



Wyre Forest Study Group

REVIEW OF HERPETOFAUNA BEHAVIOUR AND WEATHER CONDITIONS - 2004

Sylvia Sheldon



As recorded in the garden at Knowles Mill, Dowles Valley, in the Forest of Wyre: elevation 31m above mean sea level. Weather records have been taken since 1981. March 2005

The year 2004 will be remembered in Britain for its very wet summer, with disastrous floods in Boscastle and surrounding areas in Cornwall. As a whole it produced only average rainfall and sun. It was Britain's 5th warmest on record and 4th warmest globally, the ten warmest years all recorded since 1990. The world is undergoing climate changes that will affect us all over the coming decade and beyond.

2004 will also be remembered for the greatest natural disaster ever recorded. On the 26th December, an earthquake in the Indian Ocean, measuring 9 on the Richter Scale, caused the planet to wobble on its axis, and created devastating tsunamis all across the Indian Ocean. These gigantic waves travelled thousands of miles, and engulfed the Andaman and Nicobar Islands, the coastal communities of Sumatra, Thailand, Indonesia, Sri Lanka, east India and east Africa. A catastrophic disaster with colossal loss of life (over a quarter of a million people are known to have died, the true figure will never be known), which illustrates what an unpredictable planet we inhabit.

JANUARY began wet, windy and cold. On the 3rd a light covering of snow at dawn did not last long, as the snow soon turned to drizzle. Overall the month produced above-average temperatures. The wettest period was overnight on the 7th/8th, when 15.5mm of rain fell. On the 23rd, frogs were reported croaking in a garden pond near Bewdley. Between the 24th and 29th there were three days

with snowfall producing a depth of 5cm, with very cold arctic winds. On the last day of the month the Midlands experienced gale force winds of 60mph (even stronger gusts of up to 90mph were recorded in the S.W. of England). This was also the mildest day of the month with an air temperature of 10.5 °C.

Mean Monthly Maximum 6.5 °C. Mean Monthly Minimum 1.2 °C. Rainfall 93.2mm. Mean Humidity 85%.
15 Air Frosts. 24 Ground Frosts, 4 days with Snow, 2 with Sleet, 1 with Gales.

FEBRUARY was drier and milder than average. The mildest day was on the 3rd, with a temperature of 13.5 °C, it was also the wettest with 5.8mm of rain. In addition, small amounts of rain fell on each of the first 7 days of the month. This spell was followed by several dry, but mostly cloudy days. The first frogspawn was found on the 16th. Cold northeast winds persisted from the 18th with snow flurries on the 26th, 27th and 28th. There were no settled sunny spells to entice reptiles above ground. The coldest nights fell on the 26th and 29th (this was a leap year) with air temperatures of -6 °C and ground readings of -8 °C.

Mean Monthly Maximum 8 °C. Mean Monthly Minimum 1.5 °C.
Rainfall 34.7mm. Mean Humidity 81%.
14 Air Frosts, 20 Ground Frosts, 3 days with Snow.



Wyre Forest Study Group

MARCH was again drier than average. It began cold with northerly and easterly winds predominating until the 12th. The sharpest frosts of the winter were on the 1st and 2nd with minimum air temperatures of -7 °C and -8 °C and ground readings of -9 °C. However, on the 4th, a brief change in wind direction to the south (if for only 24 hours), saw the air temperature rise to 11 °C with a ground reading of 17.5 °C. This brought out the first male adder from hibernation, to bask in the soft, warm sunshine. Despite overnight frosts recorded on 19 occasions, 2 days with snow on the 11th and 12th and 5 days with hail, there were 21 days with some sunshine. A mild day with warm sun on the 16th brought out the first female adders, slow worms and butterflies in an air temperature of 16.3°C. The first lizard was seen on the 25th. The last day of the month was the warmest with an air temperature of 17.3 °C. Thirteen sites were surveyed for reptiles during the month, some were visited several times.

Mean Monthly Maximum 10.1 °C. Mean Monthly Minimum 2.0 °C. Rainfall 37.9mm. Mean Humidity 80%.
12 Air Frosts. 19 Ground Frosts. 2 days with Snow, 5 days with Hail.

APRIL showers produced torrential downpours on many occasions, contributing to a total of 17 days with rain. The wettest day was on the 26th with 27mm (over 1"). The month was wetter and warmer than average. The warmest day was on the 25th, with an air temperature of 21.8 °C. Earlier in the month, on the 7th, a male adder was observed with cloudy blue eyes, indicating his new skin was developing. However, it was not until the 19th that sloughed skins were found. From the 22nd onwards, a settled spell, with warm sunny spells triggered the male adders to seek out the females in breeding condition. Courtship was observed from the 24th, followed by copulation on the 25th, in an air temperature of 21.8 °C and ground readings of 31 °C. This was too hot for adders to be exposed for long periods and they consequently retreated under cover of vegetation. The weather deteriorated on the 26th under a deep low pressure system with heavy thunderstorms, rain and cold northerly winds, which persisted until the end of the month. Male adders were seen near females but no mating activity was observed.

Mean Monthly Maximum 13.6°C. Mean Monthly Minimum 4.5°C. Rainfall 122.3.mm Mean Humidity 79%.
5 Air Frosts. 11 Ground Frosts. 2 days with Hail. Thunderstorms on 26th.

MAY. The inclement spell continued, however, despite a misty cool morning on the 2nd, the gloom dispersed to give brief hazy sun and an air temperature of 18.2 °C, ground 22 °C by late morning, when a pair of adders were seen in

copulation. This was the last mating activity of the season as the weather closed in and was dominated by a low pressure area encircling Britain, the deepest low in May since 1943. The following days were overcast and cool, with hail and thunderstorms early on the 4th and more thundery showers on the 10th. Grey cloudy days persisted until the 13th when the north wind veered to the west bringing warmer conditions. Female adders were now seen to be alone, the males having left them to feed. The 4 warmest days of the month were the 16th, 17, 18th and 19th giving air temperatures of 22.5 °C. On the 26th conditions changed yet again giving cool, cloudy, unsettled weather with rain at times. The last day of the month was the wettest with 10.1mm.

Mean Monthly Maximum 16.1°C. Mean Monthly Minimum 6.4 °C. Rain 51.4mm. Mean Humidity 78%.
No Air Frosts. 4 Ground Frosts. 1 day with Hail. 2 days with Thunder.

JUNE began as May ended, with a damp, overcast, cool day, followed by improved conditions on the 2nd as the N.W. winds veered to the west and then the S.W. from the 4th and thereafter a settled spell of warm, even hot, sunny weather over the next 12 days. Female adders sloughed their skins during this period and moved on to their summer basking sites to incubate their young within. The 14th and 15th were the hottest days of the month (and the year) with air temperatures of 28 °C. On the 17th, low barometric pressure dominated, and this produced a lot of rain over the next 11 days, with only occasional glimpses of the sun. The wettest 24 hours occurred on the 22nd with over 25mm of rain. There were thunderstorms on the 27th, just one pleasant day on the 28th, followed by 2 rainy days to end the month.

Mean Monthly Maximum 20.8°C. Mean Monthly Minimum 10.5°C. Rainfall 51.9mm .Mean Humidity 75%.
No Frosts. Thunderstorms on the 27th.

JULY was very unsettled, producing 23 days with rain, ranging from light showers to heavy, torrential downpours. The wettest day fell on the 7th with gale force winds and thunderstorms, giving 10mm of rain falling after dark. The 8th was the coldest July day ever recorded at 11.5 °C, beneath another record low pressure system. There were several pleasant days interspersed between the wet ones, when pregnant females took the opportunity to bask in the warm sunshine. The warmest day was on the 29th with an air temperature of 25.5 °C.

Mean Monthly Maximum 19.5°C. Mean Monthly Minimum 10.8°C. Rainfall 60.2mm. Mean Humidity 80%.
No Frosts. 2 days with Thunder and Gales.



Wyre Forest Study Group

AUGUST was the wettest for 50 years, with 154.9mm (over 6") of rain. There were 21 rainy days, the wettest on the 3rd with 46.3mm and two other very wet days on the 12th and 23rd, with 23.6mm and 27.2mm respectively. There were 6 days with thunderstorms and there was a tornado reported in Uttoxeter, Staffordshire on the 23rd.

However, the weather in the Midlands paled into insignificance when compared to the devastating floods in Boscastle, north Cornwall. Here, 200.4mm (8") of rain fell in just a few hours on the 16th, causing the River Valency to burst its banks in the village, washing away 4 buildings and 76 vehicles into the Harbour and out to sea. Most of the village homes, shops, the Visitor Centre and pub were flooded, causing serious damage. Fortunately, there was no loss of life, due to the magnificent efforts of the Emergency Services. The Fire and Ambulance Services were aided by 7 Helicopters, who rescued 97 people, including 4 Firemen. This was the biggest British Helicopter rescue ever.

In Wyre Forest, despite the rainy days, there were several with beautiful sunshine, the warmest on the 8th with an air temperature of 27.5 °C (84 °F), all these all occurred in the first half of the month. From the 20th temperatures dropped when the wind veered from south, to the west, and then north west on the 26th. The pregnant female in a meadow nearby, disappeared when cattle were introduced and the meadow anthills where she basked were damaged. The month ended with 3 dry, but cool days.

Mean Monthly Max. 20.6°C. Mean Monthly Min. 11.8°C.
Rainfall 154.9mm. Mean Humidity 83%.
No Frosts. 6 Days with Thunderstorms.

SEPTEMBER began with 8 consecutive days of dry warm weather. The warmest days during this spell, fell on the 4th and 5th, with air temperatures of 22.5 °C. On the 13th, the pregnant female in the meadow was found unharmed, in the bramble scrub, together with a male and yearling, having returned to the meadow for hibernation. In Wyre, female adders usually give birth in early September, but the cool, wet summer had obviously reduced basking time, and it was taking longer for the incubating young to reach full-term. Despite the weather turning showery, this female was seen regularly during fine sunny spells throughout the month. On the 30th September she was seen back at her hibernation site, looking thinner! It was clear that she had given birth in the interim, despite the inclement weather. The month had been drier and sunnier than average. The wettest day fell on the 13th with 10.1mm.

Mean Monthly Maximum 17.4°C. Mean Monthly Minimum 9.2 °C. Rainfall 56.2mm. Mean Humidity 82%. No Frosts.

OCTOBER began on a high note on the 1st with the sighting of 3 baby adders basking in soft autumn sun. This was in an air temperature of 14 °C and 15 °C on the ground. They were seen again on the 5th., and they were the last adders to be seen this season. The 1st and 3rd were the warmest days of the month, and with 25 rainy days, October was another month to add to the "wetter than average" list. The wettest day was on the 23rd with 21.3mm of rain. There were gale force winds on the 27th, but the month ended with 2 dry, if cloudy, days.

Mean Monthly Maximum 11.5°C. Mean Monthly Minimum 5.0 °C. Rain 108.2mm. Mean Humidity 85%. 2 Air Frosts. 3 Ground Frosts. Gales on 27th.

NOVEMBER'S temperatures were above average. The warmest day was on the 22nd, when 12 °C was recorded, but sunshine was below average, recorded on only 9 days. There were 15 rainy days, the wettest on the 18th with 21.7mm of rain and sleet (snow fell in Birmingham, Derbyshire and the North), but the other 14 days gave only small amounts of rain and it was the driest November since 1988.

Mean Monthly Maximum 9.2°C. Mean Monthly Minimum 3.5 °C. Rainfall 45.6mm. Mean Humidity 84%.
2 Air Frosts. 15 Ground Frosts. 1 day with Sleet. 2 with Fog.

DECEMBER began quietly, with average temperatures, and gloomy days interspersed with a few pleasant ones with wintry sunshine. Small amounts of rain fell on 3 of those. An unusual reptile sighting occurred on the 15th, when a slow worm was reported, crossing a path in Habberley Valley. The day was overcast, mild, with no sun. The maximum air temperature was 10 °C and the ground reading only 8.5 °C. From the 16th onwards the weather fluctuated wildly between extremes. The mildest day occurred on the 23rd with an air temperature of 11 °C. Snow fell on Christmas Day, which is a rare event in the Midlands (the previous being in 1981). Temperatures plummeted and the coldest night was on the 27th with a ground frost of -8 °C. However, later that day the cold north wind veered to the west and brought in a band of heavy rain by evening. The wettest few hours of the month was recorded with 8.2mm of rain, although overall the month was drier than average.

Mean Monthly Maximum 6.0°C. Mean Monthly Minimum 1.3 °C. Rainfall 33.1mm. Mean Humidity 83%.
15 Air Frosts. 21 Ground Frosts. 3 days with Snow. 2 days with Hail.



Wyre Forest Study Group

Herpetofauna Data - Phenology

First frogspawn	16 February
First male adder	4 March
First female adder and slow-worm	16 March
First common lizard	25 March
First grass snake	2 April
First grass snake copulation	Not seen
First male adder slough	19 April
First adder courtship and combat	24 April
First adder mating	25 April
Last adder courtship	2 May
Last adder	5 October

2004 Phenological Data

Year	First Sighting	Air Temp. (°C)	Grass Temp. (°C)	First Slough
1990	5 February	13.0	14.0	8 April
1991	23 February	14.0	17.0	19 April
1992	23 February	13.0	15.0	22 April
1993	17 February	10.7	12.5	16 April
1994	10 February	10.0	15.0	18 April
1995	12 February	11.4	11.0	10 April
1996	16 February	12.2	15.0	24 April
1997	15 February	8.6	11.0	8 April
1998	11 February	13.6	12.5	17 April
1999	16 February	8.0	9.0	16 April
2000	19 February	6.3	12.5	7 April
2001	7 February	10.0	11.5	17 April
2002	11 February	13.5	16.0	9 April
2003	23 February	11.0	23.8	31 March
2004	4 March	11.0	17.5	19 April

Cumulative Data for Adders

Adder Population Data

Year	Sites Surveyed	Sites with Adders	Mature Males	Mature Females	Total	Average per Site
1990	56	50	185	55	240	4.8
1991	76	61	211	56	267	4.4
1992	78	55	159	33	192	3.5
1993	80	59	186	70	256	4.3
1994	76	50	153	29	182	3.6
1995	76	44	103	14	117	2.6
1996	80	41	112	32	144	3.5
1997	84	44	102	31	133	3
1998	85	42	103	34	137	3.3
1999	67	35	100	20	120	3.4
2000	87	24	69	13	82	3.4
2001	20	18	54	9	63	3.8
2002	20 **	13	36	17	53	4.0
2003	20 **	9	26	10	36	4.0
2004	20	11	30	10	40	3.6

Adder Numbers

* Limited by FMD restrictions

** Surveys restricted to selected sites



Wyre Forest Study Group

	No.Sites	Sites with Adders	Mature Males	Mature Females	Total	Average per Site
“Usual” Sites	20	11	30	10	40	
Extra Sites	27	9	10	9	19	
Total	47	20	40	19	58	2.9
Additional Sites Surveyed in 2004						

Year	Grass Snakes		Slow-Worms		Lizards	
	Mature	Juvenile	Mature	Juvenile	Mature	Juvenile
1990	30	6	23	3	22	2
1991	16	4	24	11	20	0
1992	22	8	27	8	10	3
1993	45	4	57	5	35	3
1994	18	2	36	10	22	1
1995	19	4	23	13	11	0
1996	18	4	32	16	15	0
1997	25	3	42	11	42	0
1998	20	1	34	8	37	0
1999	26	8	32	9	18	1
2000	11	1	21	3	23	0
2001	Data incomplete due to FMD					
2002	7	2	14	3	14	0
2003	5	0	10	0	26	0
2004	7	0	18	0	19	0
Other Reptiles Recorded in Wyre During Adder Census (2004 Data include additional sites surveyed)						

Discussion

My observations of adders in Wyre Forest since 1977 confirm that there has been a continual decline in population throughout this period, with the most dramatic reduction in numbers occurring over the past 10 years.

Since 1985, 87 sites supporting adders have been identified. In 2000, a survey of all these sites showed that only 24 of them - 27.5% of the total - still supported adders. Of these, several only contained isolated individuals.

In 2001, due to the Foot and Mouth Disease restrictions, only 20 selected key, sites were surveyed. The same sites were surveyed in 2002, and 2003. In 2004, 40 adders were seen, while a survey of 27 additional sites produced 19 adders. This gave a total of 59 mature individuals in 20 sites. It is hoped to survey these 47 sites in 2005, and other sites if time and weather permit.

The question I am asked repeatedly is...why have they declined?

I believe that the factors contributing to their decline can be grouped under three main headings:

- ❑ Destruction of, or degrading of hibernacula and surrounding habitat.
- ❑ Persecution, deliberate or otherwise.
- ❑ Increase in natural predation, particularly by buzzards, pheasants and corvids.

I shall discuss the first of these at length, as I consider this to be the major reason for the terminal decline of adder populations in some parts of Wyre Forest.

My first experience of a decline on a specific site occurred in the 1980's, when an area of oak and beech on New Parks, adjacent to the Deer Lawns, was thinned out. This was one of the prime adder sites in Worcestershire, supporting a population of approximately 30 mature adders, plus juveniles, grass snakes, slow worms and lizards. However, when thinning/felling took place, tractors and timber extractors drove repeatedly across the site and the main hibernaculum area. After this work was completed, a major decline in adder numbers soon became apparent, with only 4 males and 2 females recorded in 1990. Since then the site has declined still further, with only 1 male seen in 2004.



Wyre Forest Study Group

Throughout the 1970's and early 1980's the meadows at what is now English Nature's Lodge Hill Farm supported a good population of adders. During the early to mid 1980's The Nature Conservancy Council (NCC) introduced a grazing regime with cattle in the meadows. This very soon resulted in overgrazing. Cattle browsed the hedgerows and stripped the hedge-lines of the vegetation where the adders basked. The adders disappeared from this site.

Some of these adders migrated east to join an existing, and (at that time) flourishing population in a Larch plantation in Town Coppice, also then managed by N.C.C. This site has been my main study area since 1982 and has been monitored regularly for 22 years. Between 1982 and 1991, the population of approximately 30 mature adders plus juveniles, grass snakes, lizards and slow worms appeared reasonably stable. During the three winters from 1992 to 1995 the larch was clear-felled, involving the use of heavy machinery. The adders declined during those three years and in the spring of 1995 only one male adder was seen on this site.

As bracken and scrub developed adders moved into the area. From 1998 numbers slowly increased. Recently, annual ride and scrub management, by English Nature, using the inevitable heavy machinery, has once again seen adder numbers plummet.

During the 1990's other work took place in the forest, which I believe, has had a disastrous effect on adder populations. In the winter of 1993/94 work to widen the Elan Valley Water Pipeline, at Breakneck Bank, was undertaken. In the process huge piles of soil were deposited on the south facing verges, where previously up to 17 mature adders, plus juveniles, grass snakes, lizards and slow worms chose to bask and also to hibernate. In March and April 1994 a census was carried out, but only one male adder was found to have survived the work, basking just beyond the piles of soil. I presume the other reptiles were buried alive and suffocated. This site no longer supports reptiles.

“The situation is now critical, much consideration must be given in order to save the adder from extinction in Wyre Forest.”

Other work which has destroyed reptile habitat / hibernacula includes:

- (1) Clear-felling on Longdon Orchard and Wimperhill, where verges were damaged.
- (2) The digging of drainage ditches in Cleobury Coppice, with spoil deposited on verges.
- (3) Large scale scarifying of restock sites on New Parks and Fastings Coppice, which uprooted hibernacula.
- (4) The laying of hedges and erection of new fencing in Coopers Mill Meadow, along hedgerows that were used by adders for hibernation.
- (5) The creation of dragonfly ponds and other conservation work targeting butterflies and invertebrates, which has destroyed adder habitat.
- (6) In 1997 Bewdley Business Park was granted permission to develop (synonym for destroy) a meadow, consisting of rough grassland, at Long Bank (despite overwhelming and vociferous opposition). In January 1998, I approached the Company Director and informed him that the meadow was one of the major reptile sites in the area. He informed me that a Wildlife Consultant from Oxfordshire, was employed by the company to survey the site and could find nothing of wildlife value! The site was scheduled for development in March 1998. I immediately approached English Nature, but it would appear that nothing could be done to stop the work! Although adders, grass snakes and slow worms are protected under The Wildlife and Countryside Act 1981, in most cases their habitat has no protection whatsoever.

I persuaded the company director to delay the planned work until late May, and, with a colleague, managed to catch up 14 mature adders, 7 juveniles, a grass snake and 3 slow worms, which, almost certainly, would have been killed. Based on wider survey work this may have represented 10% of the total adder population in the County of Worcestershire.

A total of 25 reptiles were translocated to 4 suitable sites at least 2 miles from the Business Park. This rescue was undertaken with reluctance and very much as a last resort, as introducing reptiles into an alien environment, where they have no established hibernacula, feeding area or home range, is often unsuccessful, and some must die from stress or starvation, but it does give them at least some chance of survival. Several of the adders did, in fact, survive and have been monitored ever since. One 3 year old juvenile in 1998, was still to be seen in 2004, now 11 years old.



Wyre Forest Study Group

After many years of observing adders and seeing many prime sites destroyed. I am still hopeful that the few remaining sites can be managed more sensitively for the benefit of adders. In most cases where damage has occurred, this has resulted from ignorance and the use of heavy machinery.

On a more positive note, I must give credit to the Forestry Commission, for sympathetic management of a site along Dowles Valley. This has improved the habitat significantly for reptiles, although sadly, a female adder and a slow worm were found dead in 2004. The Forestry Commission is also researching the effects of forestry work on adder populations. In recent years English Nature in Wyre are also showing concern over the decline. Hopefully, other Forest Managers will follow suit. The long, hot, dry summer of 2003 meant that adders were able to feed successfully throughout their active season. This resulted in at least 11 female adders coming into breeding condition in 2004. It is hoped they have produced enough offspring to enhance the fast dwindling population. The situation is now critical, much thought and consideration must be given to all remaining sites, in order to save the adder from extinction Wyre Forest.

Adders are secretive creatures who spend much of their life underground. They are extremely sensitive to ground vibrations and acutely aware of any changes to their local environment. While in hibernation they are vulnerable: the burrows they use may be destroyed by heavy machinery or excavation / post driving while fencing work is being carried out.

Only with hindsight have certain factors which adversely affect adder populations been identified, other than the ever-present shading out of existing sites by scrub encroachment and conifer thicket.

Acknowledgements

I would like to thank Chris Bradley, Alonza Garbett, Rosemary Winnall, Phil Rudlin, Jeff Hubball, Stuart and Maureen Leadley, Ray Lee and Nigel Hand for their census work, all those who reported reptile sightings, and the Landowners on whose property the study has been undertaken.

