

CONSERVATION OF LOWLAND DRY HEATH

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Until quite recently, much of lowland England was covered by heathland. From Professor Dimbleby's work, we know that lowland heathland was created about 5,000 years ago as a result of the activities of neolithic man on the original oak and hazel woodlands. During this period, large tracts of land were burnt off for men to hunt wild animals fleeing the blaze as well as for the grazing of domestic stock. Subsequently, heathland arose on a number of areas where the soil had been leached by consistent rainfall over a long period, leaving an impoverished sandy soil which would only support heathers, gorses and certain grasses. Today, despite the fact that only a few fragments of heath remain from the former miles of purple clad commons, a number of species are virtually confined to this habitat.

Up until the last few years, the ecological value of dry heath has been largely ignored. During the Victorian era, an enthusiastic upsurge in the quest for knowledge of general Natural History arose. However, the majority of the wildlife interest centered around the bird, butterfly and botanical elements, three categories where dry heathland fauna is not well represented, especially in its diversity of species. Consequently, heathland was considered as a barren sterile wasteland and, not surprisingly, therefore, the past few decades have witnessed the final stages of an uncompromising and widespread decline to such an extent that it is now recognised both as a national and international endangered habitat.

In Southern England, the loss of heathland has been well recorded. In Dorset, Professor Norman Moore's paper "The Heaths of Dorset and Their Conservation" written in 1960, stated that at the time of the first Ordnance Survey maps (1811 Dorset and 1810-1817 Hampshire) within a vast area stretching between Dorchester and Southampton water the heathland area consisted of about 75,000. At that time already about 15,000 acres of mainly peripheral land had already been reclaimed. During the next eighty years, as the population around Bournemouth increased (695 inhabitants in 1851 to 16,000 by 1881) so the heath was reclaimed for development. Even so, by the turn of the century, the area was still extensive, about 56,000 acres remaining. Urbanization continued and by 1934 approximately 45,000 acres remained. By 1960, the area had reduced to 25,000 acres. Twenty years later the Dorset heaths have demised and now only about 12,000 acres remain.

The area around Bournemouth and Poole was earmarked for light industrial development during the early 1970's. This led to a major residential building programme linked by a network of new roads and by-passes. This has further fragmented the remaining heaths and subjected them to increased pressures by way of recreation which include further hazards such as motor cycle scrambling, horse riding, golf courses and maliciously started fires. Other causes for decline have included agriculture reclamation, mineral extraction, caravan sites and recently one small heath in Dorset was covered by the synthetic clay spoils from a nearby land oil exploration drilling rig.

Nowadays, fires cause and continue to present the most serious threat to our lowland heaths. Firstly, it removes the essential *mature* dry heath stage that takes at least 12 years and often 25 to develop after fire. Some mobile species that survive the initial fire are able to fly away and perhaps later return to their former territories but fires have a catastrophic effect on species such as the Sand Lizard that has a small home range (c. 250 square metres) a relatively short life span (between 5-10 years) and a poor ability for recolonisation. Secondly, fire induces competing (birch and bracken) and sub optimum vegetation which encroaches and directly subrogates the slower growing heather. Birch is rarely able to seed into established dry heath because of physical and chemical inhibitions from the heather. After a fire, however, it is a different story as numbers of equally aged trees are established from the few parent trees and then threaten to swamp the heath within a generation should the same area be burnt again.

Bracken is perhaps the most insidious of all heathland problems in that it both shades out the heather and enriches the litter. It spreads mainly after fire via dormant and resistant rhizomes, and studies have proved that it has very little wildlife value in Southern England. Originally, the effects of local fires on large blocks of heath would have been less serious than on today's small fragmented areas. Certainly, the encroachment of alien vegetation was kept in abeyance by light grazing of both domestic and wild animals. The reduction in rabbit numbers on heathland in recent years is just one instance that has upset nature's equilibrium.

In consideration of the fauna found on lowland heathland three vertebrate species are totally confined to this habitat, namely the Dartford Warbler (*Sylvia-undata*), Smooth Snakes (*Coronella austriaca*) and the Sand Lizard (*Lacerta agilis*). In addition, dry heaths support significant numbers of Stonechats (*Saxicola torquata*), Nighthjars (*Caprimulgus europaeus*) and rarities such as the Red Backed Shrike (*Lanius collurio*) and the magnificent Hobby (*Falco subbuteo*). It is not until one reviews the invertebrate species that the true complexity of the heathland ecosystems is recognised.

In the British Isles we have about three hundred native breeding vertebrates both in freshwater and terrestrial habitats. By comparison there are in excess of 22,450 insects and over 3,130 other invertebrates (excluding protozoa and rotifers) a total of over 25,000 recorded species, although the true figure is likely to be around 30,000. Some heathland sites in the south are known to represent between as many as one fifth and a third or more of many groups of the British Invertebrate fauna. In Surrey one site north of Guildford has 59% of the British Heteropteran bugs (288 species) another site 47% of spiders (300 species) and a total of 50% of the bee and wasp species (236 species). Another site holds 32% of the country's crane-fly species (100 species). South of Guildford one common is known to have 66% of British dragonfly species (26 species).

The Surrey heaths were originally more extensive than those in Dorset, running 35 miles north-south from Ascot to Petersfield and from 10-20 miles east-west with three narrower extensions eastwards towards Esher, Reigate and Petworth. These Lowland Heaths are based on the underlying Tertiary sands of the London basin (as in Dorset) and the Lower Greensand. At the time of the first edition Ordnance Survey maps (1822) it is likely that there had already been a contraction of 25% from reclamation inwards via the richer chalk, alluvial and clay surrounds — thus the eastern extensions were already fragmented within the natural geological boundaries. From these maps and consideration of Marshall's Ministry of Agriculture (1794-1804) Survey and contemporary description, it can be shown that there was approximately 110,000 acres of heath. By 1977 this total had contracted to about 10,000 acres. Today, even this has reduced to an estimated 6,000 acres.

There have been several factors that have led to the fragmentation and ultimate destruction of the Southern heaths. It is known that the largest single loss is due to afforestation. Many people are surprised to learn that the present day Scots Pine (*Pinus sylvestris*) is not a native to Southern England. It has been generally accepted that the pine was introduced as a potential crop in the mid 1700's initially by Evelyn in Surrey. Scientifically, a series of paleobotanical researches have also proved that the pine died out in Southern England following the warm era since the last Ice Ages' ice sheets departed. The success on the otherwise unproductive heathland soils for forestry became widespread during the 1920-1930 and 1950-1960 period. Unfortunately, the Forestry Commission were very successful in selecting strains of the original Scots Pine that grew straight and fast and were also able to regenerate prolifically away from the original plantations.

The Sand Lizard is one of only six reptile species native to Britain. It is restricted to sandy areas on the north west coastal dune system as well as the southern heaths. It has suffered a serious decline in recent years which is linked to habitat loss and degradation. It is a most handsome species attaining a length of nine inches when including a complete tail. The basic pattern consists of blended rows of ocellate spots of greys, browns and white, whilst the males adopt a striking livery of vivid greens during spring and early summer. It was first recorded in Britain in 1802 and in 1839 Bell noted that its main habitat was sandy heaths. Thirty years ago Smith observed that it was still quite common in Surrey and Dorset. During the early 1970's Corbett, working on the species, noted that in the Frensham area of Surrey over a twenty year period the

Sand Lizard colonies had been reduced from 56 to 2. Through a fifteen year period in an area of Dorset known colonies had been reduced from 169 to 24. He also confirmed that the species was concentrated on south facing slopes and had an affinity towards local variation in topography, e.g. banks, tumuli, gullies, ridges, steep slopes and bluffs. The most important factor was that Sand Lizards, together with their chief predator, the Smooth Snake, were invariably found in mature heather, i.e. where the stands were in excess of ten years in age and that there was open sand available for the female lizards to deposit their eggs. He recorded that, within this optimum habitat, numbers of lizards could amount to between 230-240 adults per hectare.

The British Herpetological Society Conservation Committee (BHSCC) was set up in 1969. The aims were to assess the status of our native herpetofauna and their habitats. From subsequent monitoring observations combined with Keith Corbett's work on the Sand Lizard, a comprehensive schedule of heathland sites was established. Apart from the fact that all species had declined within their range, scrub encroachment onto the heaths presented the major problem. Against some initial opposition, the BHSCC began a programme of habitat management funded by the World Wildlife Fund on selected sites in Surrey, Hampshire and Dorset. The work in its first stage consists of the removal during winter of pine, birch and other scrub from the mature heath. A few selected trees are left for nesting birds. Where necessary, small sandy areas are exposed to provide breeding sites for Sand Lizards. In dry periods during July and August bracken is sprayed with Azulox, a selective chemical, although several seasons of spraying are required before it is eradicated.

Over the past ten years the Conservation movement has become increasingly aware of the importance of managing lowland dry heath by habitat management. Certainly, it is agreed that retaining a self perpetuating mature heather structure is the most beneficial for all heathland fauna.

However, despite all this work, the future outlook is uncertain. Many smaller sites are owned privately and even though they may have a Site of Special Scientific Interest (SSSI) status, under its present form there is no real long term safeguard. Fire is a threat to all sites and it is *imperative* to have adequate firebreaking on larger heaths. Sadly, this is still not the case on a number of sites including some National Nature Reserves even though this has been formally agreed in writing. There is still a backlog of scrub management to be undertaken, especially with regard to bracken control.

These heaths and their indigenous fauna will only survive providing that conservationists are prepared to continue annual habitat management and be ever vigilant about adverse pressures. It would be a tragedy for our future generations not to see the brilliant spectacle of heathland in its full purple bloom during late summer or some of the interesting species confined to this unique ecosystem.