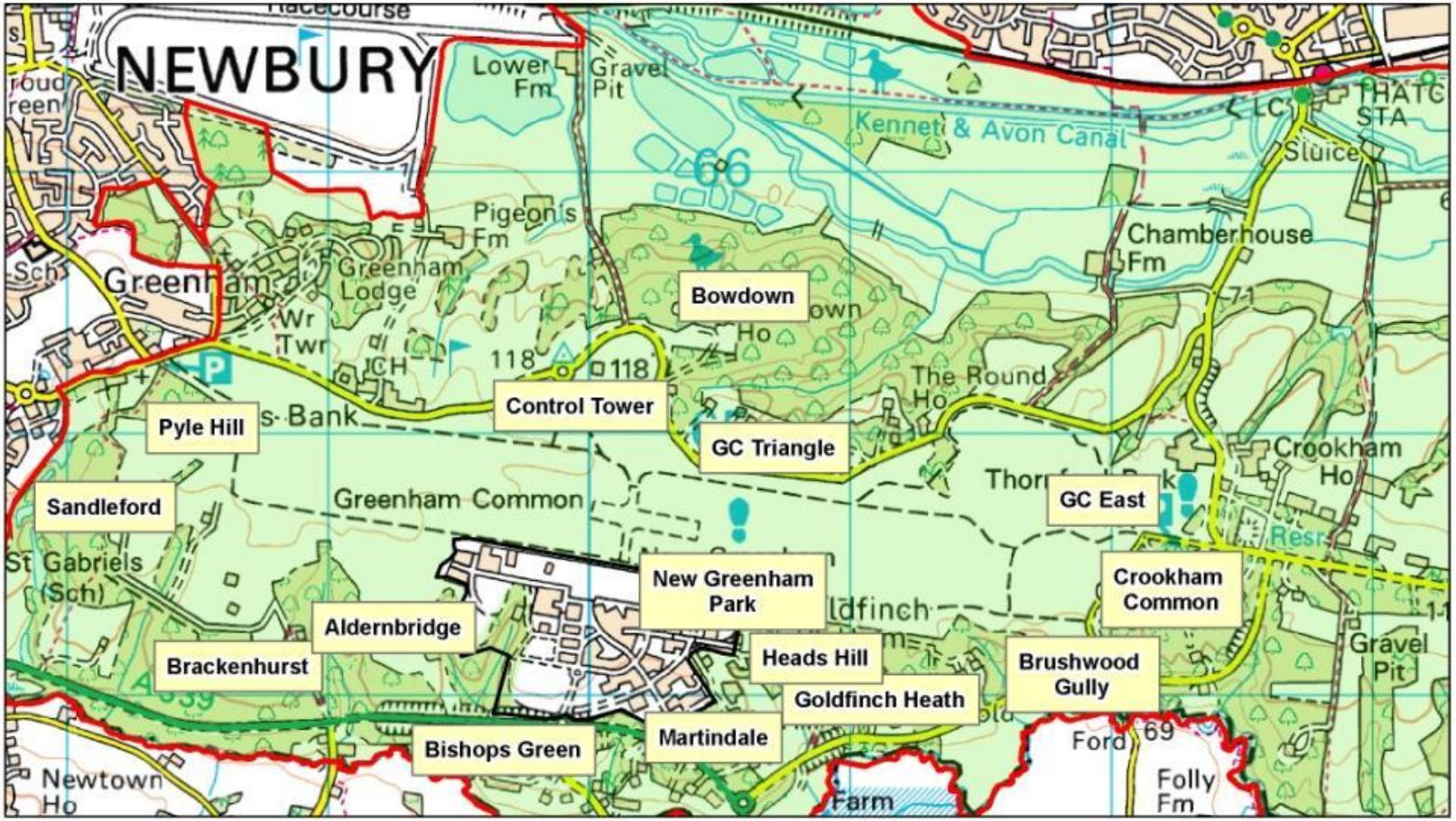
The survey method was the same as in previous years, i.e. a walk over visual survey of known or potentially suitable habitat, recording reptiles seen including their presence and/or absence under a series of artificial refuges. In 2012, 184 refugia were in use either for all or part of the survey season, distributed throughout 23 survey areas. Not all the survey sites were surveyed to the same intensity. Once the early season surveys had established the species present on each site, to some extent the larger and/or "better" sites for reptiles were prioritised – especially later in the season. The Adder was again the main target species of the survey.

The survey included 40 "main" visits, with the surveys taking in between two and all of the (24) target survey areas. The main recorders were Martin Burdock and Rod d'Ayala, with other main visits by Becca Flintham, Chris Raper and Andy Burdock. In 2012, in addition to the main surveys two smaller sub-sets of the survey areas were also recorded by Danni Henderson and Phil Dean. These surveys added a further 20 visits, making a total of 60 formal surveys for 2012. Additional records for local properties and their local environs were supplied by Simon Rhodes, Valerie Dormer, Ray Bird and Mike Bloomfield. Lastly, John Hanratty supplied additional records for the Bowdown Wood sites.

Full and detailed records are supplied in the appendices, supplied separately to the text of this report - with this summary report being based on an analysis of this data. Maps have also been produced showing the distribution and relative number of records for 2012 (see Maps 1.02 to 1.07) of records

Reptile Survey Areas 2009-2012

Berkshire
Buckinghamshire
Oxfordshire
wildlife TRUSTS



0 0.25 0.5 1 Kilometers

Survey Sites

(With reference to Map 1.01 - and Appendices 1 to 3.1 inclusive)

Table 1 below shows the areas surveyed for all or part of the 2009 to 2012 survey and the number of refuges used per year. The survey sites in 2012 (see Map 1.01) were much the same as 2011, except for two small areas added early in the season and another (third) area in Bowdown Wood added later in the year (the latter more in preparation for future survey seasons). The first of the new survey areas is the open grass / heath habitat with patches of scrub south of Thornford Hospital, at the east end of the main part of Greenham and Crookham Commons (two refuges used). This area was added to find out what, if any, species occur in a typical more exposed open part of the common and because there was a casual record for Adder from nearby in 2011. The other new area (Pyle Hill Enclosure) is very similar, and consists of an area of fenced off open heath with a light cover of small trees and scrub at Pyle Hill (two refuges used) within a fenced area in an otherwise very open area of heath with more or less no shrub cover at all. In September 2012, a small open area in Bowdown Wood between the Paper Dump and more open valley of Area 8 was also formally added. It was designated as Bowdown Area 9 – and is a potential link area for reptiles moving through the wood.

Note, in this survey the name Crookham Common was used only to describe the area of land in the south east corner of the common, defined by Thornford Gully Road. Crookham Common in a true sense is a much larger area of land comprising the whole of the eastern end of the main part of the Common. The names in this survey were applied to the various areas in 2009 when the true distinction between Greenham and Crookham Commons was not made - and for continuity the original 2009 names have been retained, e.g. Greenham (and not Crookham) Common East.

Table 1 – Survey Areas and Number of Refuges, 2009 to 2012

N/S (5): N/S = Not surveyed, (5) - Figure indicates number of refuges present in area, if known.

Survey Areas	Year(s) 2009	2010	2011	2012	2009 -12	Notes
Aldernbridge Heath	N/S (5)	5	9	11	12	
Bishops Green Heath	N/S	8	23	26	26	
Bowdown Approach	1	1	1	2	2	
Bowdown Approach North	2	2	2	2	2	
Bowdown Approach South	2	2	2	2	3	
Bowdown Cottage	N/S (0)	N/S (0)	1	N/S	1	Mostly checked by owners
Bowdown Heath	11	12	14	14	14	
Bowdown House	N/S (0)	N/S (0)	3	N/S	3	Mostly checked by owners
Bowdown, Area 7	N/S (1)	1	1	1	1	Not checked regularly
Bowdown, Area 8	N/S (3)	3	6	7	7	
Bowdown, Area 9	N/S (0)	N/S (0)	N/S (0)	4	4	Installed very late in 2012
Bowdown, Paperdump	0	1	2	2	2	
Brackenhurst Heath	N/S (10)	10	14	13	14	
Brushwood Gully	N/S (6)	6	6	12	12	
Control Tower	N/S (0)	N/S (0)	2	2	2	Also in 2011, 2 other refuges not checked.
Crookham Common	13	14	25	26	32	

Table 1 (continued) – Survey Areas and Number of Refuges, 2009 to 2012

N/S (5): N/S = Not surveyed, (5) - Figure indicates number of refuges present in area, if known.

Survey Areas	Year(s) 2009	2010	2011	2012	2009-12	Notes
Crookham Common (East)	1	N/S (0)	N/S (0)	N/S (0)	1	
Goldfinch Heath (East)	N/S	6	9	10	10	
Greenham Common East	N/S (5)	5	3	3	5	
Greenham Common East (Thornford Hospital)	N/S (0)	N/S (0)	N/S (0)	2	2	Laid down mid-season
Heads Hill	N/S (0)	N/S (0)	N/S (0)	1	1	Other refuges in grounds of Long Cottage
Martindale Heath	N/S (5)	5	6	7	7	
New Greenham Park East (Lower)	N/S (?)	N/S (?)	6	8	8	In addition to these "official" refuges numerous other unofficial refuges, especially 2012.
New Greenham Park East (Upper)	N/S (?)	N/S (?)	15	15	17	
Old School House, Crookham Common	N/S (0)	N/S (0)	3	N/S	3	Mostly checked by owner
Pyle Hill	N/S (0)	N/S (0)	1	4	4	
Pyle Hill Enclosure	N/S (0)	N/S (0)	N/S (0)	2	2	Added fairly late in 2012 season
Sandleford Heath	N/S (9?)	9	8	8	9	In 2010 4 old refuges found late in season, which not checked as regularly as sheets to north
Total Refuges	**30**	**90**	**162**	**184**	**206**	Total 206 "official" refuges used 2009-2012
Total Sites	**7**	**16**	**23**	**24**	**28**	Total 28 areas surveyed using refuges in 2009-2012

Note: New Greenham Park East split into two areas for the purpose of this table, in other instances it may be treated as one area.

Overall Species Summaries

Adder *Vipera berus*

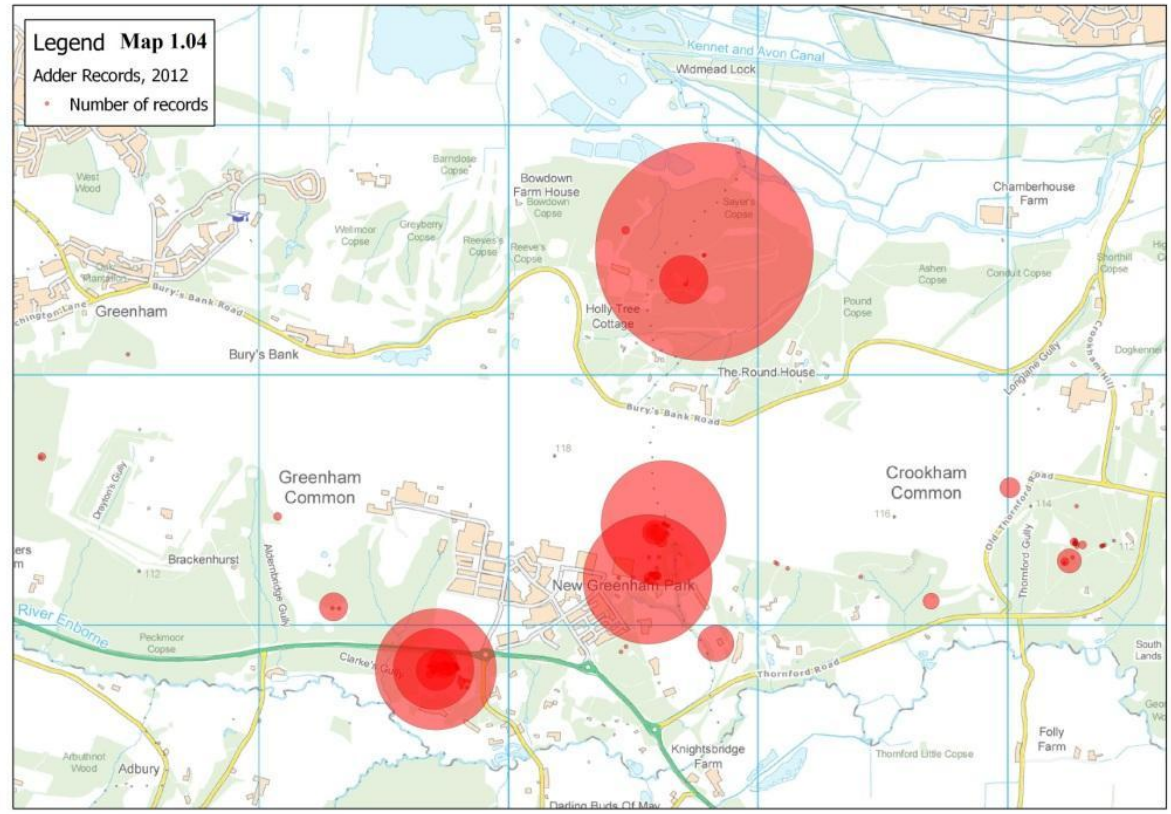
(With reference to Appendices 7, 11.1, 12, 13 and 14 – and Map 1.04)

In 2012 the Adder was recorded in 14 survey areas with a combined total of 363 individual sightings. The two best sites were New Greenham Park East (total 118 sightings, 54 in Upper Area and 64 in Lower Area) and Bishop Green Heath (112 sightings) followed by Bowdown Heath (69 sightings) and Crookham Common (27 sightings). The other 10 sites only had small number of sightings each. In 2012 it was attempted to photograph every Adder seen to try and better establish the numbers of individuals that may be present at each site and how far they may move during the year (including any movement between sites). The head markings are the most useful features for this purpose and occasionally body markings as well. These (unique) features are used in combination with the overall colour and size of the animals. Photographs were also taken in 2011 and 2010 but not systematically with only small numbers in 2010 especially. These earlier photos potentially allow for the compilation of longer individual histories.

The combination of photographs of individual snakes and other sighting information (e.g. snakes not photographed but known to be different) indicates a minimum of 93 individual snakes seen in 2012 across all known areas. For each area this analysis correlates with the potentially simplistic / crude measure of the total number of sightings per area (which could be biased by numerous factors).

The analysis of the photographs revealed the best sites for Adders were New Greenham Park East, where a total of 32 individuals were identified (15 in the Upper part and 17 in the Lower) and Bishop Green Heath with 23 individuals. On Crookham Common though there were relatively few sightings (27) at least 13 individuals were identified. By comparison, Bowdown had many more sightings than Crookham Common, but only 7 individuals were identified with the majority of individuals being seen regularly under one particular refuge. From the photographic evidence, the other sites supported small populations of between at least 1 to 5 individuals. The number of individuals identified by photograph analysis must be treated as minimum population estimates. Individual snakes that were not very active and/or hid themselves away in 2012 will not have been recorded. In some cases, especially the sites with more sightings, significant numbers of sightings lacked the back up of a photograph and/or some photographs were not sufficiently good for accurate identification. However, despite this caveat for some sites (the smaller sites especially) the results are thought to be a good indication of the numbers present as the bulk of sightings were either confirmed using photographs, or the snakes readily identifiable even without a picture. This is true of Bowdown Heath for instance – with relatively large numbers of sightings in 2012. The advantage of photographs is that very similar looking individuals can be differentiated which is not always possible even with the best of purely visual records. It is thus strongly recommended photographs are used as part of any future monitoring of Adders.

No obvious pairing up activity was observed on any site – but later in the summer in the main Adder sites at least, large looking females were observed on several occasions in sheltered undisturbed locations. Breeding in 2012 was confirmed by the sighting of very small young at Crookham Common (Area C3.1) and Bishop Green Heath (west of track). Young snakes of 2012 were reportedly found in an area only covered on an incidental basis in this survey i.e. the western end of Goldfinch Heath and (by the same team of people) in New Greenham Park East. (These records should become available later.) The presence of small juvenile Adders in 2012 also suggests successful breeding in 2011 e.g. at Martindale Heath.



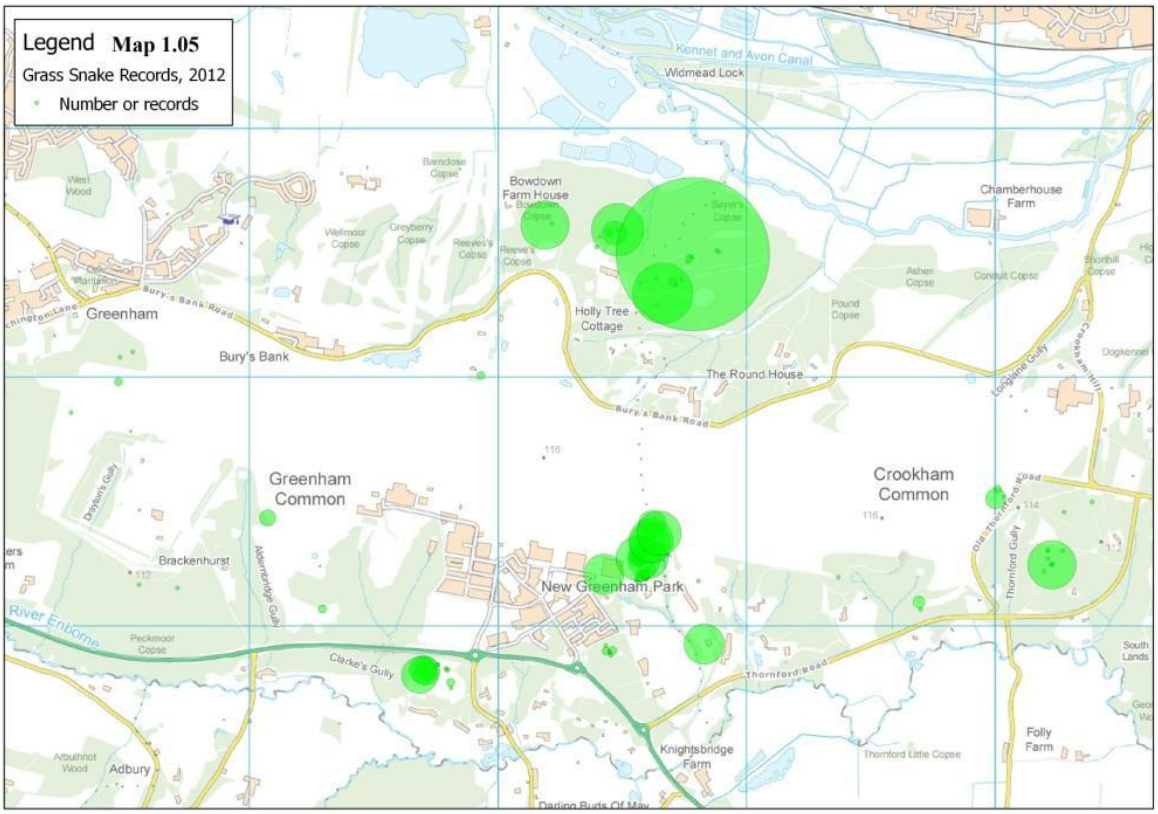
Grass Snake *Natrix natrix*

(With reference to Appendices 7, 11.1 and 15 – and Map 1.05)

Grass Snakes were recorded at 20 sites in 2012, with a total of 330 individual sightings – similar to but a few less than the total for the Adder. Though comfortably the second most widespread species, they were seen only in small numbers with thirteen sites having less than 10 records and two sites between 10 and 20 sightings. They were regularly seen in only five sites. New Greenham Park East had over one third of the sightings (131 in total, 88 Upper Area and 43 Lower Area). Ranked below this site were Bowdown Heath (50 sightings), Bishop Green Heath (38 sightings), Bowdown Area 8 (24 sightings) and Crookham Common (22 sightings).

Breeding at or close to four sites was proved by sightings of new born young. These sites were New Greenham Park East, Crookham Common, Bowdown Area 8 and Bowdown Heath. A high percentage of the records for Crookham Common were for young snakes of 2012 – suggesting the presence of a large gravid female on site in 2012.

Grass Snakes live in a wide variety of habitats but seem to show a preference for wet / damp habitats, where their favoured prey items (amphibians) are likely to be more common. Most of the areas covered by this survey are dry (at most damp) – with for example only a few ponds on site (possible amphibian breeding sites) and these on the periphery of the survey areas. There are, for instance, ponds within or close to Bowdown Area 8, New Greenham Park East and Bowdown Heath which may explain in part the relative abundance of Grass Snakes on these sites.



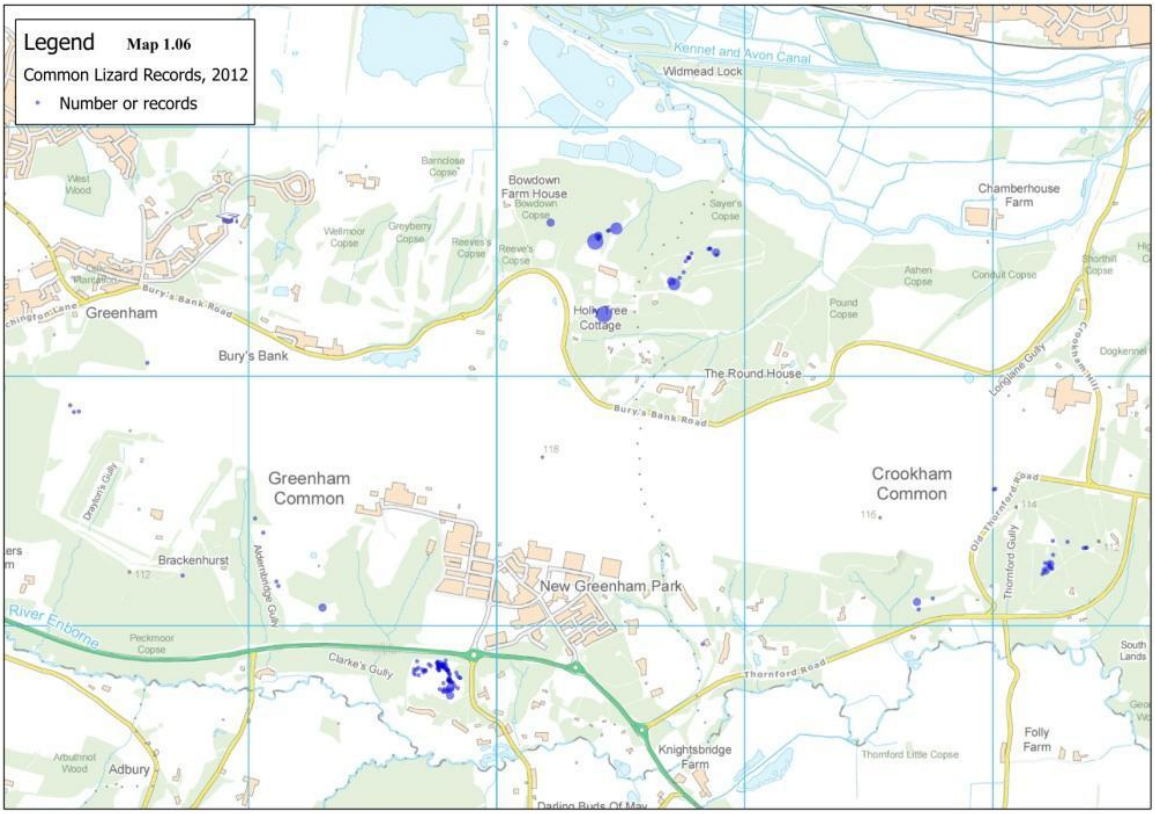
Common Lizard *Zootoca (Lacerta) vivipera*
(With reference to Appendices 7, 11.1 and 16 and Map 1.06)

In 2012 the Common Lizard was recorded from fourteen sites - the same number of sites as the Adder – but with by far the fewest records of any of the four species. There was a combined total of only 152 sightings from all sites. Only one site had a large number of sightings, i.e. Bishop Green Heath with 80 sightings (53% of all Lizard sighting in 2012). Only three other sites had more than 10 sightings i.e. Bowdown Heath (18), Crookham Common (16) and Bowdown Area 8 (13). The top four sites between them had 83% of all the records. The other ten sites all had 6 or less sightings each. The majority of sightings were for

adults (125 of 152). In 2012 there was evidence of breeding (new born young) from two areas, i.e. Bishop Green Heath and Bowdown Area 8 only.

Of note is the number of sites where no Common Lizards were seen. These include New Greenham Park East otherwise the best reptile site which supports exceptional numbers of the other three species. Though Common Lizards can be elusive, the intensity of the survey effort is sufficient to have recorded Lizards if they were present on the survey sites – and thus the absence of the species from the "blank" sites is likely to be correct or at best, only small and perhaps localised populations are present..

In summary, the results suggest that the Common Lizard is the most uncommon and least widespread of the reptiles on Greenham and Crookham Commons and Bowdown Wood



Slowworm *Anguis fragilis*

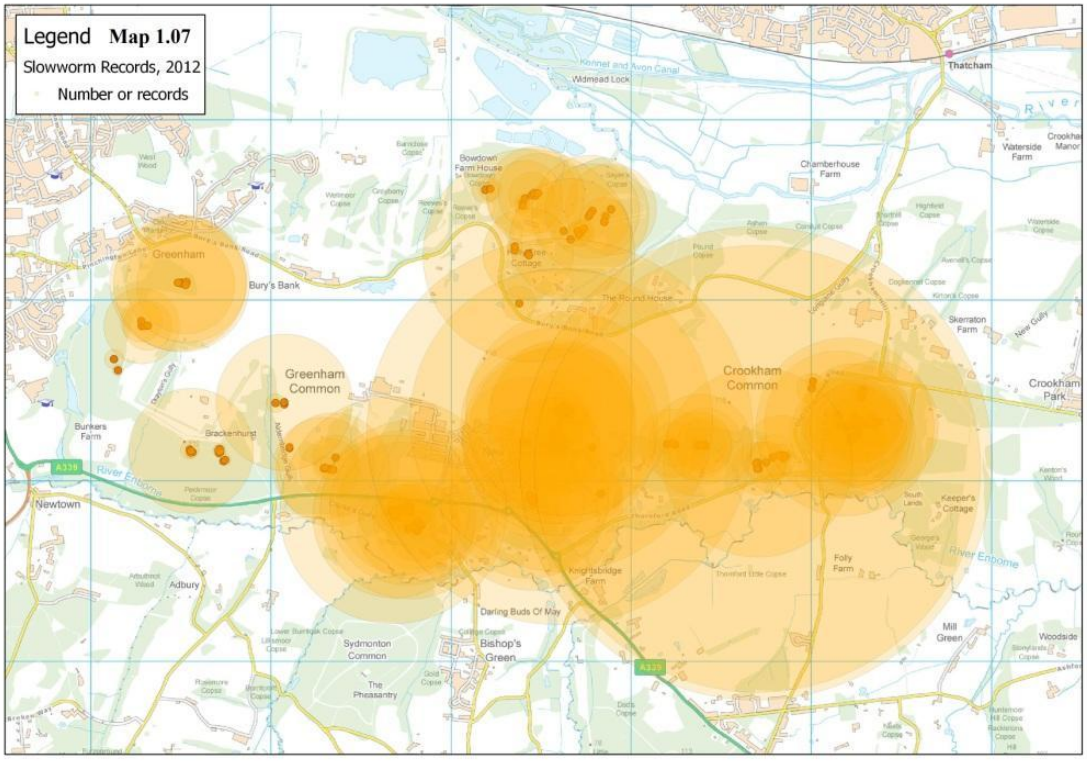
(With reference to Appendices 7, 11.1 and 17 – and Map 1.07)

In 2012, as in previous surveys, the Slowworm remains the most common and widespread of the four reptiles. It was found in 23 sites with a total of 3261 individuals recorded – i.e. c. 80% of the total of all of the reptile sightings in 2012.By far the best site in terms of crude numbers of records was New Greenham Park East, with 1045 records. Of these 600 were from the Upper Area and 445 from the Lower part of the site. The other sites can be divided into four other broad categories – three areas form the second tier of sites i.e. Bishop Green Heath (421 sightings), Crookham Common (423 sightings) and Brushwood Gully (340 sightings). Below these are a group of five sites i.e. Martindale Heath, Aldermaston Heath, Goldfinch Heath,

Pyle Hill and Brackenhurst Heath with between 121 and 154 sightings. Of the other fourteen sites four had between 100 and 50 sightings, and ten sites less than 50 sightings. Breeding was confirmed, by the presence of newly born young in ten of the sites – but likely to have occurred in many more sites as new young are not always recorded. (In 2012 only 49 of the 3000 plus sightings were young of 2012). Without exception, all sites with Slowworms had one or more juveniles present, proof of breeding in previous years at least.

Slowworms prefer sites with abundant dense cover including tussocky grass, mature heather or taller scrub - and are usually recorded only under refuges with very few records from open habitats. The long established refugia at the west end of Brushwood Gully seem to be the most prolific of the refuges with respect to the number of records per refuge. Sites with no records at all, or small numbers of records - were also sites with either no (one site) or very small numbers of refuges only. Low numbers of records are also associated with relatively recently laid down refuges (e.g. Greenham Common East, near Thornford House) – there has not been time for the refugia to have been found. Another feature of some of these poorer sites is that they are small islands of dense cover (often leggy scrub) - surrounded by extensive areas of very open short grassland or heath. Populations of Slowworms are likely to be small in these places even if present, as their immediate surrounds are very poor habitats even as transitional habitats.

Conversely, large numbers of Slowworm records could be put down to more frequent visits and/or higher number of refuges – as well as good habitat. An analysis of the number of records with respect to the number of surveys and/or number of refuges would provide a better gauge of the relative value of the different sites for Slowworms. This has yet to be done for the 2012 data.



Other Species

(With reference to Appendix 18)

Other than reptiles, all other species were recorded on an incidental basis only. Three species and/or species groups are listed below by way of examples. (See "Other Records" in the Appendices for details of these and other incidental records.)

All five species of local amphibian were recorded during the survey, with most records being individuals rescued from a drain pit at the back of the Control Tower. Many of these individuals were small juveniles - and relatively few adults were recorded. Among the records from down this drain was a single adult Great Crested Newt. All animals removed from the drain pit were released into the copse of trees behind the Control Tower.

Nesting Nightjars were recorded at Bishop Green Heath, one pair each side of the central track. To the west of the track eggs and chicks were seen - the eastern nest was recorded late in the season presumably after the young had fledged (broken eggs).

The last of the selected species is the Purse Web Spider *Attypus affinis*, a probably not uncommon but very under-recorded species usually recorded by its distinctive tubular web, with a short section above the ground. In 2012 webs were recorded on Aldernbridge Heath, Bishop Green Heath and Martindale Heath.

SECTION TWO - SURVEY RESULTS, 2009 to 2012

Summary of Survey Coverage and Effort

(With reference to Appendices 1, 2, 3 and 3.1 and Maps 2.01 to 2.14)

Table 1 above shows the sites surveyed in each of the four survey years and the number of refuges used each year. The survey began in 2009 on a small scale with 7 sites, primarily surveyed for the first part of the season only. Thirty refuges were used in 2009. Six of these areas were again surveyed in 2010, with an additional 10 sites added and an extra 60 refuges (total 90 refuges). Some sites were introduced later in the season, including for example Bishop Green Heath which later proved to be an excellent site. The survey was also extended in time, from early spring to autumn - with full season surveys in 2011 and 2012 as well. In 2011 twenty three sites were surveyed including three privately owned sites primarily monitored by the site owners – with 90 refuges on the sites. These three sites were not formally surveyed in 2012, the last year of the survey but 24 sites were surveyed as a few small areas were added in an attempt to fill in some of the gaps in the survey coverage. Similar numbers of refuges were used in 2011 and 2012 (162 and 184). In many cases there were one, two or more generations of refuges in place which were whenever possible re-found and incorporated into the survey. In 2011 (and to a lesser extent in 2012) the number of refuges was expanded significantly for the newly introduced survey areas especially on sites where it was already established, or believed, that significant populations of reptiles were present (especially Adders the main target species of the survey). Over the course of the four years over 200 formal refuges were used, and whenever possible additional suitable materials incorporated into the survey. The Lower area of New Greenham Park East in 2012 had the benefit of numerous extra refuges of corrugated concrete roofing and other materials such as wooden boards and pieces of lino. To summarise, the survey to begin was restricted to a small number of sites and only part of the season – but extended over the four years to include more areas, especially potential or actual good areas for reptiles and Adder sites in particular.

Another measure of survey effort is the number of visits made to each of the survey areas. In 2009 most of the areas were visited on twenty occasions. In 2010 there were 471 area surveys with up to 42 visits per area. In 2011 there were at least 554 area surveys with each site visited up to 39 times. In 2012, when the survey effort was more concentrated to particular sites there was at least 534 area surveys with the maximum number of 50 visits to any one site.

As intensive as it was there are other known areas that are or could be good for reptiles which were not visited (insufficient resources) - apart from in some cases occasional quick walk through surveys.

Full and detailed records are supplied in appendices supplied separately to the text of this report, with this summary report being based on an analysis of this data.

Species Summaries by Survey Area

(With ref. to Appendices 4, 5, 5.1, 6, 8 to 10, 11.2, 12, 15 to 17 – and Maps 2.01 to 2.14)

Aldernbridge Heath

(With reference to Map 2.14)

Aldernbridge Heath was first surveyed in 2010 (partial survey), with full surveys in 2011 and 2012. It covers a large area with the refuges over only a small area of the heath (in three locations) – with the rest of the heath recorded by a walk over survey only. Only a few reptiles were seen in the greater part of the heath – which in large part consists of very dry, low well spaced short heather with very little cover. (Other similar habitats also had very few reptile records.) The best potential area for reptiles appears to be the marginal areas where the open heath meets either the wood edges or the lower lying denser damp heath in the central southern part of the heath (the upper part of Aldernbridge Gully). The shorter open heaths are believed to be genuinely poor reptile habitats.

In 2010 Adders were seen only at the north end of the heath (2 records), in 2011 both north and south ends of the heath (12 records) and in 2012 mostly at the south end (year total of 11 records). In 2012 two new refuges were located on a south facing bank in the southern central part of the heath – but no Adders were recorded here.

There are no early season records for Adders at Aldernbridge Heath (Map 2.14), but the late season records at the south end of the site suggest that a hibernation site or sites cannot be too far way – though where this is not known. The scrubby west facing bank east of the line of refuges is a possible area, and a suggested target for very early season surveys in future years. There would appear to be plenty of potential over-wintering sites in the scrubby woodland where the northern colony is located.

All three other reptile species were also recorded. Common Lizards were present (27 sightings in three years) but not common – being seen primarily at the south end of the heath, and also seen in very small numbers in the damp southern central heath. They are apparently absent at the north of the site. Slowworms were recorded under the refuges – with the best numbers at the south end of the heath. Grass Snakes are not common with only 13 records in the two main survey years.

Bishop Green Heath
(With reference to Map 2.14)

Bishop Green Heath is an area of un-grazed mostly dry heath south of the A339, isolated from the main area of the Common by the main road. The area was introduced into the survey late in the 2010 season - and the subject of two comprehensive surveys in 2011 and 2012. The habitat appeared to be very good for reptiles with its mature dense heather, shorter open areas (paths and small glades), stands of tussocky grass and wood edge habitats..

The 2010 survey was sufficient to confirm the presence on site of all four reptiles. In 2011 and 2012 the full season surveys provided a much better idea of their relative abundance. Adders are present in good numbers. Six individual sightings were made in 2010, 24 in 2011 – but with a marked increase in 2012 to 112. Breeding was proved in 2010 and 2012. Most of the Adders were seen on the higher part of the site, to the north / west of the central track with relatively few sightings on the southern / eastern side. These latter sightings were concentrated close to a ridge which is strongly suspected to be a hibernation site. The vegetation structure of the site is such that many other locations could also potentially be used for hibernation. Several Adders were sighted at the top end of the western side suggesting the dense mature heather and scrub at this end of the site is an important hibernation area.

A more detailed analysis of the individuals present based primarily on photographs taken from 2011 to 2012 shows that at least 25 individuals were present over the two years. There were at least 7 present in 2011 (very incomplete set of photographs) and 23 in 2012. (At least 4 individuals were present in 2010). There were 2 individual snakes only photographed in 2011, with 18 individuals only seen in 2012. 5 individuals were definitely present in 2011 and 2012.

Map 2.14 is a plot of Adder records by month, in an attempt to identify possible over-wintering areas. Very early season records, probably the best indicators of such areas are located at the eastern (upper) end of the western area – perhaps as suspected in the dense but low scrub at the top of the slope. In the north / west part of the site the scattering of late season (October) records at the western end of the heath suggests that there may be a number of small over-wintering sites (perhaps individual snakes) at this end too. On the lower or eastern part of the heath, both early and late dates occur in one area – at or close to the ridge already suspected of being an over-wintering site.

Grass Snakes were recorded in small numbers only in 2010 and 2011 (7 and 8 sightings) – with a marked increase (to 38) in 2012. Slowworms show a similar pattern of records (20, 73 and 421 sightings) with a strong approximately six fold increase in numbers from 2011 to 2012. Common Lizard sightings by contrast show only a small increase from 2011 to 2012 (63 to 80). The increase in numbers of Slowworm, Grass Snake and Adder is in part down to them having had more time to find and become familiar with the location of the refuges – several of which were laid down in 2011. Common Lizards sightings, which make less use of

refuges, increased only marginally from 2011 to 2012. Though seen in relatively small numbers, this site is by far the best of all the areas surveyed for this species.

Martindale Heath
(With reference to Map 2.13)

Martindale Heath is similar in circumstances to Bishop Green Heath (above) also being an area of heath isolated from the main parts of Greenham and Crookham Commons, by woodland habitats. It is outside the grazed area and located close to and north of the A339 to the east of new Greenham Park. The site consists of a relatively small upper plateau of open heath - with a lower area of disused, mostly wooded quarry. In places the quarry is wet with seasonal ponds – all shaded by trees. The site was mostly surveyed in 2011 and 2012 – with a brief preliminary survey later in the 2010 season. In the absence of grazing by domestic stock the site is managed by cutting. Work is mostly confined to the plateau and more open margins of the quarry. Like Bishop Green Heath, being off the main part of the Common it is very undisturbed in terms of human disturbance – a factor very beneficial for reptiles.

Three species of reptile are present – Adder, Grass Snake and Slowworm. A small breeding colony of Adders is present with very low numbers in all three years (total of 6 records). In summary: a female in 2010, a male and female in 2011 and the same male and a different (small) female in 2012. The male Adder in 2011 was recorded in early spring at the foot of the quarry face – suggesting that this scrubby area with some dumped material may be a hibernation area. The females and second sighting of the male have all been seen on the plateau above, but always fairly close to the edge of the quarry.

The Grass Snake was recorded in 2011 and 2012 only, and only in very small numbers (1 and 8 sightings respectively). Slowworms were first recorded in 2010 (9 sightings), with the bulk of the records in 2011 (69) and 2012 (154). (Refugia numbers increased and becoming more established.)

Bowdown Wood and Bowdown Approach, North and South (Greenham Common)
(With reference to Map 2.11)

The Bowdown Wood area includes Bowdown Heath, Bowdown Approach (Area 11), Area 7, Area 8, Area 9, Bowdown Paperdump, Bowdown House and Cottage. All these areas and the adjacent areas of Greenham Common are in close proximity and are or could be potentially be linked in terms of reptile populations and thus are discussed together.

In Bowdown Wood the best area for reptiles is Bowdown Heath (also known as the Bomb Dump) supporting a population of all four reptiles. The area is fenced off and can be grazed, should this be required. (Until 2012 no other areas in Bowdown Wood were fenced and therefore none are managed by grazing. Area 11 was fenced in the winter 20011/12).) Bowdown Heath is a mix of heath and grass with in places a fringe of mature woodland (high

forest) and thin wood edge habitats at the margins of the woodland and open habitats. The area was surveyed from 2009 to 2012 in this survey and probably has the most continuous run of historical reptile records of any site in the Greenham area.

There are two current areas of activity for Adders – the ruin at the south of the Heath and a particular part the open heath to the north (centred on Refuge 12.1). Most animals (and most records) are currently made on the heath, but in the past the ruin was also good, at least as hibernation site. Though apparently not used for hibernation by large numbers of snakes it can still be important e.g. in 2011 the Ruin was the focus of attention as a breeding area - the presence of a mature female in breeding condition attracting the males normally only seen further down in the heath. Unfortunately after pairing up this female was found dead later in the year - having been killed accidentally. In 2012 from evidence of the photographic survey 7 Adders were present - 5 males, a juvenile female and a new adult female. The juvenile female resided at the Ruin and the others on the heath. The adult female of 2012 was not seen in 2011. Three individuals were photographed in both 2011 and 2012, four in 2011 only and four only in 2012. (More individuals were seen in 2011 but not enough photographs to identify all of those present.) The numbers of sightings were very similar in 2011 (56) and 2012 (69). 2010 was a very quiet year with only 7 sightings – despite an intensive survey. (The same trend was also observed for other sites in 2010.) Historically Adders could also be found close to but just off the open central area of heath – but these outlying snakes seem to have gone. One outlying record in this survey was a single snake under one of the now defunct refuges (B4.2) on the eastern side of the fenced area (woodland edge). There are also a small number of sightings from the furthest (north) end of the heath in one of the earlier survey years – where again no Adders have been seen since.

Map 2.11 is a plot of all Adder records by month in the Bowdown Wood Area. The sightings are predominantly early season sightings and in the Heath are generally spread out making it difficult to pinpoint a precise location. However, the ruin comes out clearly as an over-wintering area with perhaps four other possible precise locations (using the February and March records). Three of these relate to locations with past (pre-2012) records rather than current (2012) records – with in 2012 the area around 12.11 being the most likely current over-wintering site on the heath.

Bowdown Heath is an important site for the three other species of reptile too. Grass Snakes were recorded in small numbers from 2009 to 2011 (total of 39 records) with in 2012 a large increase, when 50 animals were sighted. The reverse pattern applies for the Common Lizard with from 2009 to 2011, 32, 23 and 32 sightings respectively – but only 18 in 2012. The numbers of Slowworm sightings has remained fairly constant at 77, 109 111 and 121 sightings from 2009 to 2012 respectively.

Prior to 2009 there have been occasional sightings of Adders, on the concrete track leading up to, but outside the fenced area of Bowdown Heath. Immediately south of the fenced heath is a single refuge in the wooded area of Bowdown Area 11. No Adders or Common Lizards have been recorded under this refuge but it is a site for Slowworms and Grass Snakes. As

with the main heath, this refuge was recorded from 2009 to 2012. For a single stand alone refuge it has consistently provided records of Slowworms - a total of 114 over 4 years with a minimum of 18 and maximum of 42 in 2011. Grass Snakes are recorded in smaller numbers (total of 46 records, maximum of 16 and minimum of 9) but on a regular basis. In 2012 a second refuge was located nearby in the opposite wood edge in dark shade under trees for which there have been no records to date.

To the west of Bowdown Heath is a complex of linked survey areas. The main focus of the areas is an open north south well vegetated valley with, later in the summer especially, dense well grown plants including Bracken, rough grass and heather. The valley is flanked by woodland. In the valley is a pond and wet marshy area. The north end of the valley (Area 7) has one refuge, Area 8 to the south (onto the open woodland plateau above the valley) had by the 2012 survey 7 refuges. To the south are the grounds of Bowdown House, and its satellite property Bowdown Cottage. Further west is an open area in the wood (Area 9) in which 4 new refuges were laid down in September 2012 (really too late for this survey). To the western end of Bowdown House is an old dump area continuous with the BBOWT owned Paperdump (a site with two refuges). In 2011 four refuges were located in the grounds of Bowdown House and Cottage and (mostly) monitored by the property owners. As a whole this area supports all four reptiles, though not necessarily all species in each site. From 2009 to 2012 there has been small number of records for Adders in Bowdown Area 7 and Area 8 – perhaps two or three individuals. In 2012 an adult female was photographed at the south end of Bowdown 8 – and the possibility still exists that the species still uses the grounds of Bowdown House where in the past they were regularly seen sunning at the base of the steps on the edge of the formal part of the garden (possibly hibernating in the retaining wall of this formal lawn). In the other sites there have been no Adder records in the 2009 to 2012 period – though in the past the area of the Paperdump owned by BBOWT was a good place for them (there have been no records for several years). They could have been lost from this area as a result of it becoming scrubbed up. In recent years it is has been opened up again. It is possible that the extension of this dump area in the grounds of Bowdown House could also have been part of the range of the local Adders - and perhaps it still is. It was surveyed briefly in 2011 and in part remains open though it is mostly dense young trees. A more comprehensive survey of this area would be useful.

The other species of reptile in the Bowdown satellite sites are listed below. They are mostly seen in small numbers, though Bowdown Area 8 supports larger and more significant population of Slowworms and Common Lizard at least.

Grass Snake: Bowdown Area 7 (2011), Bowdown 8 (24 sightings in 2012), Bowdown Cottage (present in 2010, 2011) Bowdown House (present in 2010, 2011, 2012), Bowdown Paper Dump (21 records, 2010 to 2011)

Common Lizard: Bowdown Area 8 (31 sightings in 2010 to 2012), Bowdown House (6 sightings from 2009 to 2011), Bowdown Paper Dump (21 records, 2010 to 2011).

Slowworm: Bowdown Area 7 (4 sightings in 2011), Bowdown 8 (107 sightings 2010 to 2012 of which 89 in 2012), Bowdown Cottage (present 2012) Bowdown House (present 2010, 2011, 2012), Bowdown Paper Dump (43 records, 2010 to 2012)

Between Burys Bank Road and Bowdown Wood, either side of the access road is an area divided into two parts designated for the purpose of this survey Bowdown Approach North and Bowdown Approach South. These are open woodland areas with glades and tall leggy secondary woodland / scrub and Gorse. These open areas are potential link habitats between the reptile areas of Bowdown and the main part of the common. After four survey years no Adders have been seen in these areas – but the other three species are present, even if only in small numbers. Grass Snake sightings are rare with one record from 2009 for the North area and two single records from the South area in 2010 and 2011. Common Lizards have been seen more regularly but still in small numbers, specifically 6 records for the North area from 2009 to 2011 (none in 2012) – and 8 for the South area between 2010 and 2012 (five sightings in 2012). Slowworms, as in other areas, are the most common species. The North part of the area has a total of 40 records between 2009 and 2012 with the best year by far being 2010 (32 records). The South area has a total of 123 records from 2009 to 2012 with a high percentage of these (80 sightings, 65%) in 2012. Overall there appears to be a static or declining population of reptiles to the North - but by contrast an increasing population on the South side of the track.

Greenham Common Triangle ("Road Hole")

Greenham Common Triangle is an area of wooded common with a small remnant part open glade close to Burys Bank Road and south of the Bowdown wood complex. It is accessed from a roadside pull in. This area was included in the survey in 2009 because as recently as 2008 an Adder had been seen in the last remaining open area –it was seen retreating into a hole in the round at the base of a tree. The survey was more or less restricted to the one remaining open glade with occasional walks through the more heavily wooded areas. A maximum of two refuges were used, with one surviving in 2012. A small amount of scrub cutting was done earlier in the survey period to open up the area and create a small habitat pile.

Between 2009 and 2012 no Adders were seen, and this species is assumed to be no longer present in the area. The 2008 record was either the last snake present or a transitory snake moving through the area. If the latter, where did it come from? The remaining open habitats in this area are the large grounds associated with the properties to the north and east, and assuming that these grounds are not over-managed it is not impossible that they may still support populations of one or more reptiles. Within the glade there is a single record for Grass Snake in 2009 and single Common Lizards were seen in 2009 and 2010 but none in the last two years of the survey. Slowworms were recorded in similar numbers in all four years, with a total of 26 records (minimum 2 in 2010 and maximum 9 in 2012). The Slowworm is the only species where breeding has been proved.

This area is probably typical of many once more open sites on the Common which have through natural succession turned to dense shady woodland and thus become unsuitable for reptiles. Under these circumstances the last species to be lost is the Slowworm – and the results of this survey shows that this species can survive in small numbers even with the smallest of open areas – perhaps long after other species have gone.

Crookham Common (including Crookham Common, Eastern Extension)

The main (western) part of Crookham Common has been surveyed over the whole of the survey period (2009 to 2012) – but the mostly wooded eastern extension only surveyed in 2009. The results of the survey of this area are discussed first. Crookham Common East is mostly heavily wooded, but historically was open habitat and according to local sources was historically used by reptiles (including Adders). The eastern end of the area is universally heavily wooded with more or less no open areas such as glades and very uniformly sized trees. In 2009, no reptiles were recorded either under the one refuge used, or away from the refuge. At the western end close to the main Crookham Car Park are some open areas adjacent to the road. These areas were too exposed to install any refuges (there were no places to hide them away from unwanted interference) but careful searching revealed no reptiles here either.

At the beginning of the survey in 2009 the main part of Crookham Common was dominated by secondary Birch and Oak woodland, with in the central southern part of the common an area of open heath and an east west ride fringed by heath. There were also areas dominated by Bracken, both with and without trees. Some of the wooded areas had a continuous history of frequent cutting to supply materials to make besom brooms – a practice which had more or less finished by the time the survey began in 2009. The site is generally flat, except for the north - south orientated Thornford Gully in the western part of the Common. After two years of survey, in the autumn / winter 2010/11 a major habitat restoration scheme was begun with a large area of the central northern parts of the main common part felled – leaving occasional standards and copse of trees. Some of the brash was stacked as habitat piles. After the clearing, scrapes were created with the resulting spoil mounded to create future reptile sunning / hibernation mounds, some based around a core of wood and brash. The restoration works were informed by the previous two years reptile surveys – enabling key areas for reptiles (especially Adders) to be left undisturbed during the work.

All four reptiles are present on the main part of Crookham. Adders were recorded in similar numbers in each of the four years of the survey (27, 35, 27 and 27 sightings for 2009 to 2012 respectively). The photographic records from 2012 identified a minimum of 13 individuals present on site.

There appear to be three main areas for Adder activity on site. North of the main east – west track is Area C3 (C3 East). In the eastern corner of the Area is Refuge C3.1, in an east / west

strip of Birch woodland and fringe of heath alongside the path. North of the birch is recently opened up woodland, part of the 2010/11 clearing.

The south west corner of Area C3 (C3 West) is the location of Refuge C3.2. Prior to the tree clearing in 2010/11 it consisted of a narrow bank of mature heather, with dense low Birch to the north (re-growing coppice). After the clearing, the area to the north was primarily a bare open area with minimal cover with the bank side heather unchanged. There is a long standing raised mound which until 2009 was topped by a mature Gorse bush – a potentially significant feature for reptiles in a flat rather featureless habitat. (The bush was cut later during management work.)

The other main area for reptiles was Area C5, south of the main east / west path – a more or less triangular area of open dense level heather with sparse low scrub and occasional standard trees. The main heath area is broken up into smaller areas by spoil ridges created during a previous heathland restoration project.

In 2009 at least 5 Adders were recorded, three in C5, and 1 each in Area C3 East and West. In 2010, at least 3 Adders were present in C5 and 3 in C3.1. In 2011, at least 5 individuals were recorded in Area C5, 2 in C3 East, 1 from C3 West and unusually a single sighting to the north of Crookham Common (under Refuge C3.8). From photographic evidence in 2012, at least 13 individuals were present at Crookham – but with a different distribution. Two individuals were photographed in C5, six photographed in C3 West and 5 in C3 East (including new born young). A provisional analysis of the photographs suggests that each individual was only photographed in one area – but as there wasn't a comprehensive series of photographs throughout the season they could have moved between sites. Of the individuals identified over the three years - one individual was seen in all three years, and two in both 2011 and 2012. In 2010 there were 2 unique individuals, 5 unique animals in 2011 and 10 unique to 2012. Overall, at least 19 individual Adders have been present at Crookham in the period 2010 to 2012. At least 4 individuals were present in 2009.

Map 2.12 is a plot of all the Adder records on Crookham by month, with the very early season dates (February and March) being the best indicators of possible key hibernation areas. The map suggests the key three areas are C3 East (around Refuge C3.1), the south west corner of C3 and part of C5 (especially the northernmost ridge closest to the central east west path and the southern part of the area). Later season records also tend to be in these areas with a scattering of mid season records beyond these core areas. Care needs to be taken when working in these general areas, especially in the months between September and March / April. Large bushes, areas of uneven ground, old burrows etc are the kinds of features likely to be the actual sites.

Old School House, Crookham Common

Old School House is a property at the east end of Crookham Common. In the past all four reptiles have been found in the grounds including the Adder, even if in small numbers. In 2011 by agreement three refuges were laid down in the garden and monitored by the owner. Slowworms were the only species seen, with the same result in 2012 (source Mike Bloomfield). The number of reptiles on this property reflects the overall status of the species on Crookham Common as a whole and given the overall marginal status of the habitats in the garden the results are not a surprise.

New Greenham Park East

New Greenham Park East was introduced into the survey in 2011 and the subject of a full survey in 2011 and 2012. (There is some existing data for the site from a previous survey.) The site is very different from any other of the survey areas being brown field land made up of areas of concrete hard standing, bounded by unmanaged rough grass, scrub and bramble. The area is divided into two distinct parts – the northern upper area separated from the adjacent main common by a large steep spoil boundary bank ridge. To the west is a fenced off area of disused but maintained hard standing. To the east is a wet wooded gully and balancing pond. There are piles of concrete and tarmac and other dumped material in the north east corner of the area. A number of rubber refuge mats were re-discovered among the brambles and scrub and incorporated into the survey. In total 35 formal refuges were used over two years, 21 in 2011 and 33 in 2012 (with a bias of c. 2:1 for the Upper Area).

The southern Lower part of the site is an area of central hard standing with a steep scrub covered bank to north and west, to the east a continuance of the wooded gully which more or less continues along the southern margin. There is a fair amount of dumped rubbish, some of which provide good refuges for reptiles.

The upper part of the site is an informal access route to New Greenham Park from the main common, but is otherwise more or less undisturbed - and the Lower Area appears to be rarely accessed by people at all, with most visits being made for the purpose of monitoring reptiles.

Three species of reptile have been recorded, with the absent species being the Common Lizard (a finding backing up the previous site survey). The three species present are all in good numbers – making it one of the best reptile sites on / in the Greenham Common Area.

In 2011 there was 86 Adder sightings (evenly spread between the Upper and Lower areas) rising to 118 in 2012 (64 Lower and 54 Upper). Analysing the photographic evidence for Adders, a minimum total of 40 individuals were recorded in 2011 and 2012 for the area as a whole – 16 in 2011 and 32 in 2012 (more photographs were taken in the second year). There was no evidence of any interchange between the two parts of the site. In the Upper Area in 2011 there were at least 7 individuals seen, and 15 in 2012 – with 3 individuals seen only in

2011, 11 only in 2012 and 4 in both years. Over both years there were at least 18 individuals present. In the Lower Area at least 9 individuals were recorded in 2011 and 17 in 2012 – with over the two years at least 22 individuals present. Five individuals were photographed only in 2011, 13 only in 2012 and 4 in both years. Statistically the New Greenham Park colony is the best of the populations studied in this survey.

There are two core areas where Adders are seen. The south west corner of the Lower Area where the access track from the Park meets the area of hard standing has a large number of records from on, under or near one refuge (Refuge 103). A large number of the individuals seen in this part of the site have been photographed at this location – with all the early season records being from here. This is the main over-wintering area for Adders in the Lower Area – with several records for Adders disappearing into the bank where the access track from the Park levels out. Later in the season records are spread out further, with use made of the various artificial refuges as well as natural cover. There is only one record for Adders for the furthest open grassy glade in the north east corner of the Lower Area – the species mostly using the hard standing area or its margins.

The photographic evidence backs up the field observations and sightings that there is no movement of Adders between Lower and Upper Areas. The Upper Area records are concentrated in its north west corner – snakes being based on the large bramble covered boundary bank and especially on / under the two Refuges in this corner. The only early season records are for here, suggesting this is the key hibernation area for this part of New Greenham Park East. In 2011 there were several records for one Adder under a refuge at the south end of the Upper Area – but this was not seen in 2012 when all records except for one were for the north part of the area only. The one exception in 2012 was a single late season sighting of a snake close to the acces gate to into New Greenham Park - and the only sighting of this particular individual. Later in the year not too far away, two breeding females were seen regularly in the western part of the Upper area – on / around an old board covered drain in a patch of dense bramble.

A brief analysis of the dates of Adder sightings at New Greenham Park East (Map 2.13) shows early season record (February and March especially) in two areas – the south west corner of the lower area and round the two refuges in the north west corner of the Upper Area. If any site management or other work is proposed these particular areas should either be avoided or work carried out with great caution.

Grass Snakes are also common on site with 99 sightings in 2011 (a ratio of 3:1 for the Upper to Lower areas) and 131 in 2012 (2:1 ratio for the Upper to Lower areas). There is a mix of ages / sizes – ranging from large adults to new hatched young. The pond in the gully to the east is almost certainly a factor in the good number of Grass Snakes present on site.

Slowworms are abundant with 360 individuals recorded in 2011 rising to 1045 in 2012. The Upper Area has the most records (252 and 600 for 2011 and 2012) and Lower (108 and 445 respectively). The good number of records is in part down to the relatively large number of

refuges and frequent visits. The relative increase in the numbers of records in 2012 in the Lower is at least in part down to the increase in refuges (with the addition of the informal refuges made of concrete roofing). However, the habitat is very good and the population genuinely good.

Brushwood Gully

(With reference to Map 2.12)

Brushwood Gully, though it is within the fenced area of the main common is relatively quiet and undisturbed compared to other parts of the common. The area appears to be an old abandoned quarry now mostly scrubbed over – with among other open areas a small but significant glade at its western end. This area has a group of five main well established refuges and one small extra refuge also present for several years –but in this survey only monitored from later in 2010.

In 2012 the number of refuges was doubled by the inclusion of scattered refuges in the more densely scrubby western part of the site. These were not intensively monitored, in large part because access through the area is very difficult later in the summer.

All four species of reptile were recorded in this area, mostly in small numbers. There have been 22 records for Adders (14 in 2011) of what is believed to be two individuals (juvenile male and female). The exact status of Adders in this area still needs conformation. All sightings are later season dates – and the known snakes may over-winter in a different location to where they are seen. No adult Adders have been seen – perhaps indicating other animals (a main population) elsewhere in Brushwood Gully or relatively nearby. The survey area was extended and new refuges added in 2012 to try and find out more about Adders here – but more work is needed still.

Grass Snakes and Common Lizards were recorded in very small numbers only (10 records and 4 records respectively). Slowworms are also present but in much larger numbers. The small numbers in 2010 were because the site was not included until late in the season. For the full seasons of 2011 and 2012 there were 124 and 340 records respectively. The increase in 2012 may in part be down to the inclusion of new refuges but the number of records for these was not large and most of the increase was for the existing 5 main refuges. Based on simple analysis the refuges in Brushwood Gully have as many records as any of the survey sites looked at. (See Maps) The habitat is very good (dense cover including Bracken, scrub etc) with open areas providing a warm micro-climate. In 2012 the increase in numbers of sightings is remarkable. One observation is probably worth making. In 2011 the open area close to the original main refuges appeared to be more heavily disturbed by grazing animals than in 2012 – and experience (e.g. the numbers of reptiles seen at Bowdown in 2010 during summer grazing by ponies) suggests the higher levels of disturbance by animals the fewer the reptiles seen. However, it could be that it was simply a good year for Slowworms as some other sites have had similar results.

Greenham Common East
(With reference to Map 2.12)

All four species of reptiles have been seen in this area of mature dense (mostly) Gorse scrub over the four years of the survey – but only in small numbers (even Slowworms). Of the five well established refuges present in 2010 (the first survey year) only three remained in 2012. The missing refugia were removed by persons unknown and being difficult to hide the decision was made not to replace them. The best area for reptiles in 2012 is in the north west of the area – perhaps because in this area the open habitat consists of more or less closed glade contained within a dense patch of Gorse. A lot of the other open areas are alongside well used paths and thus too disturbed, for Adders at least. The population of Adders is believed to be small (two individuals in 2012 and only one other record in the survey). The connections between this colony (if any) and the other nearby populations (Thornford Hospital, Crookham Common and Brushwood Gully) would be worthy of investigation.

Goldfinch Heath and Goldfinch Pond
(With reference to Map 2.12)

Goldfinch Heath is an east west strip of heath in the south eastern part of the main block of Common, in part in existence because the land is kept clear under the route of the power lines. The eastern part of the Heath has been surveyed more intensively with ten refugesin 2012, from a starting point of six pre-existing refuges located in 2010.

All four species of reptile were recorded at Goldfinch Heath East. The site was introduced in 2011 and also surveyed in 2012 though less intensively later in the latter year as effort was concentrated on better sites. In 2011 there were 7 sightings of Adders of probably three individuals. In 2012 there was only a single Adder record, believed to be a different animal from any seen in 2011. Prior to 2011 there were additional records of Adders further to the west of the Goldfinch Heath East – but none were seen in this extended area of heath in 2011 or 2012 during the main survey. The 2012 survey, though less intensive, was more than sufficient to record any snakes if present. The apparent decline of Adders in this area has no confirmed explanation but one possibility is the closer (less open) nature of the site with much denser scrub and much less open ground. Adders were however found at the western end of Goldfinch Heath in another survey in 2012. It is possible that the Adders from the East area may have moved the relatively short distance into some of the relatively recently opened up western areas. (Also, see Goldfinch Pond summary below)

Of the other species in Goldfinch Heath East Grass Snakes show a similar pattern to Adders with a drop from 37 records in 2011 to only 1 in 2012. One of the reasons for initially including the site was that it was reported to be a very good site for Grass Snakes. Their decline could be for the same reason as Adders (scrub too mature). Common Lizards are not common, with only 3 records in 2011 / 12. The scrubby nature of the site is very suitable for

Slowworms. The number of records has dropped in 2012 cf. 2011 (from 185 to 135), though not massively and perhaps in line with reduced number of survey visits.

Goldfinch Pond is a site with early season records for Adders in 2012 and possible sightings (snakes not recorded to species and other records lost or overlooked and not listed in the appendices) in previous years. Three snakes were seen in 2012. It has been reported that Adders are also seen regularly in another property nearby, close to Goldfinch Heath Pond. It is possible this property is the over-wintering location for the Goldfinch Pond snakes – which may then spend the summer in the western part of Goldfinch Heath. There are no known or reported records for any other reptiles at Goldfinch Pond, though it seems unlikely that Grass Snakes do not use the site. If refuges were installed it is also very likely that Slowworms at least would be proved to be present and perhaps not uncommon in the denser areas of habitats at least.

More work is needed on the Adders in Goldfinch Heath and its nearby areas to get a better idea of the number of animals and any important sites for them - for example over-wintering sites. There is little information about reptiles for the bulk of Goldfinch Heath.

Heads Hill including Long Cottage

(With reference to Map 2.13)

Heads Hill, a small collection of dwellings on the south side of Greenham Common and the Common surrounding it was not intensively surveyed. One refuge was laid down for the 2012 season on a track edge. Most of the records for this area were supplied by a local resident, the grounds of his property supporting a small population of Adders, Grass Snakes and Slowworms – with only occasional and no very recent records for Common Lizard. Adders sightings in 2010 and 2011 were much reduced but picked up again 2012 – broadly matching the general pattern elsewhere on the common. Grass Snake and Slowworms have been proved to breed. Comprehensive records have not been received for this area for 2012, and thus no detailed summary is provided in this report. Heads Hill is fairly close to and at the west of Goldfinch Heath and Goldfinch Heath Pond (see above). Adders at least are known to occur in this area and more information is needed about the possible relationship between the populations of Adders in this area.

Control Tower

The Control Tower, or to be more precise the Tower but mostly its surrounds were introduced into the survey in 2011 – after a casual sighting of an Adder within the fence surrounding the Tower. Two refuges were put down on and next to the heaps of dumped spoil and two within the fence (one more or less where the Adder was seen the previous year).

The internal refuges were apparently not checked in 2011 (or at least no records received either positive or negative) and apparently removed before the 2012 season. (The fenced area is only accessed through a locked gate.) The two external sheets were checked regularly in 2011, but less so in 2012 (with one refuge being almost inaccessible). Only Grass Snakes (six individuals in two years) and Slowworms (one year only in very small numbers) have been recorded and the site apparently (based on existing records) not important for reptiles.

As it includes an area of dumped spoil and scrubby dense woodland the site has some features of value for reptiles - but being surrounded by very short heath habitats it has the disadvantage of being rather isolated from other good habitats.

Sandleford Heath, Pyle Hill including Pyle Hill Enclosure

This group of sites at the west end of Greenham Common form a continuous block and therefore are described together. Sandleford Heath is a large area of very open short heath with a high percentage of more or less bare ground between the bushes of Heather. In the north where Sandleford Heath ends, Pyle Hill begins – this being an area of scrub with open heathy glades. Between the two is the western extension of the former runway, in which is located a fenced off enclosed area (Pyle Hill Enclosure) set in a very open more or less bare area of open heathland..

Sandleford Heath was surveyed first in 2010 with full surveys in 2011 and 2012. There are two sets of refuges, one at the north (originally 5, soon reduced to 4) and one at the south of the heath (originally 5). The southern set was old and decaying when re-found in 2010. The northern set is more recent, but well established. The Pyle Hill refuges were introduced in 2011 (1 only) and 2012 (when made up to 5) and Pyle Hill Enclosure added in 2012 (2 refuges).

Sandleford Heath supports all four species of reptile, though not in large numbers. Only in 2012 after over two years of surveys was Grass Snake recorded. Common Lizard sightings number 9 over the three years (maximum 5 sightings in 2011). Slowworms have been recorded in increasing numbers namely 2, 16 and 54 in 2010, 2011 and 2012 respectively. Most of the records are from the northern set of refuges. The increase in number of records in 2012 could in part be a greater survey effort as Sandleford Heath was one of the sites recorded intensively by the extra volunteers. Adders have been seen in two locations – in 2010 at the north end of the heath on one of the relatively small raised areas in what is otherwise a very flat area (very early season record probably in its hibernation area).. The same snake was seen again at the south end of the heath in 2012.

Pyle Hill also supports four reptiles, following a not dissimilar pattern. Adders are more common with at least four individuals seen between 2011 and 2012 with a minimum of 18 individual sightings. There was only one record for 2012, bucking the general trend for other areas, where more Adders were seen than in 2011 or before. There is evidence off recent

successful breeding, with the presence of a least one small female seen late in 2011. In 2011 and 2012 there were 3 records of Grass Snake - and 2 records for Common Lizard in the same period. Slowworm records have increased dramatically in 2012 to 131 records, from 2 in 2011. There is a very simple reason for this and that is the increase from one refuge in 2011only installed late in the season in July - to five in 2012. Slowworms are more or less only found under refuges.

Pyle Hill Enclosure area was introduced in 2012, as a control area to see which species might be present in a very open part of the Common. Being in a fenced area the refuges are more or less free from disturbance, impossible in an unfenced area of the central common. No reptiles were necessarily even expected and indeed none were seen until late in 2012 when two Grass Snakes were seen – perhaps passing through on their way to a nearby final over-wintering site elsewhere.

Brackenhurst Heath

Brackenhurst Heath is a large area of short fairly open heath, well grazed by animals with extensive areas of bare ground between the bushes. It is divided into two well defined areas – one to the east and one west. Each of these areas has 5 well established refuges in good condition - and during the survey another group of even older (decaying) refuges found in the eastern area. The area was surveyed first in 2010, with two full seasons in 2011 and 2012. There was some disturbance to the refuges in the survey period, with two of the younger generation of refuges being lost / removed.

Only small numbers of reptiles were recorded. No evidence of Adders was found. Grass Snakes were seen in small numbers with a total of 15 records (a maximum of 11 in 2011), Common Lizards in even smaller numbers (5 records in three years, maximum of two in any given year) and Slowworms in better numbers – especially in 2012 (a good year for the species). A total of 86 Slowworms were recorded (56 in 2012, 20 in 2011 and 10 in 2010).

Brackenhurst Heath covers a large area and it was not possible to survey the whole area in an intensive manner – with records mostly from a variable transect route between the groups of refuges. The area covered is however indicative of the habitat and the results strongly suggests that the site is generally not good for reptiles. Most of the records are for the refuges, with very few records from the open habitats despite the number of surveys. The results are similar to other areas of the large open heaths e.g. Sandleford Heath (above).

Other Casual Adder Records, Greenham Common

Apart from main surveys and main survey sites other records have been collected / supplied in the period 2009 to 2012 - including some entirely casual records for Adders. Some of these are listed and briefly discussed below.

New Greenham Park West and New Greenham Park Northern Boundary Bank - There is a single Adder record in this rough area to the west of New Greenham Park in the area south of the Parks' northern boundary bank. The area has yet to be surveyed. It is possible that there is stand alone colony in this area perhaps based on the boundary bank (as is the colony in the Upper Area of New Greenham Park East). It is also possible it was an animal moving through – with the nearest known colony being in Aldernbridge Heath. An attempt was made in 2011 and 2012 to walk the boundary bank north of New Greenham Park but it was too densely vegetated for this to be easily achieved. This bank potentially provides a very good east west link for reptiles, potentially important as much of the common to the north is very open with little good cover.

Old Bomb Silos –The Old Bomb Silos are known to support a population of Adders (e.g. a verbal report and brief film available on the internet). If the circumstances of New Greenham Park East is good for reptiles, just how good might the Old Bomb Silo site be as it is even less disturbed with no public access at all and much larger. This site has the potential to be one of the best reptile sites in the Greenham area.

Open Common, North of New Greenham Park East – There is a single report of an Adder not far from the access gate into New Greenham Park East (NGPE), from the area of very short open common. This could have been a snake from New Greenham Park East itself, from the Heads Hill area or somewhere entirely different. (There is still a fairly complete plastic reptile fence around the boundary of NGPE which must restrict the movement of snakes in and out of the site.)

Open Common Near Aldernbridge Heath (Including Fire Plain Area) – There has been three records for Adder in this area – with the animals potentially being transitory animals from Aldernbridge Heath – but also potentially resident animals or animals moving through from other areas e.g. the Old Bomb Silos. Searches in this area has not found any evidence for reptiles but they could be present.

Seat East of Pyle Hill – Late in the 2011 season there was a record of an unconfirmed Adder on the path by the bench at the extreme eastern end of Pyle Hill - where it joins the central part of the common. When disturbed it was reported to escape down a hole (an old drain). If correctly identified, being a late record it could be an important record indicating a possible extension of the known colony in the central part of Pyle Hill. There have been no further records for this area.

Suggested Future Management

General Management Principles

Heathland and other open habitats can be good sites for reptiles, but simply being open and sunny is not sufficient. The different species tend to favour different parts of a site. Slowworms for example though present across a site will tend to be more abundant in more mixed structural edge habitats rather than classic open heath habitats. For reptiles, important and useful features could include:

- Ridges and banks suitable for sunning at all times of year and day
- Habitat piles such as log piles, brash piles etc., providing good sunning places and/or cover especially where the banks are located in more exposed areas with relatively little or low cover. Habitat piles can also provide alternative over-wintering sites if added to regularly.
- Short bare areas for sunning, which are especially useful where the dominant vegetation consists of closed or dense low vegetation or other cover such as heather, low scrub, bracken or tussocky grass. Large expanses of bare or open ground are not required as places also need to be sheltered especially earlier in the year. Bare areas can be very small and still useful.
- Artificial refuges such as corrugated iron sheets provide safe places from potential predators - and an easy way to monitor many of the species on site. Refuges should be used only where they are safe from interference and potential (accidental or deliberate) harm to any reptiles using them.
- Good over-wintering sites are vital – and include sites such as disused burrows, dense stands of vegetation or piles of stacked cut material. These sites need to provide stable conditions and protection from severe winter weather away from flooding and predators. The best over-wintering sites are often situated around the edges of open habitats where they change to other more shady or wooded habitats. They do not need to be in sunny areas.
- Usually individual animals use the same location each year (or at least for a period of years) and any damage to such sites when animals are in residence may mean they do survive the winter. Early season work in the area of over-wintering sites can disturb emerging animals and late season work can delay or prevent animals getting access to them.
- Over-wintering sites can easily be created where suitable sites do not exist. Both natural and artificial structures will be used.

Some of the major threats to reptiles include:

- Loss of open habitats by natural succession or other reasons
- Habitat fragmentation can result in reptile populations becoming small and isolated and more vulnerable if conditions change and become less suitable Small populations are less able to bounce back if they or the habitats they use are damaged.
- Too much accidental or deliberate disturbance can prevent normal behaviour such as sunning and perhaps most significantly pairing up. For small populations of slow breeding species such as Adders the latter could be very important. Populations on

sites with high levels of public access, including loose running dogs and/or open access will be especially vulnerable.

- Poor or badly timed (though well intentioned) management e.g. work that damages or destroys important features such as hibernation sites when animals are present or trying to gain their winter grounds. Management for reptiles does not need to be intensive.
- Persecution, i.e. active killing through fear and/or ignorance is not as bad as it once was, but can still be significant especially where numbers of animals are reduced for other reasons. To some people all legless reptiles are dangerous "Adders". There still is a general lack of appreciation of the ecological importance and scarcity of reptiles.
- The secretive nature of most reptiles, at most times of year at least, often means they are overlooked in general surveys and when site work plans are devised. Being less popular and less recorded than some groups, they can by default be relegated as being less important.
- By contrast when more people discover reptiles and become enthusiastic about them their new popularity can also cause problems - as their normal behaviour is curtailed when people keep seeking them out. One consequence of this popularity could be the dropping of refuge sheets on top of any resident animals causing injury and/or death. This happens when people see what is underneath and drop the sheet in surprise, or are careless when putting the refuges down again.

Thus the ideal reptile site includes:

- A good mix of open and transitional (e.g. wood edge) habitats, which provide safe and sheltered hibernation sites, all year round dense cover, sunning sites and breeding areas. These kind of habitats will also provide all the other things they need e.g. abundant food.
- Quiet undisturbed habitats, away from people and/or in large public access sites areas where people by default or design tend not to go.
- Open links to other areas of good habitat even if not directly adjacent, to allow individuals to make maximum use of the available habitats locally and to ensure that individual populations do not to become isolated.

Site managers and users that are aware of and appreciate reptiles can take them into account Reptiles will not necessarily be the number one management priority in all parts of a site, but in heaths and other open habitats should be considered as a potentially important component of the species on site. It is not difficult, as has been perceived by some in the past, to incorporate their needs alongside those of other species.

Site Specific Management Suggestions

Over and above the general guidelines outlined above, the following specific management tasks or issues have either been identified in 2012, or when relevant re-iterated from previous annual reports in the period 2009 to 2011.

Bowdown Heath

Work to diversify the vegetation structure in Bowdown Heath has already been started – including the creation of scrapes and low ridges and cutting back of the surrounding more mature trees to extend the area of open habitat. It is suggested a number of taller mounds and/or ridges are also created (smaller scale version of those during the work at Crookham Common) – potentially being made with a core of timber or brash covered in part by a more substantial depth of spoil. Spoil could be created by a digging some deeper scrapes. Another alternative would be to create the new mounds or ridges by first excavating a relatively deep pit, filled with wood, brash or other material to create a mounded pile which is then capped off using the original spoil. These habitats could be created anywhere within the ring fenced area – apart from actual suspected over-wintering sites (if known) to avoid harming reptiles already over-wintering. Work in summer months has the advantage that reptiles are active and less vulnerable. If in doubt surface rather than excavated features should be created. The larger more invasive works could be carried out in areas with no or little known current reptile interest e.g. the south west corner of the area that has recently been cleared of trees. In this area work could be done to further enhance the second ruin - adding more wood, brash and some spoil – concentrating on the central part of the feature rather than allowing it to spread wider. Another feature which could also be enhanced further is the spoil ridge to the north of the second ruin.

The more mature heath (around Refuges 12.1 and 12.2) where the main colony of Adders was seen in 2012 is very uniform and unless managed will succeed to more of a scrub habitat. It is very likely that this area is the over-wintering area for the Adders as well as their spring and summer habitat so any work would need to be undertaken with caution. However, some small stand alone discrete open areas would be useful not just for reptiles but other species as well. If these were cut with hand tools clearing bays where the ground is more or less visible (avoiding the densest stands where the ground is most protected) work could be undertaken this winter. A previous good area for Adders, the now mature area of woodland on the western edge of the current good stand is now so mature and has had so few reptile records in recent times that it could be opened up again. The suggested method would be to carefully take out all the more mature trees, leaving what remains of the low growing heather and other small / low scrub. Most if not all the cut material could be carefully stacked as compact habitat piles – and perhaps one or more new spoil covered banks / ridges created if nearby areas are to be bared. (Starting the clearing work in the wood edge under the shade of the tall trees where there is no ground cover would minimise disturbance to the remaining low dense cover habitats.)

To make future monitoring of the site easier and more effective a defined cut path (as are cut at Bishop Green Heath) through the denser stands could be cut as part of the general diversification of the structure of the stand.

Bowdown Wood Link Habitats

Alongside the work to improve the habitats on the fenced / grazed area of Bowdown Heath, the creation of more open more open link habitats to other areas in Bowdown Wood would also be useful. These links do not need to consist of large expanses of open habitats but could be smaller areas of discrete closely spaced open habitats with features such as habitat piles to accommodate and/or encourage both resident and transitory reptiles. Neither would they need to follow existing access routes (perhaps better for reptiles if they don't) - though in many cases they probably would at least in part.

Some suggested links are:

- Clearing a ride / series of glades west of Bowdown Heath to link up with areas Bowdown 7, Bowdown 8, Bowdown 9 and ultimately Bowdown Paperdump (BBOWT owned section). [Also, see Bowdown House section below.]
- Clearing to create link habitats between the BBOWT owned areas of Bowdown and grounds of Bowdown House.
- Creating link habitats to the east of Bowdown Heath to connect with the open areas in the wood e.g. the glade with the pond – and potentially any open woodland habitats in Baynes Wood

Paperdump, Bowdown House

BBOWT owns only a small part of the dump area in Bowdown Wood, with by the biggest section being within the grounds of Bowdown House. This area was cut (as parts of Crookham) to supply Birch for brooms, but has not been actively managed for a few years and become generally tall and shady. Part of the area could be cut and kept open, other parts be managed by rotational cutting and other left to grow on to more mature woodland. Cut material if not useful for other purposes should be stacked as compact ongoing habitat piles. This work could contribute to creating an open link route (or multiple routes) for reptiles between the BBOWT owned Bombdump area and Area 8.

Greenham Common Triangle ("Roadhole")

In terms of reptile habitat this area has reverted to woodland and in the process lost the majority of its reptiles. Re-colonisation will be required if it is to regain its former fauna and

this will only happen if a significant area of woodland is opened up (but not necessarily clear felled) to establish links to open habitats with existing reptile populations. It is suggested this is not of high priority in terms of the rest of the work described in this report, but can wait until the resources become available, perhaps as part of a wider landscape scheme on the Common as a whole.

Crookham Common

The main area of Crookham Common after the extensive work in recent years requires relatively little management – the recently cleared areas need time to mature and ground cover develop.

Consideration could be given to further opening up work to create better i.e. more open links between the main part of Crookham Common and main part of the Crookham / Greenham Common west of Old Thornford Road. These links don't need to be wide or continuous but sufficient to allow easier movement between the main and subsidiary part of the Commons. (The presence of the road is an obvious potential hazard for reptiles.)

Greenham Common East

In recent years the uniform (mostly Gorse) scrub has been cut back in places to create some open areas. Care needs to be taken not to cut too much scrub as the small populations of reptiles on site are dependent on the cover it provides. The thick impenetrable scrub also prevents easy access by people and dogs – which is critical in creating relatively undisturbed conditions without which reptiles (especially the Adder) would not survive. Given the intensity of grazing in the central area of the common regeneration of any cut trees cannot be relied on and the open areas may remain open.

It is thus suggested that any further clearing is done in such a manner that the cleared areas are as much as possible inaccessible or at least very difficult to access. The best method in larger stands at least would be to start in the centre of each block and work outwards, leaving a fringe of scrub uncut around the outside of the block and thus the glade hard to access. At least some of the cut material should be stacked as compact habitat piles.

Brushwood Gully

The western end of Brushwood Gully (the location of the five long term refuges) has been the subject of management in recent years, and currently does not require any immediate management except perhaps for some small scale cutting around the margins of the area

where more mature woodland is advancing into the glade. As the over-wintering site for Adders is not known care will need to be taken doing any such work.

To make it easier to access and survey the site as a whole, especially at its eastern end, some clearing could be undertaken to create a survey route and possibly additional open glades (potential refuge locations).

Goldfinch Heath

The eastern end of Goldfinch Heath is now dominated by dense low to medium height scrubby woodland, which is probably one of the contributing factors in the reduction in number of reptile records. The suggested management is selective thinning / cutting of some of the low woody growth and perhaps some of the taller surrounding trees if required located further back to reduce side shade when the sun is low in the sky.

New Greenham Park East

This area supports two good populations of reptiles, one centred on the north part of the Upper area and the other in the southern Lower part of the site. As the site is not managed the bramble, scrub and trees on site have grown unchecked and are becoming uniformly taller and dense such that the area of open wood edge habitats are much reduced. If no action is taken the site will in time revert to a woodland site with open grassland only surviving where browsing animals keep woody species at bay or shallow soils prevent their growth. Edge habitat where the hard standing meets the tree line will remain but be very narrow and uniform. If the area is to remain as an outstanding site for reptiles management work is required. Initially it is suggested that over the site as whole c. 25% of the woody species are cut and killed to create open grassy or bare habitats and 25% cut and managed by rotational cutting. This work would best staggered over two or three years, but could be carried out in one year if required. Small discrete areas including a series of glades linked by small paths and hidden glades should be created to maximise the length of edge habitats. As disturbance is a major problem there should be no direct open link created between the Upper and Lower Areas but a low to medium height variable width of dense strip of scrub retained towards the top of the boundary bank between the two. The southern part of the Upper Area should be an open structure (with secluded glades with difficult access) to help restrict disturbance further. Elsewhere scrub edges can be a more open habitat with access through it in the form of an easy route for effective monitoring. All cut material could be stacked as dense permanent compact habitat piles, located at regular intervals and strategic locations for ease of use. For example, the hard standing area in the centre of the lower area could easily accommodate large volumes of material. The piles should be added to during any future management to provide continuity of habitat. The remaining 50% of woody species can then be managed in part by rotational cutting in future years.

The site is not part of Greenham Common as such, but part of New Greenham Park and any such management would need to be agreed over and above any existing plans for the rest of the sites located on the Common proper. The area has been the subject of surveys in the past to inform potential future development and any proposed future uses are not known. It is however a very valuable reptile site – one of the best at Greenham (if not the best even with the absence of Common Lizards) and its loss to future development would be very significant.

Martindale Heath

Martindale Heath can be divided into three areas for management purposes. The upper plateau heath habitat is managed by cutting, especially the removal of woody tree species such as Birch. Most of the heather is relatively young and/or low bushes and now most of the trees have been cut down no more major opening is required, for reptiles at least. Indeed the vegetation could be allowed to grow taller and denser with some of the remaining small trees retained but managed by rotational cutting.

The quarry wall faces north and is in the most part shaded by trees to the north, if not actually obscured by scrub and trees growing at the foot of the slope. In places in the past the quarry has also been used a dump area for stable and other waste. There is a single early season record for an Adder in this quarry and the cover at the base of the slope would be suitable for over-wintering. Any clearing in such areas needs to be undertaken with caution, especially in winter months when over-wintering reptiles may be present.

The base of the quarry is dominated by secondary woodland. The floor is very uneven including spoil heaps and low areas which hold water at least on a seasonal basis. If resources permit, and other site interests permitting, this area could if partially cleared create alternative open habitats including perhaps amphibian breeding sites.

Bishop Green Heath

The habitat and current management of the heath habitats is from a reptile perspective very good. The dense mature heather with more open gaps and rides provides ideal conditions. Being off the main part of the common public access is very much reduced and disturbance levels very low. From a reptile perspective, the absence of grazing by stock is not a problem at all.

Aldernbridge Heath, Brackenhurst Heath and Sandleford Heath

These three sites are predominantly open short heath with abundant bare ground between the low bushes of heather. Relatively few reptile records were made for these areas. For example

Adders are present at the extreme ends of Aldernbridge but there are very few records of any reptiles from the very open northern part of the heath.

The structure of the heath is controlled by the currently high intensity of the grazing on the common – which applies to the whole of the main part of the common especially in the more open central parts where the grazing animals concentrate. The heath habitats on these sites are mostly too open and exposed to be good for reptiles - and for many other species too. (Overall the common is generally over grazed, in terms of both its intensity and seasonality.) Relaxation of the overall grazing levels would be of advantage to reptiles.

Pyle Hill

Taken as a whole, Pyle Hill has a good mix of open areas and denser scrub and trees. At the western end is a large expanse open to the adjacent short heath. Generally, however the site is dominated by scrub with smaller open areas only. These open areas have the advantage (from a reptile perspective) of being secluded and undisturbed glades contained within the scrub. It is suggested that large scale clearing is not required in Pyle Hill, but small scale work to cut back the taller / larger trees around the margins and within the existing open areas – and also create new glades of different sizes in uniformly dense wooded areas.

An alternative management approach – and one that is in some ways easier to follow is to work over large areas but adopt a thinning regime, whereby over selected areas all trees taller than a specified height e.g. 2 metres for taller glade margins or 1 metre for areas designed to be very open. Strips of taller wooded habitat can be left between glade dominated areas and along the boundary with the open common to maximise the undisturbed nature of the glades. The advantage of this work method is that the volume of scrub created in any given area is less than in a system of cutting blocks and it is easy to accommodate all cut material in ongoing compact habitat piles. (The largest component of the time of scrub cutting tasks is processing the cut material - and using this thinning method the time required for this part of the task is much reduced.)

Future Survey and Monitoring Recommendations

Overview

In the last four years a lot of information has been gathered about the reptiles on Greenham Common, Crookham Common and Bowdown Wood. However, there are still many remaining questions and no doubt new colonies to find. As conditions change on site the number and distribution of reptiles changes – some sites losing species but others with expanding populations. One of the aims of future recording and monitoring should be to record the spread of reptiles into the new cleared areas of Crookham Common as they

become less bare and ground cover begins to develop. This spread may be very slow for Adders at least, given the small number of animals present on site.

In future any information about reptiles at any of the existing, or new survey areas would be useful. For Adders, even casual records will add to the knowledge of the populations present especially if accompanied by photographs of the animals, especially the head markings.

One other survey of interest would be a more focussed study of Common Lizards given their apparent low populations and restricted distribution.

Bowdown Wood and Bowdown House

The current number and layout of refuges in Bowdown Wood is more or less sufficient in most of the survey areas with perhaps the exception of Area 7 which has only the one Refuge. If it is possible to extend a reptile survey to the Dump area within the grounds of Bowdown House a number of refuges could be installed here.

The distribution and status of Adders in Areas 7 and 8 (and possibly Bowdown House) needs more information and this should be a high priority for future surveys.

Control Tower and Thornford Hospital

It would be useful to continue and perhaps intensify the survey for the Control Tower and its surrounding area, to confirm the status of the Adder in this area. Was the 2010 record a casual sighting or is there a population present? Similarly it would be valuable to follow up the reported casual record from the surrounds of Thornford Hospital.

Crookham Common

As the vegetation in the cleared areas of Crookham Common and reptiles begin to colonise it would be useful to extend the coverage of refuges (in locations where they are less likely to be interfered with). One area that could have refuges added now is the area east of the main triangle of heath (C5) and south of the eastern area of C3. Also, the area west of Thornford Gully has been surveyed, but not as intensively as the rest of the area and without the use of refuges – and including this area on a regular basis would inform the status of reptiles between the known colonies on Crookham Common and Greenham Common East.

Brushwood Gully

More information about the population of Adders present on this site is still required – only a small number of juvenile animals have been seen and only later in the spring. Two of the unknowns are the possible presence of a larger population (including the missing breeding adults?) and the location of their over-wintering area.

Goldfinch Pond and Goldfinch Heath (East and West)

This area has received relatively little attention and it would be useful to carry out a more comprehensive survey to establish the status of all species including the Adder. There are currently no (known) refuges at this end of Goldfinch Heath. Further information on the apparent decline of snakes in Goldfinch Heath East would be useful. An intensification of the survey including a number of refuges spread through the central section of the Heath could provide information of the movement of reptiles between the two extremes of this heath area. It is also possible that Adders make use of nearby private property and this could be followed up too.

New Greenham Park East

No specific recommendations are made for survey work at New Greenham Park East if the conditions of the site remain the same. However, if some or all of the suggested management work is undertaken however, it would of interest to see if the distribution of, and use of the site by reptiles changes - specifically if there is any movement of Adders between the Upper and Lower levels.

Northern Boundary Bank and West End of New Greenham Park

The possibility of the boundary bank along the north edge of New Greenham Park as a link habitat for reptiles between the eastern and western parts of the main common deserves further investigation. Similarly a survey of the linked rougher area at the west end of the Park (where an Adder was seen in the 2009 to 2012 survey) would also be informative.

Bishop Green Heath

After two years of intensive survey much information has been collected about the reptiles at Bishop Green Heath. One question for which more information could be collected is the identification of precise over-wintering areas for Adders. The very early season records are concentrated in two areas but late summer records, which may also correspond to discrete

over-wintering sites for one or a small number of individuals, are scattered across the western part of the upper area. Early season records would confirm these as key areas to be treated with caution during management work.

Aldernbridge Heath, Brackenhurst Heath and Sandleford Heath

These three short open heaths and other open short areas across the central parts of the common have not been surveyed as intensively as other (often more marginal) sites. The 2009 to 2012 survey deliberately targeted known or potentially good reptile areas rather than adopt a policy of surveying all areas whatever their potential or actual value for reptiles. It is assumed from experience that the open habitats, especially areas with a lot of public access support few if any reptiles. Survey evidence from the three areas above suggests the assumptions to be broadly true. However, it would be worthwhile to try and gauge the actual value of such areas by either an intensive targeted survey (transect and/or refuges) perhaps backed up the pro-active collection of more casual records (from as many sources as possible) if only to confirm the status of reptiles in these open areas.

One of the possible results of such as survey could be the identification of outlying populations of reptiles including Adders – possible link populations between known populations identified in this 2009 to 2012 or other surveys.

Other Possible Survey Areas

Large parts of the open access parts of the common have already been included in the surveys carried out to date. Many of the remaining areas are wooded areas (wet and dry) less likely to support reptiles except perhaps Grass Snakes and Slowworms - and the rest marginal habitats for example scrubby areas along the margins of roads. For completeness information on these non-open habitats would be interesting.

Away from the open common there are also areas of privately owned land including both smaller residential properties and larger blocks of land. Sites that are located close to existing known reptile populations could be important links for the movement of animals, perhaps even over-wintering sites. Perhaps of potentially the greatest interest is the area of ground contained within the fenced off area of the Old Missile Silos. If for no other reason the area could be very good as it is very undisturbed. In structure the site is likely to be very similar the hard standing area at New Greenham Park East – a very good reptile site. One other site mentioned in previous reports is the large area of land of the Golf Course north west of the common, especially the areas of rough or marginal habitats. Perrmissions would need to be obtained to survey all private land from their respective owners.

Maps

Section One – Survey Report 2012

Map 1.01 - Survey Areas and Refuge Locations, 2012 (plus Key to Survey Areas)
Map 1.02 - All Reptile Records, 2012
Map 1.03 - All Reptile Records, 2012
Map 1.04 - Adder Records, 2102
Map 1.05 - Grass Snake Records, 2012
Map 1.06 - Common Lizard Records, 2012
Map 1.07 - Slowworm Records, 2012

Section Two – Survey Report 2009 to 2012

Map 2.01 – All Reptile Records, 2009
Map 2.02 – All Reptile Records, 2010
Map 2.03 – All Reptile Records, 2011

Notes on Maps

Map Data Coverage

Maps 1.01 to 1.09 shows the data for 2012, and are mostly for reference with Section 1 of the report.

Maps 2.01 to 2.14 show the data for the period 2009 to 2012, and are mostly for reference with Section 2 of the report.

Map Formats

Maps 1.01, 1.02, 2.01, 2.02, 2.03, 2.04 and 2.05 are simple dot maps, where the symbol only indicates the location of the record or feature.

Maps 2.11, 2.12, 2.13 and 2.14 are dot maps, with the colour of each dot coded according to the month of the record. The early season dots (dark blue) are plotted first and later season dots last (dark red).

The symbols on maps 1.04 to 1.08 and 2.06 to 2.10 take the form of variable sized circles with the size indicative of the number of records for the species at that location.

The maps for 2012 (maps 1.04 to 1.08) are plotted at the same scale for comparative purposes.

Maps for 2009 to 2012 (2.06 to 2.10) are also plotted to the same scale - but a different scale to the 2012 (only) Maps (1.04 to 1.08) and thus the two sets of maps cannot be compared directly.

Appendices

Note: All appendices are supplied separately as Excel spreadsheets.

Appendix 1	Visit Information 2009 to 2012
Appendix 2	Area Survey Dates 2010 to 2012
Appendix 3	Refuge Locations 2009 to 2012
Appendix 3.1	Number Refuges by Survey Area and Year
Appendix 4	All Records 2009
Appendix 5	All Records 2010
Appendix 5.1	Late Records 2010
Appendix 6	All Records 2011
Appendix 7	All Records 2012
Appendix 8	Refuge Survey Dates 2011
Appendix 9	Distribution Tables 2009 to 2012
Appendix 10	Reptile Distribution Comparison Tables 2009 to 2010
Appendix 11.1	Summary Record Tables 2012
Appendix 11.2	Summary Distribution Tables 2009 to 2012
Appendix 12	Adder Records 2009 to 2012
Appendix 13	Individual Adders by Year
Appendix 14	Individual Adders 2010
Appendix 15	Grass Snake Records 2009 to 2012
Appendix 16	Common Lizard Records 2009 to 2012
Appendix 17	Slowworm Records 2009 to 2012
Appendix 18	Non-Reptile Records 2009 to 2012