

Wyre Forest Study Group

REVIEW OF HERPETOFAUNA BEHAVIOUR AND WEATHER CONDITIONS - 2003

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

JANUARY was the sunniest since records began, but quite cold in the low-angled sunshine. The first three days were wet (following the trend of December 2002), followed by colder conditions and snow flurries on the 4th, 6th, and 8th, together with severe night frosts. The night of the 8th was the coldest, when an air frost of -6.5°C and -10.0°C ground frost were recorded. Eight of the first 11 days saw the ground temperature fail to rise above freezing. Milder conditions prevailed from the 12th. The wettest day was the 18th when 10.4mm of rain fell. The warmest day was the 26th with an air temperature of 14.0°C in the Dowles Valley, this was exceeded in Aberdeenshire, where a January record of 18°C was set.

The month ended with roaring westerly winds that turned northerly, bringing scudding wintry showers to Wyre Forest, which was sheltered from the worst of the blizzards and snowdrifts that covered the surrounding areas. However, there was no escape from the bitter, arctic winds that brought a few snow flurries on the last day of the month.

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
6.1°C	-2.8°C	47.6mm	82%

Air frosts: 16 Ground frosts: 25

FEBRUARY continued with hail, sleet, and snow showers until the 5th. It was a generally cold month with frosts recorded on all but 4 nights. The night of the 18th saw the lowest temperature of the winter with a ground frost of -12.0°C . A most unusual weather phenomenon occurred on the same day, when the lowest ever humidity record (an incredible 1.6%) was recorded at Altnaharra, on the edge of Loch Naver in the Scottish Highlands. This was said to be due to the Fohn Effect, which is caused by warm dry winds. The first mild, sunny day was the 23rd, when the air temperature was 11.0°C and the ground was 23.8°C ; and it brought the **first male adder** to be seen out of hibernation. The next day saw the first report of **frogspawn** in the area, in a pond in near Bewdley.

The month was drier than average, and also the sunniest February since 1988. The warmest day was the 27th, with an air temperature of 13.5°C .

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
6.7°C	-1.4°C	33.5mm	83%

Air frosts: 21 Ground frosts: 24



Wyre Forest Study Group

MARCH was the sunniest ever recorded. From the 12th there were 20 consecutive days without rain, and only 20.4mm fell throughout the month. The **first grass snakes** were recorded on the 13th, a pair apparently mating. The 14th saw the **first female and juvenile adders, slow-worms, and common lizards**, and on the 15th the first **frog tadpoles**. Temperatures were well above average for the month, the warmest day falling on the 23rd, with 16.2^oC air and 31.0^oC ground readings. The dry sunny weather would seem ideal for undertaking reptile surveys, but this was not the case. Under the direct sun and clear blue skies, the reptiles warmed up very quickly, and then moved into cover. So by late morning, it was already very difficult to find them. This warm weather undoubtedly contributed to the **first ever sloughed skin ever found before April**, a male having sloughed on or before the 31st. This was at least 9 days earlier than last year.

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
12.0 ^o C	0.5 ^o C	20.4mm	80%

Air frosts: 23 Ground frosts: 24

APRIL showers on the first two days provided the only rainfall until the 20th, so this became the 4th consecutive month with below-average rainfall, and above-average sun. This may have contributed to **another unusual observation**: on the 3rd a female adder, plump and obviously in breeding condition, also showed a noticeable bulge in her abdomen, strongly suggesting that she had recently fed. This is an unusual occurrence amongst Wyre Forest adders – breeding females do not normally eat in the period between emerging from hibernation and copulation, and indeed not until after giving birth, usually in September. Obviously, the combination of the warmth of the day (14.0^oC air and 33.0^oC ground), and a passing prey species (probably a vole), triggered the feeding instinct. This would allow her to lay down more fat reserves before mating.

Adder courtship behaviour began on the 8th, but it was the 15th before copulation was witnessed, in an air temperature of 22.5^oC and a ground reading of 33.0^oC. The following day was the hottest of the month, at 25.5^oC air temperature in Wyre. Cardiff set a national record on this day with 27^oC, which was the hottest April day in Britain for over a century.

From the 19th the warm south east wind veered to the north, bringing cooler, cloudy conditions for 2 days. Courtship and mating resumed on the 21st, and continued until the 27th during warm sunny spells, but ceased after this date. The last 3 days of the month saw a mixture of sunshine and showers.

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
14.5 ^o C	2.9 ^o C	47.9mm	74%

Air frosts: 7 Ground frosts: 18

MAY was a month of extremes. There were cool wet days, with the 1st also the wettest at 13.2mm of rain; 3 days with thunder, 5 with hail, then finally a heat-wave. A non-breeding female sloughed on the 19th, approximately 2 weeks earlier than usual. Just as the first was the wettest, the last was the hottest, with an air temperature of 27.0^oC

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
17.0 ^o C	6.4 ^o C	65.9mm	75%

Air frosts: 1 Ground frosts: 5

JUNE was the warmest since 1976: the hottest day was the 25th, at 28.0^oC. Despite the warmth, there were 14 rainy days, and 3 with thunder. A pregnant female sloughed on the 9th. There were no more frosts until October.

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
21.1 ^o C	9.1 ^o C	60.0mm	77%

JULY was the warmest for 8 years, and another relatively dry month, despite 3 thundery days. The hottest day fell on the 15th, at 29.5^oC. A pregnant female adder, accustomed to basking in a nearby meadow, disappeared shortly after cattle were admitted. A young bull with the herd was in the habit of repeatedly butting the anthills that she had been using.

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
21.7 ^o C	11.4 ^o C	37.5mm	77%



Wyre Forest Study Group

AUGUST was the hottest ever recorded, and also saw the hottest day ever. An air temperature of 38.5°C (100 °F) was at Gravesend, in Kent. The Dowles valley saw a mere 31.0°C (88°F) that day. Although rain fell on 7 days, only one of them, the 28th, saw a significant amount (8.6mm). The hot weather meant that reptiles spent most of their time in shade, and none were seen.

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
22.5°C	11.6°C	16.8mm	79%

SEPTEMBER was another sunny month, the highest temperatures recorded on the 16th, 17th, and 22nd. Rain fell on 9 days, but yielded only half the average until a torrential downpour on the 22nd added 18mm to the total. The **last adder record** – a female – was made on the 16th.

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
18.0°C	6.3°C	31.6mm	83%

Not to be out-done, **OCTOBER** was yet another “sunniest on record”. At 17.3°C the 8th was the warmest day. But overall, the clear skies came at the expense of temperature, and it was also the coldest October for 10 years, with sharp night frosts every night from the 18th to the end of the month. The last 4 days brought much-needed rain, the wettest of which was the 30th, with 27.3mm falling.

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
12.0°C	2.0°C	60.8mm	84%

Air frosts: 3 Ground frosts: 15

The wet weather continued for the first two days of **NOVEMBER**, 13.5mm on the 2nd making it the wettest of the month. This was followed by 8 dry days, and the remainder of the month saw below-average rainfall, although nearly half an inch (11.0mm) fell on the last day. Gales on the 14th brought winds of up to 60mph to the Midlands. Further south, Cardiff reported gusts up to 84mph.

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
9.6°C	2.5°C	58.7mm	85%

Air frosts: 11 Ground frosts: 15

DECEMBER was the wettest month of the year, starting with the highest daily total - 13.5mm - on the 1st. Despite this, and a total of 16 rainy days being recorded, it was by no means a notably wet December; and it was also sunnier than average, the warmest day fell on the 13th with a temperature of 12.5°C. There were several clear, cold frosty nights: the coldest was the 8th with -8.0°C. The month ended with a sprinkling of snow on the 30th.

Mean Monthly Maximum	Mean Monthly Minimum	Rainfall	Mean Humidity
6.2°C	0.2°C	79.4mm	84%

Air frosts: 18 Ground frosts: 21

Herpetofauna Data – Phenology

First male adder	23 February
First frogspawn	24 February
First common lizard	2 March
First grass snake	13 March
First grass snake copulation	13 March
First female adder and slow-worm	14 March
First male adder slough	31 March
First adder courtship and combat	8 April
First adder mating	15 April
Last adder courtship	27 April
Last adder	9 September
2003 Phenological Data	



Wyre Forest Study Group

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

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	Data incomplete due to FMD					
2002	20 *	13	36	17	53	4.0
2003	20 *	9	26	10	36	4.0

Adder Numbers *Surveys restricted to selected sites

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

Other Reptiles Recorded in Wyre During Adder Census



Wyre Forest Study Group

Discussion

Adder numbers had plummeted yet again by 2003. Of the 20 sites that supported adders in 2000, only 13 still held adders in 2002, with a further decline to 9 occupied sites in 2003.

The seven sites lost in 2002 were discussed in last year's report. Of the additional two now devoid of adders, one had been a significant location, with a healthy population of males, females and juveniles up to 1999. Table below shows the population history for the site.

One factor that may be significant in this case is the greatly increased disturbance due to housing development in the vicinity. New houses have been built with gardens that extend to the woodland edge, to within less than 100m of the site. Dog-walkers now regularly pass along the paths on the periphery of it, which was previously a relatively quiet part of the Forest

The future of the adder population in the Forest, and indeed all of Worcestershire, is under serious threat. Great efforts will be made in 2004 to survey these sites repeatedly, and to re-visit sites surveyed prior to 2000, to attempt to establish their viability, and assess the overall population of adders in the Wyre Forest.

Year	Male	Female	Juvenile	Total
1996	6	2	2	10
1997	9	3	1	14
1998	5	5	1	11
1999	6	1	3	10
2000	2	0	0	2
2001	1	1	2	4
2002	1	0	2	3
2003	0	0	0	0

Declining Adder Numbers on One Significant Site

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ADDENDUM

Status of the Adder *Vipera berus* and the Slow-Worm *Anguis fragilis* in England

(A Brief Summary of English Nature Report 54b)

Due to the concern about the status of the adder and the slow-worm in England, Froglife and English Nature undertook a project to gather data from known reptile observers. Questionnaires were sent out, and responses received regarding 249 sites, including the Wyre Forest. A great deal of information was collated, based on long-term knowledge of these sites. More than a quarter of the sites had been known to the observers for more than 15 years, and were visited regularly.

The National Status of both species, but especially of adders, is not favourable. A distinct trend towards population extinctions was found. With respect to the current data, both adders, and to a lesser extent slow-worms, have been experiencing long-term declines since the 1930s, throughout much of England. It is unlikely that such declines are part of a natural cycle.

Factors Affecting Populations

Negative factors include:

- ❖ agricultural improvements
- ❖ unsympathetic habitat management
- ❖ mechanisation of habitat management operations (which increases the scale of the impact on that habitat)
- ❖ overgrazing, which exposes adders to raptor and corvid predators
- ❖ pheasant predation
- ❖ scrub clearance
- ❖ fires
- ❖ persecution
- ❖ public pressure and disturbance, especially recreational activities, and increased public access.

In spite of individual sites being harmed, sympathetic habitat management or creation was regarded as a positive factor at more than 40% of adder sites.

Population Size and Isolation Effects

Many of the reported populations were small. One-third of adder populations were estimated to consist of fewer than 10 snakes. Adverse effects of inbreeding have been reported from Sweden, where in a population of fewer than 30 adults, an increase in the percentage of deformed or stillborn young was noted¹ A population size of 50 or more adults was more likely to be stable.

Status

For adders, there is evidence of a national decline. The Midlands is an area of particular concern. The only known site in Nottinghamshire was reported to have been damaged by Forestry operations in January 2003: no adders have subsequently been recorded at that site. East Anglia is also an area causing concern, as is the Wyre Forest.

The full report is available free from English Nature, by phoning any of the following numbers: 01733 455100 / 455101 / 455102. It is also available as a .pdf file (Adobe Acrobat format) from the web site: www.english.nature.org.uk

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¹ This is not evident in Wyre Forest