Greenham Common, Crookham Common and Bowdown Wood
Reptile Survey 2010

Rod d'Ayala and Martin Burdock, November 2010

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NOTE: Appendices1 to 14 supplied as separate digital data. Appendix 15 attached as a part of this document.

Executive Summary

This report includes the results of a reptile survey carried out in 2010 of parts of Greenham Common, Crookham Common and Bowdown Wood, designed to provide information about which species are present and where, their breeding status and any important areas for them. The survey is designed to build on information found in an initial survey in 2009. The scope of the 2010 survey was expanded to include eight new areas of Greenham Common, alongside most of the areas of Bowdown, Crookham and Greenham also surveyed in 2009. The length of survey period was increased to include the whole of the active season, from late winter to early autumn. The survey methods were otherwise as 2009, a transect survey using artificial refuges to provide additional data. Details were recorded of each individual reptile seen, with the full results provided as appendices and a summary and simple analysis being provided in the main text of the report.

In 2010 all four species of local reptiles were recorded i.e. Adder, Grass Snake, Common Lizard and Slowworm. Not all species were present on all sites, with the number and type of species being in part dependant on size, quality and type of habitat in each recording area. The Adder, the main target of the survey, was found in six of the sixteen recording areas, with proof of breeding in 2010 in one of these areas. Grass Snakes were found in ten of the recording areas, with breeding in 2010 in four sites. Common Lizard was found in twelve areas, with breeding proved in five sites. Slowworms were the most widespread and most numerous species being recorded in fifteen of the sixteen areas, with breeding proved in 2010 in five areas.

Adders were seen only in small numbers, mostly in the spring with relatively few mid or late season records. At least twenty one individual animals were recorded, with the best population being on Crookham Common, with juveniles from two of the past three years among the animals seen. The population at Bowdown continues to decline with only three individuals being seen in 2010. Most of the Greenham Common sites were not surveyed until May, and though the records are much less complete they do indicate the presence of several colonies, with in some cases proof of breeding in recent years. Additional records for Adders show they also occur in other parts of the three sites overall (i.e. Greenham, Crookham and Bowdown) and on other land holdings in and around these three sites.

Other reptiles were not surveyed in as much detail but the following summary observations can be made. Grass Snakes were seen in relatively small numbers and it is suspected the survey areas do not coincide with the main habitats of this species – they probably prefer the wetter gullies. The Common Lizard was widespread but apparently not common, though good weather may have meant they were very active and not easily approached and thus the number of records reduced. Slowworm was recorded in all areas where refuges were used, and are widespread but their abundance varies according to the type of habitats present. In most cases data is not sufficient to give trends for the species in any given areas, except perhaps for the heath area of Bowdown where analysis suggests an overall decline in all or most reptiles (not just Adder).

Based on the 2010 results suggestions are offered for future surveys, designed to inform both current and proposed small and large scale management for the sites as well as gather information on a wider scale for reptiles across the local area as a whole. This information is useful, and in some cases essential, to help safeguard and enhance any existing reptile populations not just where major management tasks to restore sites to heathland are proposed or being undertaken - but also on an ongoing basis given the potential importance of particular locations (especially over-wintering sites) which are easily damaged even during routine management tasks.

Background

In spring 2009 an intensive survey was carried out on Greenham Common (one area), Crookham Common (two areas) and Bowdown Wood (one area) to establish which species of reptile were present, including the location of any key areas on site including hibernation sites or breeding habitats. The survey found all four species of widespread native reptile to be present, with different numbers and combinations of species being seen in the various survey locations. The survey was primarily undertaken in the spring (late February to late April). Resources did not allow for intensive survey work later in the year, which could have identified other important areas for reptiles and/or confirm over-wintering areas or specific hibernation sites.

In 2010, this follow up survey was undertaken, designed in part to confirm and hopefully record in more detail any known hibernation sites, spring sunning areas and pairing up areas established in 2009. The 2010 survey also continued throughout the whole of the later seasons, extending into October. The later season survey was carried out to try and prove the breeding status of the species on site and with luck, by following individual animals until late in the year, confirm existing or identify previously unknown over-wintering sites.

Survey Methods, Personnel and Dates

The general survey methodology is described in the previous report for the 2009 survey – to which the reader is referred. The differences between the 2009 and 2010 records are as follows.

One of the 2009 survey areas was dropped (i.e. Crookham Common Extension) as it is believed there are no longer any reptiles (or at least significant numbers of reptiles) present any more. All other areas were re-surveyed i.e. Bowdown Heath and adjacent area, Bowdown Approach (part of Greenham Common), Greenham Triangle, and Crookham Common. The knowledge gained in 2009 on the numbers and locations of reptiles on site informed the scope of the intensive early season survey for the hibernation and early spring areas. The extended survey period throughout a whole season allowed information to be gathered on the breeding status of the species, and an attempt was made to track individual animals to see how they used their sites.

The survey was also extended to include areas either previously not recorded or areas recorded on an intermittent basis. These areas included two parts of Bowdown i.e. the Paper Dump and Bowdown Area 8 (open grassy gully on the way to the Paperdump from Bowdown Heath). Later in the season (May onwards) the survey was further extended to include eight areas of Greenham Common, which from this date were visited on a more or less regular basis. Many of these areas were already WBDC / BBOWT targets for reptile surveys having had a series of refuges (five for most sites) laid down in 2009. The Greenham sites included (working from west to east) Sandford Heath, Brackenhurst Heath, Aldernbridge Heath, Bishops Green Heath, Martindale Heath, Brushwood Gully and Greenham East (the far east section of Greenham dominated by tall Gorse scrub adjacent to Crookham Common). A small area of hard standing / wood edge habitat immediately east of the silos was added by RdA/MB though no refuges were laid down. This area was allocated the name “Silos East”.

The main surveyor in 2010 was Martin Burdock (MB) with assistance from Rod d’Ayala (RdA) and Andrew Burdock (AB). Other people also helped out and/or supplied additional records, including staff and volunteers from BBOWT as well as other local people with some records being derived from casual meetings with people met on site during the survey visits.

The first site visit was on 20 February 2010 (Visit 0), intended as a trial visit to see if any reptiles had emerged. (Two Adders were recorded at Crookham Common.) The first formal visit was on 1 March 2010 with altogether 42 visits being made up to and including 18 October 2010. Very few reptiles were seen on this last date (Visit 40) specifically a few Slowworms and a single Grass Snake across all the sites. One late (and final) visit is planned for the end of October to confirm the end of the season – a few reptiles can be seen this late in the year as long as the weather does not get too cold.

Detailed Results

The detailed results are included as Excel spreadsheets in a series of appendices (1 to 14). These are not printed out, but provided as digital attachments only. The appendices include the following:

- Table showing information about each visit including: date, personnel, time on site, weather conditions and areas surveyed.
- Table of survey areas
- Table of refuge locations including: area located, habitat, refuge type and grid reference
- All transect and other records for 2010, listed in survey / date order (Visits 0 to 40)
- All transect and other records for 2010, sorted by species and survey area
- 2010 summary distribution table for all reptiles and amphibians
- Species tables, comparing survey results 2009 and 2010
- Adder data only, extracted from full 2010 data, listed by survey area and date seen
- Table showing dates when known individual Adders sighted
- Grass Snake data only, extracted from full 2010 data, listed by survey area and date seen
- Common Lizard data only, extracted from full 2010 data, listed by survey area and date seen
- Slowworm data only, extracted from full 2010 data, listed by survey area and date seen
- All transect records for 2009, sorted by species and survey area
- Late records, as discussed in Addendum

These detailed results are summarised and analysed in words and tables in the next section, with the full results being included to allow independent and/or further analysis of the data. The 2009 data is included for convenience, to allow comparative analysis to be carried out without the need to refer to the 2009 report.

Summary of Results

Overall Results (All Sites)

As in 2009 all four species of widespread reptile were recorded, with their general distribution across all the survey areas summarised below in Table 1. The table gives no indication of abundance, only showing presence ("1") at each site as defined by at least one sighting of an individual animal and/or some other evidence e.g. a recently sloughed skin - or absence ("0") i.e.no evidence at all as being present. The table also shows areas where species have been known to breed in 2010, with the figure "**1**" in **bold** denoting the sighting of young born in 2010. Figures in brackets show the status of the species in that area in 2009, where known. (Many of the 2010 sites were not surveyed in 2009.)

Table 1 – Summary Reptile Distribution by Survey Area, 2010

Site		Adder	Grass Snake	Slowworm	Common Lizard		Total Species
Bowdown, Heath		1 (1)	1 (1)	**1** (1)	**1** (**1**)		4 (4)
Bowdown, Approach (Area 11)		0	**1**(**1**)	1(1)	0 (1)		2 (3)
Bowdown Paper Dump		0	1	1	1		3
Bowdown, Area 8		0	0	**1**	**1**		2
Greenham, Bowdown Approach North		0 (0)	0 (0)	1 (1)	1 (1)		2 (2)
Greenham, Bowdown Approach South		0 (0)	1 (1)	1 (1)	1 (0)		3 (2)
Greenham, Road Hole		0 (0)	0 (1)	**1** (1)	1 (1)		2 (3)
Greenham, East (Adj. Crookham)		0	1	1	0		2
Greenham, Brushwood Gully		1	1	**1**	1		4
Greenham, Martindale Heath		1	0	**1**	0		2
Greenham, Bishop Green Heath		**1**	1	**1**	**1**		4
Greenham, Aldernbridge Heath		0	1	1	1		3
Greenham, Brackenhurst Heath		0	1	**1**	1		3
Greenham, East of Silos		0	0	0	0		0
Greenham, Sandford Heath		1	0	1	1		3
Crookham Common		1 (1)	1 (0)	**1** (**1**)	1 (**1**)		4 (3)
16 Sites		6 (2)	10 (4)	15 (6)	12 (5)		43 (14)

Adder

Adders were recorded from 6 of the 16 survey areas. In 2010 very few records were made for Adders overall, despite the intensive survey effort. There was little evidence of successful breeding in 2010, only one animal born in 2010 seen on Greenham Common (Bishops Green Heath, 20 September 2010). However, there was evidence of breeding in recent years before this with young born in the years from 2007 to 2009 being seen. Male and female Adders were observed paired up on Crookham Common – pairs being seen in Area 9 and C5 breeding area – both these records being received from observers other than the main surveyors. Though other males and females were also seen together at Bowdown and Crookham (Area C3) these are

believed to be emergence / hibernation sites only and not an attempt to breed in 2010. A written summary of the records by survey area is given below, with a summary of the known individuals seen in each recording area shown in Table 2, also below.

At Bowdown (Heath) only three individuals were seen in 2010 despite the intensive survey. All sightings were made during the three survey visits between 22 March and 6 April respectively. No anecdotal or other records have been gleaned from sources other than those involved directly in this survey, suggesting the results may be accurate. Early in the year in March a pair (male and female) were observed on the ruin, presumably having used it as a hibernation site. One other animal, a male was seen in the open heath under or close to refuge 12.11 – perhaps indicating a hibernation site (suspected in 2009 but hard to confirm as there are very little in the way of prominent landmarks such as banks or stands of dense scrub). This male was seen simultaneously with the pair on the ruin, meaning there were at least 3 snakes present in 2010 – a marked reduction when compared to past numbers if results are correct. For example, in 2010, none were seen in the "traditional" breeding area under the Birch tree in Area B2. This lack of records is consistent with the recent trend for Bowdown with fewer Adders being seen in successive years.

Bowdown Paper Dump, formerly a good site for Adders (in 1980's) had no records in 2010. Neither was there any Adders seen in Area 8 on Bowdown, also anecdotally a good site for Adders in the past - at least later in the season. It is likely that one of the causes of the decline and ultimate loss of Adders at these sites is habitat changes – especially the loss of rough open habitats as secondary woodland has matured and shaded out the ground and lower shrub layers. Populations will have declined to a few isolated individuals with no chance of these colonies being revived by new animals as they become increasingly isolated from other populations of snakes, also in decline themselves.

On Crookham Common Adders in the main survey were seen in the spring in two locations – two females were seen early in the year sunning on their hibernation bank in Area C5 and a male and female seen at what is believed to be their hibernation site (in the base of a coppice Birch) in Area C3. The snakes in Area C5 were seen from 20 February to 6 April, but despite intensive searches were not seen again in 2010. The snakes in Areas C3 and C5 were seen simultaneously i.e. there were early in the year at least 4 adult Adders (3 females and a male) on Crookham. The pair in Area C3 also soon disappeared (male only seen on 1 March, and female seen until the 22 March).

Later, from 11 March to 6 April, three sightings were made of a single adult male Adder in what is believed to be the breeding area in C5 (as identified in 2009). It was not observed paired up with a female. This male is believed to be different from the male seen very early at the Birch hibernacula site in C3, but this cannot be stated with absolute confidence as they were seen at different times. The gap between the sightings of the males in C3 and C5 would have been enough time to allow the male to move from C3 to C5 in search of a female, the latter being a known breeding area. Another Adder, a juvenile female was seen later in the year (31 July) in the breeding area of C5 – but again only on one occasion. Despite intensive searches of all the main known areas and other possible less than optimal marginal habitats these were the only Adders seen in 2010 until much later in the year, when a small female was found (and photographed) on 20 September in area C3 very close to the Birch hibernation site - and even later still the adult female seen earlier in the year in C3 had returned presumably in preparation for hibernation (seen 25 September). The records thus suggest a population of at least 7 snakes on Crookham to this date - 5 adults (3 females and 2 males) and 2 juveniles (both female). These figures are based on the assumption the adult male seen in C5 in April is different from the animal that

emerged from hibernation in C3. The age of the juvenile in C5 was estimated as being born in 2007 or 2008. The small juvenile in C3 was probably born in 2009. There has thus been some successful breeding in recent years but how much it is not possible to say. Adders were not seen in the other spring locations identified in 2009.

The overall lack of records may indicate a small population at Crookham – which because of the large number of visits and intensive nature of the survey seems to be more likely than large numbers of animals being overlooked. However, in addition to the known "best" areas for Adders there was a casual record of two Adders in Area C9, a pair in the spring. This is one of the records from BBOWT / WBDC council staff and volunteers which were received too late to be included in most of the analysis in this report. (See addendum for a basic summary of these records). These animals would bring the number of animals present on Crookham up to at least 9, made up of 7 adults (4 female and 3 males) and 2 juveniles (both females). Area C9 where the pair were seen is a Bracken dominated glade surrounded by dense secondary woodland, fairly close to and north of the main open heath. In the spring it would be open and sunny - but later in the year relatively shady and cool as the ground became shaded by tall dense Bracken. At that time of year it would be considered less than optimal for Adders. There is no obvious open corridor linking this glade with rest of the open habitats in the central southern part of the common. The report of the Adders included mention of a mounded area – perhaps the hibernation site. The late receipt of these records and lack of detail supplied (to date) means they have yet to be followed up fully, but this needs to be done if only to avoid any damage to the site during any future work and before next spring when hopefully the snakes will be seen again. The area was subsequently briefly searched in September, but no evidence found for Adders.

Later in 2010 (September / October) one of the hibernation sites identified in 2009 (used by Adders 2008/2009) – a large mature dense Gorse bush in the south west corner of Area C3, was cleared entirely (raised to the ground) presumably as part of a wider heathland management policy. No Adders were seen in this area in spring 2010, but even if this lack of snakes means they have moved on the loss of this or any known hibernation sites is to be regretted and in future avoided if at all possible. Known sites should be logged and management undertaken only with great care, perhaps restricted to particular times of year when change will be less critical. Any management should aim to enhance the location as a hibernation site (e.g. any cut material being laid down as habitat) rather than expose the site to extremes of weather. Perhaps in retrospect as this is a known hibernation site, a dense habitat pile could be built and maintained on the spot where the old dense Gorse bush once stood. The overall habitat at Crookham being so flat and uniform offers relatively little in the way of good hibernation sites, and thus any potential dense areas with a greater variety of relief should be maintained and new such habitats created. Over-wintering sites are at a premium and a potential limiting factor for Adders at Crookham and many of the other local sites. The snakes that used this area in 2009 may have moved on or been lost. If they moved on, could they be the pair seen in the Bracken glade in Area 9?

On Greenham Common no Adders were seen on the areas surveyed in 2009 i.e. the approach to Bowdown both north and south of the access road and at the "Road Hole" (a small scrubby area north of Burys Bank Road). As part of an attempt to understand the distribution of reptiles across Greenham Common as a whole, the 2010 survey was in May extended to include a number of sites on the southern part Greenham Common. Adders were seen in four of these, namely Martindale Heath (a small isolated area of open heath off Thornford Road), Brushwood Gully (a small heathy undulating wooded glade south of New Greenham Park), Bishops Green Heath (a good sized but isolated area of heath on the southern edge of the Common) and Sandford Heath (an area of short flat open heath west of the silos). Adders were not seen in four "new" survey

areas i.e. Brackenhurst Heath south east and south of the silos, a small open area of hard standing / wood edge area east of the silos (no known formal name but called East Silos for this survey), the south end of Aldernbridge Heath (above and to the east of Aldernbridge Gully) and Greenham East (the mature Gorse stand at the far eastern end of the Common adjacent to Crookham Common). The total number of Adder sightings, mostly of known individuals was small - with across the four sites in total at least 9 snakes being recorded – made up of 5 adults (1 male, 4 female), 3 juveniles (all female) and 1 young of 2010 (female). Two other less good sightings were made, which may or may not have been known individuals or different animals.

Table 2 below shows a summary of positive records for Adders for all the survey areas. One of the best features of the records was the presence of some juveniles including a young snake from this year (2010) - suggesting perhaps reasonable sized colonies. The lack of adult records for the "new" Greenham sites is most likely down to them having been missed as the survey of these sites did not begin until well after emergence in the early spring. Experience of adult Adders on the other local sites in 2010 (i.e. Bowdown and Crookham) shows that they were obvious early in the season but simply "disappeared" for the rest of the year.

In total 53 records (not including sightings from other recorders which have yet to be fully processed) were made for Adders, with a probable minimum of 21 individual Adders being recorded across all of the survey areas on Bowdown, Greenham Common and Crookham Common. The number of records is low despite the intensive nature of the survey with over 40 visits carried (for some of the sites) out over the whole of the reptile season (February to October). However, reptiles including Adders can be very elusive and the lack of early season surveys on the Greenham sites (not brought into the survey route until May) will have reduced the potential number of records. Together, the survey areas form a large area of land and a comprehensive survey would require many more resources. Ideally more refuges would be used to increase the chances of seeing reptiles, these being especially helpful (acting as good focus points) later in the year when animals have dispersed from their over-wintering / early season sunning areas and generally spend less time basking in the open. Possible future strategies for the use of refuges are discussed later in the report. Other snakes not confirmed as either Adders or Grass Snakes were recorded on Crookham and other Adders on Greenham Common, thus there may be additional snakes to the 21 known individuals identified to date.

Table 2 - Summary of Individual Adder Records by Survey Area, 2010

Site	Male			Female			Total Known Individuals	Other Records
	Adult	Juvenile	Young (2010)	Adult	Juvenile)	Young (2010)		
Bowdown Heath	2	0	0	1	0	0	**3**	None
Crookham Common	3	0	0	4	2	0	**9**	Up to 4 sightings of snakes, species not recorded
Bishops Green Heath, (Greenham)	1	0	0	1	1	1	**4**	Adult F, Adult Gender N/R
Brushwood Gully (Greenham)	0	1	0	0	1	0	**2**	None
Martindale Heath (Greenham)	0	0	0	0	2	0	**2**	None
Sandford Heath (Greenham)	0	0	0	1	0	0	**1**	None
Totals	**6**	**1**	**0**	**7**	**6**	**1**	**21**	

Total Number of Adder Sightings (All Sites) 53
Other Sites, No Records - Bowdown Paperdump, Bowdown Area 8, Bowdown Approach North and South (Greenham), Road Hole (Greenham), Brackenhurst Heath (Greenham), Hardstanding East of Silos (Greenham), Aldernbridge Heath (Greenham), Greenham East (Gorse Scrub Adjacent to Crookham Common)
Other Sites, With Anecdotal Records - Bowdown House

Grass Snake
(With reference to Tables 1 and 3)

Grass Snakes were recorded in 10 of the 16 survey areas, with a total of 63 sightings. It is not possible to provide an overall estimate of number of individuals recorded. Of the 4 areas they were seen in 2009 only 3 had records in 2010 (not seen at Greenham Road Hole) but they were recorded at Crookham (where no records were made in 2009). The other six areas where the species was present, all new sites for 2010, included Bowdown Paper Dump and five of the Greenham sites. Nowhere was the species common with the maximum number of sightings being 15 at Crookham Common and 13 each for Bowdown Heath and Bowdown Approach (Area 11). For such a small area Bowdown Approach (Area 11) had comparatively a lot of records. All other sites had less than 10 records.

One possible reason for the paucity of Grass Snake records is that their preferred habitat could be the wetter gullies either in the more open marshy or wood edge habitats. This survey includes only dry heath habitats, which in the Greenham area given the abundance of wetter habitats could be the secondary habitat choice. Breeding was only proved in 2010 in one of the recording areas (Bowdown Approach, Area 11) – though juveniles from earlier years form a significant percentage of the sightings overall (just under 50%, though the percentage varies from site to site). If the species is more common elsewhere then it is quite possible Greenham Common and its surrounds overall, support a healthy breeding population,

Table 3 – Summary of Grass Snake Records, 2010

Grass Snake, 2010		**Number of Records**				**Notes**
Site		**Adult**	**Juv.**	**Young**	**Total**	
Bowdown, Heath		6	7	0	13	Mostly seen around ruin.
Bowdown, Approach (Area 11)		1	11	1	13	Presumably a breeding site nearby
Bowdown Paper Dump		0	5	0	5	
Bowdown, Area 8		0	0	0	0	Not recorded in 2010
Greenham, Bowdown Approach North		0	0	0	0	Not recorded in 2010
Greenham, Bowdown Approach South		0	1	0	1	Only one record in 2010
Greenham, Road Hole		0	0	0	0	Not recorded in 2010
Greenham, East (Adj. Crookham)		4	0	0	4	One individual only
Greenham, Brushwood Gully		0	2	0	2	Very few records.
Greenham, Martindale Heath		0	0	0	0	No records in 2010.
Greenham, Bishop Green Heath		6	1	0	7	
Greenham, Aldernbridge Heath		1	0	0	1	Very few records.
Greenham, Brackenhurst Heath		1	1	0	2	Very few records
Greenham, East of Silos		0	0	0	0	Not recorded in 2010
Greenham, Sandford Heath		0	0	0	0	Not recorded in 2010
Crookham Common		12	3	0	15	
Total 16 Sites		**31**	**31**	**1**	**63**	**10 sites, total 63 records**

Slowworm
(With reference to Tables 1 and 4)

In 2009 this species was the most widespread of the four reptiles, also supplying the most records. In the 2010 survey this pattern remains true with Slowworms being recorded from 15 of the 16 survey areas. (The only recorded absence being where no refuges were used.) They were present in 2010 in all of their 2009 sites. Breeding was proved this year (presence of young born in 2010) in 8 sites – for the original survey sites Bowdown Heath, Greenham Road Hole and Crookham and for the new 2010 areas Bowdown Area 8 and four of the Greenham heath areas.

Many of the sites had only a few sightings i.e. 8 of the 15 sites where present produced 10 or less sightings. Bowdown Heath still produced most sightings (106) and Crookham the second highest total (71). A group of five sites had between 20 and 32 sightings i.e. Bowdown Approach North and South, Bowdown Approach Area 11, Brushwood Gully and Bishop Green Heath.

Slowworm records are very dependent on refuges - an analysis of the data compiled from these sites in 2009 and 2010 shows 97.5% or records were under refuges (a figure very typical across all sites). Thus to some extent the number of records per site is dependent on the number and/or density of refuges - with other factors such as habitat suitability also influencing how many are seen. (This relationship is complicated by the fact that the presence of refuges could make habitats more suitable especially if vegetation is very open or very short i.e. their very presence may improve the suitability of habitats for them.) However, using a simple measure of number of sightings per survey visit per sheet for the sites in 2010, i.e. trying to create a measure of actual use rate of the sheets the best sites are as follows (in order of likelihood to see Slowworms) – Bowdown Approach Area 11, Bowdown Approach North, Bowdown Paperdump and Bowdown Approach South respectively. Bowdown Heath is the next most likely site to find Slowworms (but at only 40 % the rate of Bowdown Approach Area 11).

Experience of reptile surveys here and other sites suggests the best habitats to find Slowworms are not the most open short vegetation but areas which include a mix of shorter more open and shadier and taller scrub and long grass or similar dense cover. This at least part explains the relative lack of records for the shorter more open heathland habitat on parts of Greenham – and the apparent strength of colonies in sites such as Bowdown Approach North and South. (It should be remembered that the survey period in 2010 was shorter on the Greenham sites than the original survey sites also surveyed in 2009 and potentially a better comparison would be made from longer data sets for these sites i.e. like for like data.) Bowdown Heath is a small area of heath set in woodland, which has a different structure to the more open central Greenham heaths, and one that is more suitable for Slowworms in general. However, see next section on population trends for further analysis of Slowworms here and elsewhere in the survey area.

Table 4 – Summary of Slowworm Records, 2010

Slowworm, 2010		Number of Records				Notes
Site		**Adult**	**Juv.**	**Young**	**Total**	
Bowdown, Heath		76	19	11	106	Still supports a significant population.
Bowdown, Approach (Area 11)		24	0	0	24	No Juveniles or young seen
Bowdown Paper Dump		11	0	0	11	No Juveniles or young seen
Bowdown, Area 8		2	1	1	4	Limited data
Greenham, Bowdown Approach North		31	1	0	32	Good number of records for only two refuges.
Greenham, Bowdown Approach South		20	9	0	29	Good number of records for only two refuges.
Greenham, Road Hole		1	0	1	2	Small population only
Greenham, East (Adj. Crookham)		2	0	0	2	Small population only
Greenham, Brushwood Gully		10	10	1	21	High ratio of juveniles to adults
Greenham, Martindale Heath		4	4	1	9	High ratio of juveniles to adults
Greenham, Bishop Green Heath		2	9	9	20	Very high ratio of juveniles to adults
Greenham, Aldernbridge Heath		6	2	0	8	Population apparently not large
Greenham, Brackenhurst Heath		6	3	1	10	Population apparently not large
Greenham, East of Silos		0	0	0	0	No refuges used, absence of records expected.
Greenham, Sandford Heath		1	1	0	2	Apparently small population
Crookham Common		64	5	2	71	Very few juveniles
Total 16 Sites		**260**	**64**	**27**	**351**	**15 sites, total 351sightings**

Common Lizard
(With reference to Tables 1 and 5)

Recording Common Lizards can be difficult. Individual populations may be small and live in discreet locations that provide them with all they need to survive. They are small animals which though they can be quite easily be seen basking and approached fairly closely on cooler days, on warm days may move off without even being seen or heard. Though there is some use of refuges for basking and occasionally as shelter (i.e. under the refuge) most records (86.5% from the data collected in 2009 and 2010 for these sites) are for animals away from refuges. Thus, smaller and/or more compact sites where more of the habitat is walked through on a route to check refuges (e.g. Bowdown Paper Dump, Bowdown Heath and parts of Crookham) are more likely to have more records than larger habitats with fewer refuges (e.g. some of the larger more open heaths on Greenham) - where less of the site is covered.

The simple statistics for the Common Lizard are that in 2010 it was seen in 12 of the 16 recording areas. These include 5 of the 6 2009 recording areas. Of the 2009 sites with positive records, one apparently lost the species (Bowdown Approach, Area 11) in 2010, while another gained it (Bowdown Approach South). However, as the numbers of animals being seen in these locations is very small, this absence of records needs to be considered just as this rather than the actual complete absence of the species. Seven of the new survey areas included in the 2010 survey have records for Common Lizard, including all of the shorter open heath habitats. The Common Lizard is apparently absent from some of the more mature woody habitats e.g. Greenham East dominated by mature Gorse.

Nowhere were large numbers of Common Lizards seen and overall there were only 77 sightings made. Most of the recording areas, seven sites, had fewer than 5 records of individuals. Two sites had between five and nine records and three sites 10 or more records. Bowdown Heath had the most records – but this figure may not be as good as it seems as it is one of the areas where survey coverage is much greater as the site is relatively compact. Bishop Green Heath is one of the better areas for the number of records – it has a diverse structure including a lot of dense low cover and visually appears to be ideal for reptiles in general. Breeding in 2010 was only confirmed (by records of young born in 2010) on 3 of the 12 sites i.e. Bowdown Heath, Bowdown Area 8 and Bishop Green Heath (Greenham).

Given the difficulties of interpreting the survey results for this species it is not possible to be precise about its distribution except to say it is present across much of Greenham Common and its satellite sites.

Table 5 – Summary of Common Lizard Records, 2010

Common Lizard, 2010		Number of Records				Notes
Site		**Adult**	**Juv.**	**Young**	**Total**	
Bowdown, Heath		18	2	1	21	
Bowdown, Approach (Area 11)		0	0	0	0	
Bowdown Paper Dump		1	0	0	1	
Bowdown, Area 8		7	1	1	9	
Greenham, Bowdown Approach North		3	0	0	3	
Greenham, Bowdown Approach South		1	0	0	1	
Greenham, Road Hole		1	0	0	1	
Greenham, East (Adj. Crookham)		0	0	0	0	
Greenham, Brushwood Gully		3	0	0	3	
Greenham, Martindale Heath		0	0	0	0	
Greenham, Bishop Green Heath		11	3	1	15	
Greenham, Aldernbridge Heath		5	2	0	7	
Greenham, Brackenhurst Heath		1	1	0	2	
Greenham, East of Silos		0	0	0	0	
Greenham, Sandford Heath		0	1	0	1	
Crookham Common		11	2	0	13	
Total 16 Sites		**62**	**12**	**3**	**77**	**12 sites, total 77 sightings**

The Status of Reptiles, 2009 to 2010
(With reference to Appendix 5)

Overview

This section of the report is based on a more detailed analysis of the raw survey data, included in this report as Appendix 5. These tables are not reproduced in full in this, the text part of the report. The summary version of the tables in this section (Tables 6, 8, 9 and 10) show a comparison of the mean number of sightings per survey for all four of the reptile species in the survey areas. These tables compare the 2010 data with that collected in 2009, the 2009 results being treated as the equivalent of 100%.Two analyses are shown – the first compares the results of all data collected in 2010 (42 visits from February through to October) and all data collected in 2009 (19 spring visits between February and late April plus a single visit in August). The second column shows a comparison of a more similar dataset for 2010 (14 visits between February and end of April and an equivalent survey date in August) with all data collected in 2009 (actual period defined above).

A simplified version of these tables is reproduced here for each of the reptile species and each of the areas where statistically significant numbers of animals have been recorded and/or population trends can be identified. It could be argued that comparing only two years data is not ideal and could be misleading as all it may show is variations in sightings caused by many factors including luck, the weather during the survey and overall weather patterns for the year, or smaller scale seasonal population fluctuations – rather than actual medium or longer term population trends. However, assuming similar data is gathered in future years any such seasonal variations or vagaries of recording can better be identified an initial attempt to analyse any underlying population trends is of interest and can be confirmed or otherwise by later data.

Most of the Greenham Common sites only have records for the latter part of the 2010 survey and the data for these sites is thus only provisional. Obviously no general population trends can be identified from these sites, but if data is collected in 2011 then some comparison may be possible, though any such analysis will be complicated by the fact that the 2010 data only includes the latter part of the reptile season.

Different species use refuges to different degrees. For example, a simple analysis of data collected in 2009 and 2010 for the survey areas covered in this study reveals that 97.5% of Slowworm records were on or under refuges –with at the other extreme only 12% of Adder records being associated with these refuges. These differences are in part down to the way reptiles generally use the habitat around them – and on a smaller scale the refuges as part of this mosaic of available habitats. Analysis is also further complicated by the variability in number and/or density of refuges and overall quality of habitats on each site for each species of reptile. Thus any comparison of data based on refuge records alone, e.g. a very simple measure of the number of refuges compared with the number of records is very difficult - at least without much more detailed analysis and some sort of calibration for how important refuges are for each species and at each individual site. However, comparison of data for individual refuges and/or close groups of refuges between different years for particular species that make use them on a significant basis (especially Slowworms) may provide a more useful measure of population health. This has been touched upon above at recording area level above, but not used in detail in this report.

Adder

Good comparable data for Adders is available only from two of the recording areas i.e. Bowdown (Heath) and Crookham Common (Adders being recorded mostly from the central open heath). The data used for this comparison only includes records compiled during the main surveys and not "casual" or other records from other sources.

Table 6 – Population Trends for Adders, Bowdown and Crookham, 2009 and 2010

Site		All Data 2009 & 2010		Data with Similar Date Range, 2009 and 2010		Notes
Bowdown Heath		-83%		-54%		Few sightings overall, of less animals (only 3 in 2010). Only early season records in 2010.
Crookham		-44%		+78%		In 2010, sightings concentrated in early season, with later records relatively few and scattered.

At Bowdown the analysis of the data matches the overall impression gained during the survey, i.e. that there were significantly fewer records for Adders in 2010 than in 2009. The comparison of like for like data (same recording period) shows a halving of the number of records for Adders. Though more difficult to interpret a comparison of all the data collected shows a more dramatic decline – explained perhaps by a marked imbalance of records for the early part of the season, with very few records of Adders being made later in the year.

For Crookham the same analyses show quite different trends. Comparing like for like data (records gathered over a similar survey date period) there was a marked increase in records. This pattern is reversed when looking at the full data from both years with a decreased number of records being made – in part at least explained by the low number of later season records in 2010. If this pattern is a real trend, it will only be confirmed by collecting more data and making further comparisons in future years.

Given that there is more detailed information known about Adders than the other species another way to gauge possible trends is to compare the gender and age class of the snakes recorded in each year. For the two Adder sites surveyed in both 2009 and 2010 this data is shown in Table 7 below. It should be noted that here the 2010 data for Crookham includes some (but not all of the) Adder sightings made by recorders other than the main surveyors at times other than the main survey dates, i.e. it includes the pair seen in the Bracken glade in recording area C9.

Table 7 – Minimum Numbers of Individual Adders, Bowdown and Crookham, 2009 and 2010

Site	Male			Female			Unknown Gender			Total
	Adult	Juv.	Young	Adult	Juv.	Young	Adult	Juv.	Young	
Bowdown 2009	2	0	0	2	0	0	1	0	0	5
Bowdown 2010	2	0	0	1	0	0	0	0	0	3
Crookham 2009	6	0	0	3	0	0	1	0	0	10
Crookham 2010	3	0	0	4	2	0	0	0	0	9

Using this data the decline in Adders at Bowdown, as indicated by other measures above, holds true. However, the increase in Crookham does not and may simply be down to more frequent sightings of the snakes present (at least early in the year). Assuming in all cases the identification of snakes to gender has been correct over the two survey seasons (and early in the year especially it is not always easy to tell them apart), 10 and 9 snakes respectively were seen on Crookham in 2009 and 2010 – and a total of at least 13 snakes were present over the two years. In 2010 the main difference in patterns was the actual or apparent absence of a large number of the adult females seen in 2009 - and the presence of juveniles only seen in 2010. The presence of juvenile animals is very good as it indicates at least some successful breeding i.e. recruitment of new animals into the population. With perhaps as few as three adult females present, there may be on average only 10 young born per year (based on females breeding every third year). With a high rate of loss of these young before reaching maturity, any expansion from a low population such as probably exists at Crookham is likely to be slow. Recovery from a population base of three to five animals as may exist at Bowdown may not even be possible.

Grass Snake

Good comparable data for 2009 and 2010 for Grass Snakes exists for two sites, Bowdown and the adjacent Bowdown Approach (Area 11) – the small area of scrub / wood edge habitat adjacent to and outside the fenced and grazed area of heath at Bowdown. For the purpose of analysis this area has been looked at separately from the main Heath as it is not subject to the same management (grazing) and thus its populations of reptiles are subject to different controlling factors. Being so close to the grazed heath it is likely that the populations are at least linked and what happens in the larger heath area is likely to have an impact on the population outside the heath.

Table 8 – Population Trends for Grass Snakes 2009 and 2010

Site	All Data 2009 & 2010	Data with Similar Date Range, 2009 and 2010	Notes
Bowdown Heath	-14%	-80%	Another species in apparent decline on Bowdown Heath, the analysis backing up the impression gained during the survey.
Bowdown Approach (Area 11)	-14%	-63%	Decline in numbers seen (small area of habitat with one sheet), closely mirroring the downward trend in the nearby and closely linked Bowdown Heath.
Crookham	+600%	+160%	Data difficult to interpret.

Bowdown is the only area surveyed in both 2009 and 2010 that had significant numbers of Grass Snake records. As with the Adder the numbers of records per survey visit at Bowdown Heath dropped significantly between 2009 and 2010. For Grass Snakes, records from within the fenced area dropped more than from the Bowdown Approach - but perhaps not significantly so as the number of records from Bowdown Approach is only very small being based on sightings from a small area of scrub and from under / close to one refuge. For both the Heath and Approach areas the comparison of all data collected in 2009 and 2010 showed only a minor decrease – with this apparent anomaly being explained by the fact that Grass Snakes often emerge a bit later than the other reptiles with a higher percentage of the sightings being later in the year compared with the Adder. The comparison of like for like data is probably the best gauge of the population trend – and the result here backs up the observational result of significantly less Grass Snakes at Bowdown in 2010. If it is habitat changes that are part of the cause of the decline of snakes, in particular changes as a result of grazing, then it may be expected that the population primarily living outside the grazed area may be buffered and not show such a large decline but some decline as it is part of the wider and larger meta-population centred on the Heath. This may be what these figures show? (See other reptiles below.)

In 2010 the Grass Snake was not seen at Crookham until late in the survey and in 2010 there appears to have been a marked increase in overall numbers –however as these figures include sightings in May and beyond, a period not covered in 2009, the increase in numbers may not be either as significant as it appears or not even statistically valid at all. Any valid comparisons will have to wait for data from future survey seasons.

Grass Snakes do occur on other sites (see Tables 1 and 3) but it is not possible to do any analysis due to the limited data available in the surveys to date.

Common Lizard

Table 9 – Population Trends for Common Lizard 2009 and 2010

Site		All Data 2009 & 2010		Data with Similar Date Range, 2009 and 2010		Notes
Bowdown Heath		-64%		-52%		Common Lizard from this data is also in decline at Bowdown, in a year when other sites have had had more sightings.
Crookham		+24%		+88%		2010 does appear to have been a better year than 2009 for Common Lizards generally. The figures for 2010 show a marked increase in early sightings but overall a similar number of sightings.

In terms of comparable data, where statistically significant numbers of Common Lizard records have been made, it is possible in this report to compare only two areas, i.e. Bowdown and Crookham.

At Bowdown, Common Lizards were recorded in the main heath only – with none seen outside the grazed area i.e. Bowdown Approach, Recording Area 11, as they were (even if in small numbers) in 2009. The number of Lizard sightings in 2010 dropped significantly both when comparing like with like survey seasons and all data comparisons. These declines mirror the declines shown by the preceding two species (Adder and Grass Snake) and back up the general impression gained during the survey.

By contrast Crookham Common shows a significant increase in Common Lizard sightings in 2010 when compared with 2009, a result true for both methods of data comparison. (As above more caution needs to be used when comparing the two sets of full data which are collected over different recording periods.)

2010 in general does appear to have been a much better year for Common Lizards generally. The hot dry weather in 2010 was ideal – and later in the year the weather was so good that it may have been meant that all reptiles were more active and less dependent on basking – i.e. making them more difficult to record. (The refuges in general could have been too hot and used much less. This may in part have accounted for the lack of mid and late season Adder records.)

Slowworm

Slowworms being the more common and widespread species are found in more of the recording areas surveyed in 2009 and 2010, and thus there are five areas with significant numbers of comparable records and one area with small numbers where a population trend may be discernible. As Slowworms are so tied to refuges (almost 100% of records from being under refuges) an alternative population trend analysis could be carried out using data based on the number of records per survey per refuge sheet – which would potentially give an indication of the size of population on site, not just general trends of either more or less sightings. This figure is shown in the tables in Appendix 5, and discussed briefly in section on Slowworms above - but not discussed further here.

Table 10 – Population Trends for Slowworm, 2009 and 2010

Site		All Data 2009 & 2010		Data with Similar Date Range, 2009 and 2010		Notes
Bowdown Heath		-35%		-52%		Decline in number of records mirroring decline in other species of reptile in this area.
Bowdown Approach (Area 11)		-37%		-93%		Decline in numbers seen (small area of habitat with one sheet), mirroring decline in nearby and closely linked Bowdown Heath.
Crookham		-9%		+46%		More seen early season in 2010 cf. 2009 but overall similar numbers recorded
Bowdown Approach North		+660%		+40%		Significant increase in sightings in 2010 cf. 2009. Actual numbers relatively low so increases need to be put in perspective
Bowdown Approach South		+360%		+213%		Significant increase in sightings in 2010 cf. 2009. Actual numbers relatively low so increases need to be put in perspective
Greenham, Road Hole		-87%		-100%		No early season sightings in 2010 and overall very few sightings in 2010 cf. 2009

Based on a comparison of like for like data in 2009 and 2010 the Slowworm population at Bowdown has declined by about half for the main heath habitat and much more for the small outlying area outside the grazed area. A comparison of all data from the two years shows a decline of 35% and 37% respectively. This decline mirrors the status of all the other reptile species in this area and the observational result prior to any formal analysis of the data.

All other sites, where significant numbers of records were made to enable a good comparison, show an increase in number of records per survey for the like for like survey periods. The three areas where this comparison is possible are Crookham (the central open heath), Bowdown Approach North and Bowdown Approach South (both the latter being part of Greenham Common).

The results of the alternative analysis (i.e. all data for both years), shows different results. The number of records per survey shows a small decrease for Crookham - i.e. after an initial early season burst fewer Slowworms were recorded in mid and late seasons. As most Slowworms records made are of animals under refuges, this could be the result of less use of refuges later in the year due to the hot weather – there being either less need to use them and/or conditions under the refuges being unsuitable (too hot). For Bowdown Approach North and South (Greenham Common) the numbers of animals showed large increases using this measure (but the actual increase in terms of sightings being relatively small as starting from a small base number recorded in 2009). This pattern suggests perhaps more of the already resident Slowworms are finding and using the refuges and/or the presence of refuges is improving the habitat significantly for Slowworms and the population is in the process of expanding by breeding. If the latter were true the percentage of young animals would be expected to be higher. However, no detailed analysis has been carried out to identify which of these factors or any other possible factor(s) may be operating in these cases.

The Road Hole, a small area of mostly wooded habitat with small open areas just north of Burys Bank Road, shows a severe decline, admittedly from a very low number of records. This is not surprising as the remnant open areas are very small and getting smaller and more shaded all the time and losing what low dense ground cover or lower shrub layer they had. All species of reptile have declined here – with in 2010 only two species being recorded overall, i.e. Slowworm and Common Lizard - compared with three in 2009 when Grass Snake was also seen. There is a single record for an Adder in this area in 2008.

The Adder in the General Greenham Common Area

Though the two surveys in 2009 and 2010 have included all reptiles the main focus of the work has been Adders, which are perceived generally to be a declining species – with the limited available good data for many sites certainly not negating this trend. The overall distribution of the Adder in the Greenham area is thus of interest. An analysis of the distribution of the Adder as identified by the survey of the recording areas studied for this report, suggests a series of small potentially isolated populations, with in many cases no obvious suitable linking open habitat between the colonies. This general statement is based on site knowledge and a study of aerial photographs of Greenham Common and its surrounds on Google Earth.

One colony of Adders i.e. that living at Bowdown (Heath) is in decline, based on recent historical data including the results of this 2010 and the previous 2009 survey. This decline may be terminal. Adders have already been lost from other parts of Bowdown (e.g. the Paperdump)

though may still hang on in some other areas in Bowdown, for example the grounds of Bowdown House (owners having claimed to have seen them in recent years, if only in small numbers).

The population at Crookham, where 10 confirmed individuals were recorded in 2009 and 9 in 2010 is in the balance – but records for 2 juveniles in 2010 suggests there is some breeding and therefore hope for the future especially if some well targeted habitat restoration works are carried out. However, care needs to be taken not to inadvertently damage any of the existing animals or important areas they use (especially over-wintering sites) during this work.

The "new" survey sites on the western, southern and eastern parts of Greenham need more survey work to establish a better idea of the numbers and age ranges of animals present. The preliminary results from 2010 suggest a more promising picture as juveniles form a significant number of the sightings and there are several colonies scattered across a wide area of the common. No early visits were made to these areas so basking adults at their hibernation sites could easily have been missed. One of the key factors favouring Adders in many of these Greenham sites, especially those to the south of the common is that the areas of heath have a much better structure for reptiles including short sunning areas but also more areas of rough tussocky grass and mature heather. Some are also favoured by having a much more undulating and varied relief when compared to the central part of Greenham in particular. Probably just as importantly they are much less disturbed being visited by relatively few people compared to other parts of Greenham Common. Disturbance levels are also reduced as not all of them are grazed, a factor which may also be significant.

By contrast, the habitat at Bowdown (Heath) is much less suitable with relatively little diversity of structure - in part we believe down to its management. The site is flat with little relief. The existing vegetation is dominated in one area by low uniform Heather with abundant (re)generation of small trees. Other parts are shady secondary woodland or short heavily rabbit grazed grassland. In an attempt to get this abundant small tree cover under control the site is stocked by cattle which because they are penned into a small area have tended to maintain a rather uniform open habitat - rather than a mosaic of dense areas and shorter open patches. The existing structure is not as good as it could be from a reptile perspective. Being flat it lacks sunning banks and the uniformity of habitat means there is a lack of small open areas among the heather and few areas of dense cover (either living such as low scrub or large mature Heather patches or structures such as in habitat piles). The un-intensively managed nature of the heathland areas on some parts of Greenham Common is much more favourable for all reptiles - and perhaps of the four species present in the area for the Adder in particular.

There are other possible good areas for Adders in the local area. On Greenham Common is the fenced off, and thus inaccessible, silos area – which with its variety of landform including sunny slopes, no access and thus zero disturbance levels could be very good for all reptiles. We suggest that unless this site is included in future surveys the level of knowledge of reptiles will be significantly incomplete. In support of the potential value of this site there is a video of the silos area on the web (made in 2007 before its closure to access) which shows an adult male Adder basking on an area of hard standing.

Other possible sites adjacent to the commons where populations of reptiles may exist include the golf course to the north east of Greenham Common. Though Google Earth suggests it is rather manicured, there may be some parts of the site where reptiles could survive and perhaps even thrive, if tolerated by the site managers.

The owners of Bowdown House (located between Bowdown Paperdump, Bowdown Area 8, Bowdown Heath and Greenham Bowdown Approach North), reported in a brief conversation having all four species of reptile in their grounds – if in fewer numbers in 2010 than in previous years. If this is true, there is still the potential to link up and thus enhance Adder populations in Bowdown generally. The grounds appear to be a mix of regularly mown areas with other parts "wild" and unmanaged. This neglect is apparently by default rather than design as there is simply too much to do to manage the whole of the grounds. A possible consequence of this neglect is that there are quiet areas where little or nothing happens where reptiles could hide away and/or have the freedom to get on with life without being disturbed. A more detailed survey of these grounds would be ideal - which of course would require the permission of the landowners. Any more positive targeted future management of the grounds would require even greater partnership working.

Another local person, the owner of Compton Wood (the property to the south of Crookham Common) also revealed having all four species of reptile, including Adder on her land. Unfortunately, again she said there were generally less seen in 2010 than in previous years, with at the time of the conversation no sightings of Adder at all.

Another local contact is Simon Forbes who lives in one of the properties east of New Greenham Park in the area called Head's Hill. (His contact details were supplied by Jacky Akam). On his property are breeding Grass Snakes and Slowworms. Until very recently he also had Adders, which may have been lost / moved on after changes in the management of the ground. Common Lizards are apparently absent. He also reported large numbers of Adders on the marginal scrubby habitats on the eastern edge of New Greenham Park (on common land). These have been seen in the scrubby margins around the Park and could until recently easily be seen under boards. However, with the removal of the boards and growing up of the trees the current status of Adders here is not known. (It is our intention to follow up this conversation with a site visit later in the year.)

All of these sites illustrate the potential value of many if not all of the neighbouring landholdings, either as existing reptile sites or link sites for animals to move across. Individually they may be small and relatively unimportant - but potentially much more important as part of the overall habitat in the wider landscape. Their respective owners could all be very valuable partners in the Greenham Common Landscape project as a whole, and not just for Adders or other reptiles.

The future of the Adder and other reptiles on Greenham Common and its satellite sites is influenced by many factors, but perhaps the key factors are: the type and/or intensity of management; the level of disturbance (number and regularity of people and probably their dogs) and the potential isolation of colonies (especially where other factors may be less favourable to them). A strategy for the promotion of reptiles, probably especially Adders as this species seems to be in need of most help, will require the acceptance of not all areas of heath being the "blasted" short heath often much favoured in restoration schemes and ideal for many classic heathland species. Where structure such as sunning banks, small copses of low dense scrub or rough tussocky grass is absent, it should be deliberately created and/or encouraged by sympathetic management. The best strategy would be to have areas where grazing, especially relatively intense grazing by large animals is either not used or kept to an absolute minimum to ensure areas of mixed more mature habitat is maintained. In general, these areas, wherever possible, should be linked up with other open habitats allowing animals to move more easily between colonies - and colonise new areas if they are (or as they become) suitable.

To date, in the worthy attempt to improve the open habitats on and around Greenham Common, all effort has been made to get the management done, when perhaps a bit more benign neglect and slight under management could be a better strategy at least for some parts of the site. A re-think may be necessary in some areas, with perhaps the most obvious site surveyed in this report being Bowdown. The management of the small, area of Heath here is very intense and concentrated, in part because it needs its own group of grazing animals which are used to do a relatively intense period of grazing. One or more shorter burst of extensive grazing would probably not be cost efficient in terms of resources expended. The heath part of the site is also very small and in part at least already well grazed by rabbits. One way to improve on this management would be to erect a link fence with the rest of Greenham Common and open up a wider area of Bowdown for grazing including some of the woodland areas. The existing grazing animals on Greenham Common could then roam over a wider area including the small area of open heath creating an extensive grazing regime with minimal ongoing costs. Such a regime would be easier and cheaper to maintain and involve less work. The heath at Bowdown is also very uniform and would benefit from a much greater diversity of structure e.g. the creation of sunning banks, hibernation mounds etc. Some work is ongoing to create larger scale hibernation sites based on ideas developed after the 2009 survey, but the open heath areas would benefit from some smaller scale work as well. Both elements are important for reptiles if they are to do well on this site. The kind of structure as seen in the small areas of heath on the south part of Greenham would be a much better model to follow (these habitats perhaps best described as wooded heath rather than open short heath) These habitats would complement the shorter more open extensive areas of heath and/or grassland in the central / northern parts of Greenham Common. In general at present Bowdown Heath is in some respects over managed, working to a rather simplistic and perhaps inappropriate model.

Bowdown Paper Dump was once a good site for Adders. Though speculation, it is likely that the Paper Dump itself was primarily an over-wintering site with many of the reptiles moving into the surrounding area during the spring and summer months. The surrounding habitat was once much more open judging by the girth of many of the trees immediately adjacent which appear to be relatively small (20 years old?). The trees in the grounds of the adjacent Bowdown House appear to be a similar age. Prior to these trees growing up there would have been open easily navigable links with the broad dipping grassland and scrub in Area 8 and grounds of Bowdown House. Some animals may even have lived in and immediately around the Paper Dump itself as there must have been (and presumably still could be) abundant food in the form of small mammals if not other reptiles (e.g. Common Lizards) One idea for a future management scheme would be to open up large areas around the Paper Dump, and re-create the original conditions after it was first dumped on by stacking all the cut material in one massive heap. Digging or winching out a lot of the small trees would create large areas of bare ground. The area could be managed by extensive grazing (linked with Bowdown Heath as part of large grazing area) and the only other management that might be needed would be occasional rotational clearing of scrub. The core hibernation area may benefit from being fenced off from grazing animals to minimise access and disturbance to it.

Future Survey Work

Overview

To date the surveys carried out in 2009 and 2010 have concentrated on particular parts of Bowdown, Crookham and Greenham known to support either now or in the past populations of reptiles, especially Adders. The surveys have attempted to identify which species occur in which

areas and identify particularly important habitats or locations within these areas for reptiles e.g. hibernation sites.

Given the relatively short period of work to date there is still much to find out yet about the status of reptiles in the areas surveyed – especially as there are a lot of areas many of which have only been surveyed over all or part of one season. There are also many other areas where reptiles including Adders have been seen and/or could be present. Thus with limited resources it will be necessary to prioritise what survey work is undertaken – with two main reasons to gather information:

- To inform any current and/or future management work
- To find out about the status of species in the wider landscape and areas important for them.

Informing Current or Near Future Management

In terms of informing any current or near future management work the following survey priorities are suggested based on the results from the 2009 and 2010 surveys.

Crookham Common, Area C5 – In 2011 improve monitoring of the possible breeding areas in the open bracken areas of C5 by provision of additional refuges and if possible creation of complementary habitat piles. This area had some snake activity in 2010, but the dense bracken and lack of easy to check refuges meant the identity of snakes was not confirmed. The system of spoil banks in this area provide a good network of habitats that should be very good for reptiles and features that can be improved and added to over time.

Crookham Common, Area 9 - This area of dense Bracken in a woodland glade was the site for a pair of Adders in spring 2010 - which needs to be followed up in 2011. A similar approach is needed as with Area C5 above – creating a network of refuges and habitat piles taking care not to damage any likely potential hibernation sites. If this area is close to or part of woodland areas to be felled in winter 2010/2011 work should proceed on a precautionary basis. Wood and brash created as part of this work would provide ideal material for habitat piles.

Bowdown Heath – Though Bowdown Heath is believed to be in decline as a reptile habitat, work is underway to improve the existing open areas (e.g. hibernacula creation) and work is proposed to open up the surrounding woodland and providing extra open habitats. It would be useful to extend the system of refuges within the existing fenced areas to include a few around the margins of the new hibernacula being created on the western of the two ruins (the "main" eastern ruin in the past having been an important over-wintering site). If management is successful on this site (perhaps including some of the management suggestions in this report) and the reptile populations stabilise and increase then these new features could be important components of the habitat and results of any longer term monitoring provide evidence of any such improvement

Adding to Wider Site Knowledge

Greenham Common, Known Sites – The series of sites introduced into the survey in May 2010 all proved to have some reptiles and more information about what species and the status of the species is needed. An early season survey is essential to attempt to identify any hibernation sites for Adders in particular. As far as it is known none of the marginal sites are targets for any large scale restoration work in the near future so these surveys are perhaps not as critical as elsewhere,

but still potentially important, e.g. to ensure no hibernation sites are damaged by accident during the management that is undertaken. Adding additional refuges to these areas would be a useful aid to surveying these sites. The precise number and locations would need to be decided. However, just as an example Aldernbridge Heath has only six refuges located on a marginal spur of open land at the southern end of the site. There is obviously major scope to extent the network of monitoring refuges in the moiré undulating heath in the gully itself. This area with its variety of aspects and dense cover could be ideal reptile habitat and even a few refuges would give an indication of its potential value.

Greenham Common Silos – Though it is appreciated this area is not part of the area with open access as highlighted in the discussion on Adders above, it could be a very important quiet refuge for reptiles and as such would be well worth a targeted survey. Ideally a longer term series of surveys would be best, but if this was not possible a short one off survey would also be good to establish if and how the site is used. As there is no public access the site could be really good for reptiles. If there was no other impending use of the site, and the owners agreement could be obtained - it could be managed with reptiles very strongly in mind and act as a core area from which "excess" animals would move out and enhance the populations in the surrounding areas. (It may well already be acting in this way – providing safe overwintering and breeding sites with animals moving into the surrounding common in the summer months.)

New Greenham Park – During this survey records have been received of Adders from both the eastern and western ends of New Greenham Park – in both cases animals seen on the bank (believed to be common land) surrounding the park. These boundary zones which presumably are a mix of banks, scrub and open habitats could be very valuable habitats for all reptiles. However, unless they are identified as such and some information collected about which areas are most important, significant colonies could be lost through poorly timed or designed clearance work or at the other extreme neglect (often a small amount of well targeted work is all that is needed to maintain very good habitats).

Small Surrounding Land Owners – This survey has highlighted the potential value of working with even small landowners adjacent to or within Greenham Common and its surrounding area (e.g. Bowdown House, Compton House, properties at Head's Hill) If no such forum exists perhaps it would be worthwhile specifically targeting this group of people – asking for help / support with specific projects such as surveys or management work – especially when major tasks are working close or up to the boundaries of their properties.

Larger Land Owners – Working with larger land owners, on a similar basis as above, could provide large benefits for many species (not just reptiles) – but reptiles especially may gain as they may simply be overlooked and therefore damaged by accident –or be deemed to be problems (poor reputation) and by design discouraged if not actively managed against. The most obvious potential example of this type of land owner is the golf course north east of Greenham Common.

Involving the Public and Site Users – In the course of a year many thousands of visits are made to Greenham Common and its satellite sites. Though for numerous reasons it can be difficult to get many of these people more involved there may be some scope through newsletters, etc. to engage a more general interest in, knowledge of and concern for reptiles. Any records received would need to be vetted, as it is apparently difficult for many people to differentiate between even the few species we have, especially the two snakes. This work would need to be done very carefully to avoid too much interest and thus too much increase in the level of disturbance especially in key locations. The level of disturbance is already very high in the central parts of

the common. There could even be some persecution by less understanding individuals. To some people, even if a small minority, all scaly animals without legs are Adders and good only if dead. Refuges are useful monitoring tools but if used by everybody can be dangerous for reptiles if they are dropped on them – and perhaps simply abandoned if lifted up too often.

New Open Habitats – One way to study the rate of colonisation of any new open habitats created as part of the large scale heathland restoration project will be to install refuges into these areas as soon as possible after they have been opened up. Very early on refuges may be too obvious to lay down in large numbers but as habitats begin to mature more could be used. Initially refuges should be laid in association with any habitats such as basking banks, hibernacula or habitat piles created or exposed as part of the work.

Historic Records – Information on the past distribution and abundance of the species of reptiles on site is potentially very useful, and as with current information every opportunity should be taken to collect such information if it becomes available. This information could help to target both small and large scale management works, depending on the age and quality of the data supplied.

Other Surveys

One idea briefly discussed in 2010 was a project to radio track a number of individual Adders to see how where they go within their particular habitat – the fitting of a tracking device enabling individual Adders to be located even when undercover. This would be an interesting project, but it is felt at this stage of the surveys not necessarily the best use of limited resources when there are still major gaps in even the most basic knowledge about Adders in general on many of the known sites, and no knowledge at all for many areas. Details of exactly how such a project could be done are not known, but information on such a project would be worth gathering in the event resources became available.

Suggested Management

General Management Principles

The 2009 report included a simple summary of what kind of habitats are good for reptiles and some guidelines on how to manage sites with them in mind. This management summary is not included in the main part of the report, but has been included as Appendix 15, see below.

Specific Management Suggestions

Heathland Restoration Works, 2010/2011 – A meeting is to be arranged on site to look at and advise on the proposed heathland restoration works planned for autumn / winter 2010 / 2011 - at which both general and specific ideas will be discussed for the areas targeted for the initial works as part of this large scale project. Over and above any suggestions based on this some specific management tasks have been identified as a result of this 2010 survey, which are listed below.

Crookham Common, Restore Hibernacula in C3 West – As discussed above hibernation sites are key to the survival of reptiles and Adders have sites that may be used for many years. Identifying and undertaking careful well timed management of these areas is an important part of any management strategy. One such site a dense clump of Gorse was identified in the south west

corner of Recording Area C3 on Crookham Common in 2009 but apparently not occupied in spring 2010. Unfortunately, in late summer / autumn 2010 this area was entirely cleared, presumably as part of an overall heathland management programme. Small dense areas of mature scrub do not cause a problem for the habitat as a whole and a policy of automatically removing such stands would be far too simplistic. As this area was suitable in the past and the given the lack of such sites at Crookham which is generally very flat with little variation in relief it would be worthwhile trying to re-create some sort of dense structure (using brash and logs from other management work on site).

Bowdown Heath – As discussed above Bowdown Heath is generally rather uniform in structure and the creation of a greater diversity of small scale habitat structure would be a useful task – and perhaps help to stem the apparent decline in reptiles on this site. Some work is ongoing, e.g. the creation of a large hibernacula based on the ruins to in the western corner of the fenced area, one of the improvement identified during the 2009 survey. However, on the open heath area a project to create a larger number of small scale structures including brushwood habitat piles, spoil banks, hibernation sites(e.g. buried timber or brash) and small patches of bare ground for sunning would considerably improve the habitat for reptiles and other species. The numerous small birch trees could be removed in places (dug up) as part of this work, but in other be retained and allowed to form small low dense copses. These works are small scale, and should be considered alongside the bigger scale ideas suggested in this report above. In summary the large scale scheme would extend and link by fencing the small area of isolated grazed woody heath with the large adjacent area of extensively grazed Greenham, This large fenced area would take in not just the heath and its immediate surrounds but all the areas of woodland earmarked for thinning / felling and some of the retained woodland. The area could extend as far as the Paper Dump to the west and small silos to the south east. The latter area formerly had records for Adders but is now dominated by well established secondary woodland. The structure of the small silos may well have provided good early season emergence sites and possibly hibernation sites when the area was more open.

Bowdown Approach North and South – This area is one of the areas proposed for heathland restoration. Currently the habitat consists of either short open areas with more or less no ground cover or mature scrub or woodland. These areas of mature scrub may be the main overwintering areas for the relatively small population of reptiles present and thus care needs to be taken during any restoration work. Small scale habitat creation such as sunning / over wintering banks or habitat piles (made partly or entirely of material created during tree felling) would be very useful.

Bowdown Paperdump - Continue / extend tree felling around the core dump area, and use the material created to continue to enhance the over-wintering habitat. Unless very large areas of trees are felled here is probably no need to dispose of any material created in any other way. If space allows for a large area of tree felling, smaller scale habitat piles and similar habitats (away from the main dump area) would also be useful

Greenham Road Hole – Follow the main management principles as described above during any future main works in this area. However, if the area is not a target for clearance until the end of the work programme some interim work to keep the existing small areas open and create good habitat piles would be ideal.

Greenham Common – Though no specific management recommendations are suggested, whatever the ongoing management adopted in locations away from the central part of the Common including those outside the central grazed area (e.g. Bishops Green Heath) a

precautionary approach will be needed so as to minimise the risk of damaging to any over-wintering sites (none of which are currently known). Any such areas identified in future surveys should be recorded and managed in a sympathetic way and whenever possible their structure enhanced if management is taking place on site and/or nearby.

Addendum, November 2010

A number of records were received from staff and volunteers of the Living landscape Project which were too late for full inclusion into this report. The results have been added into the appendices as a stand-alone spreadsheet and a very brief summary is included below. Some records include detailed locations and other record specific information, while others are less specific (e.g. to species and compartment only). Any records of particular note will be followed up.

In total 52 reptile records were received, of 66 individual animals including 15 Adders, 12 Common Lizards, 10 Grass Snakes and 29 Slowworms. Many of the records back up the results of the main survey, with some casual records from areas not covered by the main survey. However, a quick initial analysis of the records reveals at least two records for Adder, one each from Aldernbridge Heath and Greenham East, from main recording areas where none were seen during the "official" visits. There are also Adder records from other parts of Greenham Common, e.g. the Control Tower. These results provide evidence for the suggestion that there are small discreet colonies of reptiles, including Adders, across the whole of Greenham Common and probably its surrounding sites. These small colonies could be making use of and/or surviving in a wide variety of habitats, wherever conditions allow.

What this relatively small dataset shows is the potential value of all records, however insignificant they may seem to be. The compilation of all such records is encouraged, whatever the more targeted longer term survey or monitoring strategies may be. With such a large area to cover and limited resources for more organised surveys, casual records could provide important information which will help to inform the future management of the site.

Also included in the addendum record sheet are the results from the last official survey visit (visit number 41, the 43rd visit in the year) made on 23 October 2010. Though the visit did not include all sites, most of the recording areas were visited and as expected for such a late date only a few reptiles were seen – specifically 2 Slowworms (Crookham Common) and 1 Grass Snake (Bowdown Approach, Area 11). All the animals seen were under refuges.

Appendix 15 - General Management Recommendations for Reptiles

NOTE – This section is taken from the 2009 report (more or less verbatim) and included here as a reminder of the main themes when devising site management plans that include reptiles.

Heathland and other open habitats can be good sites for reptiles; however simply being open and sunny is not enough, as they require a number of key habitats if they are to be successful. The different species tend to favour different parts of a site with for example Slowworms often being not uncommon across a site – but the larger breeding populations being in marginal mixed structure edge habitats rather than open "blasted" heath perhaps more favoured by Common Lizards, for example. Important and useful features could include:

- Ridges and banks suitable for sunning at all times of year
- Habitat piles such as log piles, brash piles etc. – which provide good sunning places and cover in more exposed areas with relatively little or low cover. They can also provide alternative hibernation sites if long lived (continually added to when work is carried out)
- Short bare areas for sunning, especially useful where close to denser low vegetation or other cover, e.g. heather, low scrub, bracken, tussocky grass etc.
- Artificial structures such as corrugated iron sheets provide very safe refuges from potential predators and an easy way to monitor many of the species on site
- Good hibernation sites are vital, e.g. underground 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 (including in low lying area flooding) as well as predators. The best hibernation sites are often situated around the edges of open habitats where these habitats change to other more shaded or wooded habitats.
- Individual animals usually use the same location each year and any damage to such sites when animals are present may mean they do survive the winter. Early season work may disturb emerging animals and late season work can delay or prevent animals getting access to these essential sites.
- Hibernation 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
- Isolation and reduction in size of populations as larger habitats become fragmented. Small populations are less able to bounce back if they or the habitats they use are damaged.
- Too much accidental disturbance, preventing normal behaviour such as feeding and perhaps most significantly pairing up. (For small populations of slow breeding species such as Adders this can be critical.) Reptiles on sites with high levels of public access (especially loose running dogs) and/or open access can be especially vulnerable.
- Poor (though well intentioned) management e.g. management works that damage or destroy important features such as hibernation sites when animals are present or trying to gain their winter grounds.
- Persecution, i.e. active killing because of fear and/or ignorance (to some, all legless reptiles are dangerous "Adders") is not as bad as it once was, but can still be significant especially where numbers of animals are much reduced for other reasons. 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 both in survey and when work plans for sites 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 can be the dropping of refuge sheets on top of animals and injury / death to them as people look to see what is underneath and either 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 area and to ensure that individual populations do not to become completely isolated.

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