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NOTES ON THE REPTILES AND AMPHIBIANS OF EPPING FOREST, PAST, PRESENT AND FUTURE

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INTRODUCTION

Changes in land use patterns in eastern England in the last few decades have had a significant effect on reptiles and amphibians, in nearly all cases a negative one. Pasture lands with cattle and horse ponds have been turned to intensive arable use, and the ponds filled in or neglected now that they no longer have a part to play in the agricultural economy. Thus the Great Crested Newt, a characteristic inhabitant of small ponds in pastureland, has lost many populations. Some areas of heath and scrub have either been reclaimed for agriculture or parkland or reverted to dense woodland unsuitable for reptiles. Much land has also been lost to urbanisation, especially in south Essex, where there has been a great increase in the human population. With these changes, which are unlikely to be reversed, Epping Forest has assumed a greater relative importance as a reservoir of wildlife than in the past.

Epping Forest, about 6000 acres in extent, is situated in the south west corner of the county of Essex, and the adjacent borough of North East London. The Forest has been protected by a special Act of Parliament, the Epping Forest Act, since 1878, making it one of the oldest natural protected areas in the county. It is owned and administered by the Corporation of the City of London, who are the Conservators of the Forest. The Act requires that the "Conservators shall at all times as far as possible preserve the natural aspect of the Forest ... and shall protect the timber and other trees, pollards, shrubs, underwood, heather, gorse, turf and herbage growing on the Forest ..." Though the Forest is therefore in effect a nature reserve, yet the Act, importantly, also lays down that "The public shall have the right to use Epping Forest as an open space for recreation and enjoyment". The Forest has an enlightened management, under the Superintendent and his staff. Management is a particularly difficult task, in view of the many interests in the Forest which must be balanced.

Physically, the Forest is a ridge with a NE-SW trend. It is based on the London clay, overlain on the ridge by Claygate Beds, capped in the higher parts by Bagshot Sand and Pebble Gravel. The southern areas, around Wanstead and Leytonstone, are on the flat, gravelly Thames terraces.

The dominant climax vegetation today is composed of Beech (*Fagus sylvatica*), Oak (*Quercus robur*) and Hornbeam (*Carpinus betulus*), with Beech predominating in the central ridge of the Forest and Oak on the lower-lying clay areas elsewhere. Depending on soil types, the Silver Birch (*Betula pendula*), Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*) are invasive on the old open plains, and form dense continuous thickets, later shaded out by the larger trees.

The plains on London clay have a rich vegetation of meadow grasses and herbs typical of rough pasture on neutral soils, with scattered thorn and oak scrub increasing to form a closed canopy.

The plains on the poorer and more acid gravels and sands of the ridge bear a wet heath vegetation characterised by Crossed-Leaved Heath (*Erica tetralix*), Heather (*Calluna vulgaris*), Purple Moor Grass (*Molinia caerulea*) and Fescue Grass (*Festuca*), now heavily invaded by birch and oak scrub, to the extent that most are really open oak-birch woodland rather than heath.

The Forest is particularly rich in ponds, on a variety of soils and with a great variety of vegetation. This is one of the most important aspects of the Forest.

THE FOREST AS AN ENVIRONMENT FOR REPTILES AND AMPHIBIANS

The first and only systematic survey of the reptiles and amphibians of the Forest was made by Wheeler, Malenoir and Davidson in 1958. Further notes were published by Malenoir in 1963 and by David Scott in 1979. Malenoir and Pickett made a survey of a particular population of Adders in 1967/68. These notes are based on personal observations and those of friends in the period

from about 1965 to date. They are not intended to be either comprehensive, systematic or complete, and there are large gaps in my knowledge, particularly of the reptiles of the southern part of the Forest, and that part north of Epping. I hope it will be possible in the near future to make an extensive and thorough survey, to complement that made in 1958.

Main areas inhabited by reptiles

The most important sites for reptiles are in the main body of the Forest north of Loughton, chiefly on the Plains. In the last 20-30 years, most of the open plains have reverted to dense closed-canopy woodland, and the reptiles have gone or have been reduced to small, relict populations. A few years ago, the situation was very bad, and the Adder and Slow-worm seemed to be on the point of extinction, with the status of the Grass Snake and Common Lizard little better. However, because of the enlightened attitude of the Forest authorities, and the efforts of the Epping Forest Conservation Volunteers, the Epping Forest Conservation Centre, and members of the British Herpetological Society, several of the old plains are being restored to their original condition, and reptile populations are rising.

Restoration work began on Deer Shelter Plain. Once an area of open wet heath on level ground, this is now a quite beautiful birch wood, with some oak and remnant heath. In the 1950's and 60's it supported large populations of Adders, Grass-Snakes, Common Lizards and Slow-Worms. All of these species still exist there today in small numbers. Selected favourable areas are being thinned of scrub and extended to recreate good habitat for reptiles, invertebrates and heathland plants, while maintaining the attractive nature of the birch woodland. Deer, absent for some years, now visit the plain again, perhaps because of grazing and cover provided by the new rank growth of heathland vegetation and bracken. The reptiles have responded rapidly to the clearing, and numbers have begun to rise.

The Long Running is similar in character to Deer Shelter Plain. It is a fairly extensive area of open birch-oak woodland with areas of heath, mostly level and waterlogged and with a mosaic of small old pits and banks filled with water in winter, once gravel workings. There is a bomb crater from the Second World War, now an attractive small pond with a great population of Palmate Newts and Common Toads. In recent years, the Epping Forest Conservation Volunteers have cleared areas of birch scrub in the Jack's Hill area and around the pond. These areas support quite good and stable populations of Adders and Common Lizards, with some Slow-Worms and Grass Snakes. It is an important site.

Sunshine Plain is the third area of wet heath in the Forest. It is level and waterlogged. It has a well developed heath vegetation dominated by Cross-Leaved Heath and Purple Moor Grass, and rich in insect life. Some years ago in danger of reverting to woodland, it has now been completely cleared, and is closely managed by the Epping Forest Conservation Volunteers. It has a fair population of Grass Snakes, which has recovered since clearance and the thinning of the adjacent woodland. It is the stronghold of the Common Lizard in the Forest. Strangely, Adders and Slow-Worms have never established themselves here.

The fourth site of importance for reptiles is Birch Wood. Completely different from the heathland plains, this is a hillside on London Clay facing south-west, with rich soil and a vegetation of meadow grasses, herbs, bramble, Hawthorn, Blackthorn, Crab-Apple, Oak, and Birch (in parts). Invasion by thorn scrub and oak has been severe, and the populations of reptiles were almost extinct three years ago. Scrub was thinned in 1967-69 by members of the British Herpetological Society and Essex Field Club, and each winter since 1983 by the British Herpetological Society and Epping Forest Conservation Volunteers. Work will continue for years to come and has now probably progressed just far enough to save the tiny remnant populations of Adder, Grass Snake, Common Lizard and Slow-Worm. The south-west aspect, rich soil and abundant food made this an especially favourable locality for reptiles in the past. A very large population of Adders lived here. One day in 1967, when it was already in decline, I counted 32 snakes. Common Lizards and Slow-Worms also existed in good numbers. Grass Snakes, because of a lack of amphibian prey in the area, have never been abundant. It is also rich in bird, mammal and plant life, dependent like the reptiles on the continued existence of open grassland and scattered thorn bushes.

The extensive areas of grass, marsh and thorn scrub on the low-lying clay plains of Fairmead and Chingford are generally inhabited only by Grass Snakes, though Scott mentions records of

Common Lizards and Adders on Whitehouse Plain, which is continuous with Fairmead. These plains have never been intensively surveyed.

In the south, Wanstead Park assumes some importance. Despite being situated well inside suburban London and visited by large numbers of people, there are still Grass Snakes and Common Lizards and quite large populations of amphibians.

There are a number of small plains in the northern Forest which may still harbour some reptile life. Debden Slade, a small area of rough grass in a valley bottom, a delightful spot, still holds a small population of Grass Snakes, able to survive here because of recent thinning of invading oak scrub. Twenty years ago, when the area of open ground was more extensive than today, the Grass Snake population was unusually dense.

Several other plains have gone entirely, or at least are no longer able to support reptiles. These include Wake Valley, Rushey Plain, Broadstrood, Copley Plain, the Furzeground, Sandpit Plain, the marsh around Lower Goldings Hill Pond, the slopes of Baldwins Hill and Woodbury Hollow. Notable among these are Broadstrood and Wake Valley, which were very interesting areas of rich, diverse marshland, with some adjacent drier open woodland and patches of heath. I remember them as being unique in the Forest. They held large populations of the four species of reptiles. Today they are gone entirely, but perhaps they can be recreated with some effort, and it is my hope that the Conservators may undertake this task. Baldwins Hill and Woodbury Hollow were partially cleared after the reptiles were extinct and the best part of the slope of Baldwins Hill remains as dense secondary woodland. Woodbury Hollow was once a heather-covered hillside — unusual because it is on London Clay — and supported unusually large populations of Grass Snakes and Common Lizards. Copley Plain and the Furzeground, small plains set in surrounding woodlands, have recently been thoroughly cleared by the Conservators. Picturesque in aspect, on dry hillsides of grass, bracken, a little heath and honeysuckle, their animal life has gone, but they will no doubt be recolonised in time, and their restoration is heartening.

The Forest Rides, notably the Green Ride and Clay Road, have also been cleared to some extent of invading trees. Grass Snakes are found occasionally along the rides, but their grassy margins are more important as a summer habitat for amphibians. Numbers of frogs and toads can be seen along the rides on summer evenings. Affording cover and food, the rides are preferred as a habitat to closed-canopy woodland, especially by frogs.

The Forest Ponds

There are many ponds of many types in the Forest, supporting large amphibian populations. The most important ponds are best described individually. In the northern part of the Forest are the Goldings Hill Ponds, Blackweir or Lost Pond, Baldwins Hill Pond, Wake Valley Pond, Little Wake Valley Pond, Wake Valley Bomb Crater, Earls Path Pond, Strawberry Hill Pond, Fairmead Bottom Pond.

Goldings Hill Pond is a shallow pond with rich marginal vegetation. In recent years the marsh and leaf fall extended to almost fill the pond; it was partially cleared in 1985. It supports a very large colony of Common Frogs and good numbers of Smooth and Palmate Newts. Common Toads ceased breeding in the pond several years ago when it became too weed choked and sedimented.

Lower Goldings Hill Pond is smaller but deeper, now badly sedimented and shaded by invading scrub. It was once situated on an open green. Twenty years ago Grass Snakes were abundant in the *Juncus* marsh around the pond. In earlier days, Lizards and Adders were also found. Toads and frogs stopped breeding here a few years ago. I do not know if there are still breeding populations of newts: this was one of the few ponds with a colony of Great Crested Newts.

The bomb crater on Long Running, small but deep and well vegetated with *Potamogeton* and a little *Glyceria fluitans,* is the home of a very large population of Palmate Newts and Common Toads. Common Frogs occur in small numbers. Wake Valley Pond is large and deep, slightly acidic around the margins, fringed with *Sphagnum* beds and Common Reeds (*Phragmites*); the aquatic vegetation consists of *Potamogeton* and Yellow Lilies (*Nuphar lutea*). It supports the largest breeding colony of Common Toads in the Forest; the numbers of Common Frogs breeding are also high. I assume there are reasonable numbers of Palmate Newts. Blackweir

Pond is a beautiful old gravel working, now blended perfectly into the forest. It has a wonderful growth of the uncommon Water Violet (*Hottonia palustris*), the flowers of which form a blue haze over the water in May and June. There is a dense growth of *Potamogeton natans.* Around the margin are clumps of Yellow Flag (*Iris pseudocorus*), Float Grass (*Glyceria fluitans*) and a small bog of *Sphagnum* and Willow (*Salix*) at one end. It holds good numbers of Common Toads, Common Frogs and Palmate Newts. Crested Newts have been found here in the past. Baldwins Hill Pond, formed by the damming of a stream by the Clay Ride, is another rich pond. It is on the London Clay, and like Blackweir Pond has a fine growth of Water Violet and Floating Pond Weed. Its marginal vegetation consists of beds of Yellow Flag, Reed Grass (*Glyceria maxima*) and Float Grass (*Glyceria fluitans*). There are large breeding populations of Common Toads, Common Frogs, Smooth Newts and Palmate Newts. Unfortunately this beautiful pond is being steadily infilled by leaves and sediment washed in by the inflowing stream. It is now possibly half of its original size. Unless it is cleared at one end (hopefully before its established flora and fauna are drastically altered), it will be lost. Earls Path Pond, somewhat similar in nature and situation to Goldings Hill Pond, was a few years ago badly sedimented. It was restored by the Epping Forest Conservation Volunteers, but unfortunately the good growth of Water Violet disappeared after clearance, and has been replaced by a vigorous and dense growth of Canadian Pondweed (*Elodia canadensis*). The amphibians, however, have benefited from the cleaning, and there are good and successfully reproducing populations of Common Toads, Common Frogs, Smooth and Palmate Newts. Some Water Soldier (*Stratiotes aloides*), previously absent, has colonised the pond. The nearby Strawberry Hill Pond is similar in aspect to Blackweir Pond, being a gravel pond with, once, almost identical vegetation, apart from there being more stands of Willow. It was cleared with Earls Path Pond a few years ago, but unfortunately in the same way the Water Violet was destroyed, strangely not replaced by any submerged plant. There are large colonies of Common Toads, Common Frogs and Palmate Newts.

A short distance away but on the low-lying Fairmead Bottom, is Fairmead Bottom Pond, a rich pond on the London Clay, well vegetated (a little too much) with Canadian Pond Weed, Water Violet, Floating Pond Weed, Reedmace, Float Grass and Water Soldier (a new coloniser). There are thriving colonies of Common Toads, Smooth and Palmate Newts, a very small number of Common Frogs and possibly Crested Newts. Little Wake Pond, with a good colony of Common Toads, is unusual in the Forest in that its submerged vegetation consists of a good growth of Bladderwort (*Utricularia*) and Water Milfoil (*Myriophyllum*). Knighton Wood Pond is an ornamental pond fringed with Common Reeds and Reed Grass, and an aquatic vegetation of Lilies. It has large colonies of Common Toad and Common Frog. Further south in suburban London are the Oak Hill Ponds, a small cluster of small ponds on London Clay of varied character, some open and well vegetated, some shaded. Collectively they support a great population of Common Frogs, some Toads, Smooth and Palmate Newts. Bulrush Pond has a moderate population of Common Toads, and a very large one of Frogs. The ponds on Leyton Flats have small colonies of Common Frog, but no toads; the newts have not been surveyed. Wanstead Park has four large ponds of an ornamental character. There is a great deal of human disturbance in the park, situated as it is in east London, yet there are large populations of amphibians. Common Frogs are abundant, and each pond has several spawn sites. Common Toads are said to be common, but I have not had the opportunity to make any observations. Smooth Newts and Great Crested Newts are common.

SPECIES ACCOUNTS

AMPHIBIANS

Common Toad, *Bufo bufo*

The Toad is abundant and generally distributed in nearly all parts of the Forest. Its population has remained fairly stable over the years, and no doubt its numbers today are not much different from what they were a hundred years ago. It prefers larger, clean ponds for breeding. The sedimentation of some ponds, such as Goldings Hill Ponds, has rendered them unsuitable for it. Its breeding success varies from year to year, for no obvious reason. In some years, such as 1985 and 1986, enormous numbers of recently metamorphosed toads could be seen in July and August in the woods around the Wake Valley Ponds and in Monk Wood, and no doubt there

were similar numbers elsewhere. Occasionally there are so many tadpoles in the ponds that there is insufficient food, and sometimes this results in catastrophe, with the death of all the tadpoles. I have witnessed this regularly in the bomb crater on Long Running, and in 1986 in Strawberry Hill Pond. The largest single breeding population of toads in the Forest is in Wake Valley Pond; being large, clean and deep with little disturbance, it is ideally suited to them. Other breeding sites of which I am aware are the Long Running Bomb Crater, Wake Valley Bomb Crater, Little Wake Pond, Blackweir Pond, Baldwins Hill Pond, Earls Path Pond, Strawberry Hill Pond, Fairmead Bottom Pond, Warren Pond, Knighton Wood Pond, the Oak Hill Ponds, Bulrush Pond and the Wanstead Park Ponds.

Common Frog, *Rana temporaria*

In 1958 the Frog was uncommon in the Forest. Wheeler et al say of the amount of spawn: "In each case the quantity found was small, probably the product of two or three females". Since then, the population has dramatically increased, and in some ponds up to 1000 clumps of spawn may be laid in one season. The reasons for this increase are obscure. In certain cases it may be due partly to human intervention: the amount of spawn being very small and laid in vulnerable positions by the bank, most of it was collected by children, who in these circumstances were very serious predators, so for a number of years after 1958 members of the Essex Field Club systematically moved spawn found to better hidden, less vulnerable spots in the ponds. Already, in 1965, I counted about 300 clumps of spawn in Blackweir Pond; in 1958 there were only two. However, the activities of Field Club members were restricted to the northern part of the Forest, so would not explain the very large population in ponds in the urban districts in the south, where human pressure is great. Today the populations are of such size that they are not affected by the depredations of children — only a small proportion of the total amount of spawn is taken. Considering the educational value of children rearing tadpoles, and the enjoyment they obtain from it, it is not a bad thing.

The quantity of spawn laid varies from year to year. It is greatest after severe winters: the more severe the greater the amount of spawn. Cold winters do not seem to damage the frog population in any way: quite the opposite. In most ponds the amount of spawn varies between about 50 and 200 clumps. In some ponds 300-500 clumps are normal, with larger quantities occasionally. The most unusual site is a roadside marsh near the Oak Hill Ponds, the dominant vegetation of which is Float Grass. The marsh is water filled in winter and spring, but always dries up in late spring or early summer. However, the numbers of frogs breeding here are perhaps greater than anywhere else in the Forest, with up to 1000 clumps laid in one year (exceptional).

In summer, the Frog prefers to live in open grassy areas rather than dense woodland. Perhaps for this reason it is most abundant in the southern parts of the Forest where there are extensive open areas. In the northern part of the Forest it lives along the rides, on the plains, in open woodland, and gardens bordering on the Forest.

Breeding sites that I know of are Goldings Hill Pond, Long Running Bomb Crater, Wake Valley Pond, Wake Valley Bomb Crater, unnamed pond across Epping New Road, from Little Wake Pond, Blackweir Pond, Baldwins Hill Pond, Earls Path Pond, Strawberry Hill Pond, Fairmead Bottom Pond, Connaught Waters, Warren Pond, Oak Hill Ponds and Marsh, Highams Park Lake, Bulrush Pond, Eagle Pond, Hollow Pond, Whips Cross Corner Pond, Wanstead Park Ponds.

Smooth Newt, *Triturus vulgaris*

The Smooth Newt is common in the Forest, preferring ponds on clay. It can generally be assumed to occupy all the ponds except those on more acidic or gravel soils in the northern part of the Forest, where it may be absent or rare. Such is the case in the Long Running Bomb Crater, where only the Palmate Newt breeds.

Palmate Newt, *Triturus helveticus*

The Palmate Newt is most common on the gravel soils of the northern part of the Forest, but has been found as far south as the Oak Hill Ponds, and is said to be common in Knighton Woods/Lords Bushes. It seems to prefer slightly acid soil conditions, and possibly for this reason is most abundant in the Long Running Bomb Crater. It probably occurs in all ponds in

the northern part of the Forest but, apart from those already mentioned, I know it from Goldings Hill Pond, Blackweir Pond, Baldwins Hill Pond, Wake Valley Pond, Earls Path Pond, Strawberry Hill Pond, Fairmead Bottom Pond, "Speakman Pond" (a temporary marshy pond at High Beach).

Great Crested Newt, *Triturus cristatus*

This species has never been common in the Forest, surprising in view of the number of large ponds. This, no doubt, is because the newt does not favour woodland habitats. Elsewhere in Essex it is a characteristic inhabitant of semi-permanent ponds or dykes in rough pasture, usually well vegetated with Float Grass. Those parts of the Forest where it lives are not dissimilar: it has been found in the small grassy craters of Chingford Plain and Fairmead Bottom. It also colonises ornamental ponds. In 1964/65 some hundreds were removed from an artificial pond, about to be filled in, in the gardens of a house on Baldwins Hill. A few years ago quite large numbers were taken by the Epping Forest Conservation Volunteers from an old swimming pool, again due for filling, at the Kings Head, High Beach. Such instances, coupled with the occasional finding of juvenile specimens under logs in various parts of the Forest, may indicate that it is more common than we believe. The Forest ponds are large, often deep, and difficult to survey. A secretive deep water species like the Crested Newt is difficult to find.

The most surprising population of this newt is in Wanstead Park, where it appears to be common. Chris and Carol Picton saw them frequently in a pipe connecting two ponds, and in the Heronry Pond in 1986. Denis Lee reports that it bred in large numbers in Heronry Pond some fifty years ago. It is impossible to obtain an accurate picture, as the ponds are so large, with so many islands, inlets, and so much open water that they would be extremely difficult to survey.

Within the last twenty years specimens of the Crested Newt have been seen in Lower Goldings Hill Pond, Blackweir Pond, Fairmead Bottom Pond, craters on Fairmead Bottom, a small pond and ditch on Chingford Plain, and in Wanstead Park. A comprehensive survey is needed for this species.

REPTILES

Common or Viviparous Lizard, *Lacerta vivipara*

In the 1958 survey this lizard was found to be abundant and widespread throughout the northern part of the Forest, on all the plains and clearings. Regrettably, it is far less numerous today. The loss of so much open space to invading woodland has reduced the lizard population to a fraction of what it was. Under favourable conditions it could be extremely abundant; I never attempted to quantify it, but in certain spots the densities seemed incredible. Such a spot was a small clearing of bracken, honeysuckle and grass near Birch Wood, where scores of pregnant females could be seen basking along the sides of paths. Today there are none. Other places in which I knew it to be abundant but from which it has gone are Broadstrood, Baldwins Hill, Woodbury Hollow, Wake Valley Plain, Copley Plain and Dulsmead Hollow. No doubt there are many other places from which the lizard has gone. It still occurs on Deershelter Plain, Long Running, Sunshine Plain and probably Birch Wood and High Beach. Its stronghold is Sunshine Plain, where it is still numerous. I have no information on the lizard's occurrence in the southern part of the Forest.

The dominant colour phase of the lizard in the Forest is a pale, plain brown, which blends perfectly with leaf and bracken litter.

Slow-Worm, *Anguis fragilis*

George Malenoir and John Davidson, from 1958 to the early 60's, found the Slow-Worm common on Baldwins Hill and Broadstrood, with occasional specimens elsewhere. Baldwins Hill was its stronghold. On warm evenings in the 1960's, when I was a boy, it was the habit of my schoolfriends and I to look for Slow-Worms after school; we invariably found them, moving slowly through leaf litter beneath bushes, or, often, on the Fescue-covered mounds of the Yellow Ant. Invading dense thorn and oak scrub quickly made Baldwins Hill unsuitable for Slow-Worms, and I have not seen one for 15 years. Broadstrood has also gone. I see it quite frequently on Deer Shelter Plain, and occasionally on Long Running and at Birch Wood. It may still occur at Paul's Nursery, an old haunt. The Slow-Worm is a secretive animal, and is usually only seen in

numbers under certain weather conditions; its presence may go undetected for many years. Though it is certainly not abundant in the Forest, it may yet be discovered in new areas.

Grass Snake, *Natrix natrix helvetica*

The 1958 survey found the Grass Snake common and widespread in the northern part of the Forest. It is still widespread, but in much smaller numbers. Many places where it was common have now been lost to invading woodland. Such places are Strawberry Hill, Woodbury Hollow, Baldwins Hill, Lower Goldings Hill Pond, Broadstrood and Wake Plain. Formerly abundant on Deer Shelter Plain, it almost died out, but since clearance work there is increasing again. It was also abundant in Debden Slade, but again almost died out because of encroaching woodland; a small population has survived as a result of clearance. It occurs on Long Running in small numbers. but has never been very common there in spite of suitable habitat. It is frequently seen on Sunshine Plain. It is common on Fairmead Bottom, and I suspect also in the adjacent open woodland and Whitehouse Plain. In these quite extensive open areas its numbers are probably stable. Graham Walters has found specimens in Wanstead Park in recent years, and I have heard of other reports from there.

The Grass Snake is a wandering animal which will rapidly colonise favourable areas, and is able to live in open woodland. The recent extensive pollarding in Debden Slade, along Loughton Brook, and Hangboy Slade has created new open areas which I believe will provide good habitat and avenues of dispersal.

Adder, *Vipera berus*

Since the 1960's, the Adder, once common in a few places, has declined considerably. Without recent efforts to restore some of the plains it would probably now be extinct or almost so. In 1958 the Adder was found on Deer Shelter Plain, Long Running, Wake Plain and Birch Wood. Specimens released by Fred Speakman colonised Rushey Plain. I found it to be common during the 1960's on Broadstrood. John Davidson recalls Adders being found before the 1939-45 war on Sandpit Plain, a heather covered slope near Baldwins Hill, around Lower Goldings Hill Pond, and the Furzeground. Today small colonies of Adders survive on Deer Shelter Plain, Long Running and Birch Wood. The reasons for the Adder's decline is, as for the other reptiles, the loss of open space to rapidly encroaching secondary woodland. The Adder prefers areas of ungrazed grassland with scattered bushes (as at Birch Wood) or mixed heath, grass and open woodland. It is not averse to living in quite marshy areas such as Wake Valley Plain and Broadstrood. Where food is abundant it can maintain dense populations: there were probably at least 100 living on the grass covered slope of Birch Wood in the early 1960's. There are probably no more than 6 or 8 today.

Clearance of invading scrub on Deer Shelter Plain, Long Running and Birch Wood has enabled the Adder to survive in the Forest in small numbers and I believe that in future it will be able to maintain itself in these places in populations of modest size.

An interesting historical note is that Stubbs, in 1920, found the Adder very rare in the Forest. He commented: "I think their entire extinction is but a few years distant". His prediction almost came true 60 years later.

THE FUTURE

The one serious threat to the survival of reptiles in the Forest is, as already mentioned many times, the tendency of the old plains and open spaces to disappear to invading woodland. However, the Conservators have restored some plains, such as Copley and the Furzeground, have resurrected pollarding as a management policy, and have granted permission to voluntary groups such as the Epping Forest Conservation Volunteers and British Herpetological Society members to undertake various restoration tasks. The Forest Centenary Trust organises work parties of schoolchildren to clear scrub and clean ponds. These factors, and the interest in the Forest's wildlife stimulated by the Epping Forest Conservation Centre, have resulted in much progress, in terms of practical conservation work, in recent years. If this continues, the Forest will improve tremendously as a habitat for wildlife.

Tasks which I feel would be of particular benefit would be the recreation of Broadstrood and Wake Valley as open, marshy plains, as they were such rich habitats in the past.

Ponds, by natural process, become sedimented and infilled, and need occasional cleaning. The smaller ponds in Knighton Wood/Lords Bushes, now badly sedimented and overshaded, are examples. David Scott records Crested Newts in fair numbers in the ponds in Lords Bushes in 1953-59. Baldwins Hill Pond will need cleaning regularly, a difficult task but it would be tragic if it were lost. Lower Goldings Hill Pond was also a very good site years ago, now badly in need of cleaning and the extensive removal of surrounding secondary woodland.

Direct human interference is not at present a problem, and is unlikely to become one. All of the Forest wildlife is protected by law, and the Forest is patrolled by Keepers. I am not aware of any collecting of reptiles. Amphibians are often taken by children, especially frogs and toads, but I doubt if it does any real harm in most places, and it is a good thing that children maintain a contact with nature.

The populations of reptiles are low; the collection of even a few specimens may be critical: in places the total population of a species may be no more than about 6. I therefore appeal to people to respect the Forest laws.

APPEAL FOR HELP

With the permission of the Superintendent of the Forest, Graham Walters and the author have been organising small work parties through the winter months to thin scrub on Deer Shelter Plain and at Birch Wood. We now have a small, keen group, but the task is massive and long. There is several years work to be done on each site. We are limited by lack of hands and tools. If you would like to take part, write to the author, or telephone Graham Walters on 01-521 0134. The work helps not only reptiles and amphibians, but creates good habitat for birds, mammals, insects and plants. We work on Sundays.

ACKNOWLEDGEMENTS

George Malenoir and John Davidson formed a small active group of Essex Field Club members which did regular field work in Epping Forest and other parts of Essex from 1958 to 1968. They did much to stimulate the interest of youngsters in reptiles and amphibians. For this, and as friends and colleagues — and to other members of the group, Roger Thorpe and Simon Townson — thanks are due. Graham Walters and Paul Moxey were very co-operative in helping organise the first of our clearance tasks a few years ago. Thanks are due to the Forest Superintendent for granting us permission. Appreciation should also be expressed for the efforts of those, not necessarily herpetologists, who have helped in our conservation work: Tim Green, Colin Braithwaite, Dawn Belshish, Martin Johnson, Chris and Carol Picton, Simon Townson, and others. Simon Townson has been a regular companion on excursions in the Forest for the past twenty years.

Come and join us!
Members of the British Herpetological Society at work clearing oak and thorn scrub at Birch Wood, Epping Forest

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PICKETT'S PIECE

An irregular column of personal observations, notes, commentary, on all things herpetological.

Salamanders in paradise

Somewhere in the Apennines of Italy is a magnificent antique forest of Silver Fir, catching the moist air of the Mediterranean sea, the branches of the trees trail hairy strands of lichen. The floor of the forest is rich with carpets of flowers and ferns. There are numerous small trickling streams. In the cool and comfortable air of spring, the mossy ground and streamsides are dappled with the bright yellows of a great population of Fire Salamanders, here so numerous as to always be in sight of the human observer at whatever point in the forest he may be.

The race of salamander found here is the Apennine Fire Salamander, *Salamandra salamandra gigliolii* probably the most beautiful of the several geographic forms of this salamander. In its most distinct or strongly differentiated phase in the south of the Italian peninsular, yellow spots, blotches or stripes coalesce and extend themselves to cover almost the entire animal; completely yellow specimens are not rare. Reddish spots frequently edge or speckle the yellow. It is moderate in size, larger than *Salamandra s. terrestris,* but slightly smaller than *Salamandra s. salamandra.* It has been described as a slender form, but the specimens I have seen have been quite robust, more so than *terrestris.* Its pattern varies greatly. Though in all cases the yellow dorsal colour exceeds the black in extent, the yellow may be in the form of large irregular blotches, a solid yellow band from head to tail with black flanks, or boldly striped like *fastuosa* or *terrestris.* I have not seen such wide variation within populations of other species of the Fire Salamander. There are other differences. The larvae, though I did not measure them, seem smaller than in other types, and more numerous: four females collected one Autumn by some Italian friends of mine, gave birth in total to approximately 200 larvae during the course of the winter. If this is normal, the brood sizes of this salamander may be unusually large. A surprising behavioural characteristic of this salamander is that it is as much diurnal as nocturnal; very large numbers can be seen in broad daylight. This is in contrast again to other races. Some may also be diurnal — I would welcome other observations on this — but those I know of are more strictly nocturnal.

On some mountains, conditions particularly favour the salamander. Where forest cover is continuous, rainfall generous, and gently flowing tiny streams abound, affording safe nurseries for the young, the density of salamanders can be truly astonishing: they are undoubtedly in these places the most abundant vertebrate. At one time, before agricultural settlement, they must have been one of the most abundant of animals in Europe. Today, they are confined to the remnants of pristine mountain forest which remain. Or almost: its adaptability is such that it can surprise us: it can be found sometimes in the dry treeless Karst of Dalmatia, in open semi-arid country in Israel, and sub-alpine pastures in the Pyrenees and Cantabrians.

Back to the old forest in the Appenines. It is the habit of the salamanders of all ages to lay at the water's edge, sitting on stones or logs along the shady streams or lying partly immersed in the water; they are dotted along the banks like so many bright yellow flowers. Elsewhere they plod