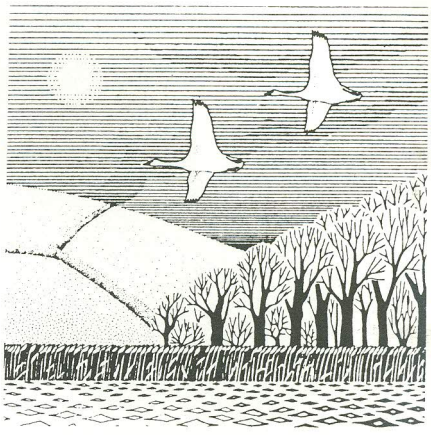
Wessex Ecological Consultancy

28 Egerton Road, Bishopston, Bristol BS7 8HL
Tel: 0117 944 1034



# TROOPERS HILL, BRISTOL

## ECOLOGICAL MONITORING

## 1998

Partners: Dawn Lawrence B.Sc.(Hons) C.Biol M.I.Biol. Rupert Higgins B.Sc.(Hons) MIEEM.

# TROOPERS HILL, BRISTOL

# ECOLOGICAL MONITORING 1998

## INTRODUCTION

This report describes the results of vegetational and photographic monitoring carried out in 1998 as a repeat of surveys carried out in 1994 and 1996. The purpose of the monitoring is to identify any changes in the vegetation of Troopers Hill; to monitor the success of management; and to identify any further priorities for management required to conserve and enhance the site's ecological interest. Particular attention was paid to heathland vegetation since this is a key habitat type on the site.

## METHODS AND RESULTS

The methodology followed that employed during 1994 and 1996. Photographs were taken from the locations mapped and described in the previous reports at the same time of year - in August, when the heather species are in flower.

Notes were made of the nature and extent of patches of heather species and of other scrub, using the same lettering system to identify these areas as was used in previous years.

Area Descriptions

Areas are described below where significant changes have been noted since the 1994 or 1996 reports. The summer of 1995 was exceptionally dry and several severe fires affected parts of the hill. In 1998 several photos show an increase in grass vigour especially when compared to 1994. This is almost certainly due to the very wet summer of 1998.

A: The vegetation continues to regenerate strongly from the 1995 fire which affected the upper slopes (as seen on photos 1 and 20 in 1996) when large areas of hawthorn (*Crataegus monogyna*) and smaller areas of broom (*Cytinus scoparius*) were killed.

Just north of D. Photographs 3 and 4 shows a significant increase in the amount of Japanese knotweed (*Fallopia japonica*) in this area. It is encroaching on tall herb vegetation leading to a reduction in plant diversity. It now covers quite a large area. This species is difficult to control and its removal (by digging up) is advisable.

D: The large patch of *Calluna* (heather or ling) seen in photo 6 in 1994 had completely disappeared in 1996, presumably as a result of the fires of 1995. This year it can be seen to be regenerating and a small patch is again in flower, although it is still much smaller than it was in 1994.

E: Continues to be a patch of *Calluna* plants in an otherwise grassy sward. It is now 22.70m x 10m (in 1996 it was 9.47 metres across at its widest point). See photographs 7 and 8. Although the central large patch of Calluna in photo 8 (in 1994 and 1996) has significantly declined in vigour the bare patches on each side of it are markedly

less extensive in 1998, particularly the right hand one having been colonised by typical small herbaceous species.

F: The broom scrub which dominates this area was burnt in 1995. The recovery continues in 1998 with strong broom regeneration. Herbaceous species also continue to benefit from the opening of the broom scrub and a good growth of wild carrot (*Daucus carota*) can be seen on photo 10 with goldenrod (*Solidago virgaurea*) and greater mullein (*Verbascum thapsus*) also doing well. Woody species including oak (*Quercus robur*) and silver birch (*Betula pendula*) are also regenerating. Photo 10 also shows strong regeneration of mosses around the rocky outcrop - no doubt encouraged by the extremely wet summer. See photographs 9 and 10.

G. A patch of *Calluna* 0.60 x 0.45 metres and 0.40 metres tall with many other small plants - a slight increase in the size of all plants since 1996. The whole patch is now 9.15 metres across and extends as far as H. See photograph 11.

H. A patch of *Erica cinerea* (bell heather) 0.5 x 0.25 x 0.3 m tall with 3 more plants down the slope and 1 to the west. The main patch of *Erica* is clearly smaller but the seedlings noted in 1996 have grown and the general effect is of increased growth.

J. The photo series shows a clear increase in the vigour and the extent of *Erica* in this area (photos 13, 14 and 15) from 1994 to 1998 and mouse-ear hawkweed (*Pilosella officinarum*) is noticeably more frequent than it was in 1994. It was also noted that this area is extremely rich in invertebrates. There is a slight litter problem in 1998. Scrub control in 1995/6 was successful in increasing the area of *Erica* and further clearance, for example of the left hand oak and adjacent sallow (*Salix cinerea*) and bramble (*Rubus fruticosus agg)* shown in photo 15 would bring further benefits in increased area of heath. Some scrub is extremely beneficial and scrub clearance here should proceed slowly to ensure that benefits in increased heath always occur before further scrub is cleared.

L. One plant of *Calluna* as in 1994 and 1996, now 0.71 x 0.62 metres and 0.30 metres tall - an apparent further slight increase in vigour.

N. This area is shown on photographs 16, 17 and 18. It remains much as it was in 1994 but there has been a slight spread of scrub and this area could probably benefit from localised scrub control. For example, in photo16 bramble can be seen to be swamping heather in the bottom left hand corner of the photo and above the same bramble patch but in the right hand half of the photo three small oak saplings are clearly increasing in vigour and threatening to shade out a healthy patch of heather. Photo 17 shows the bramble encroaching upon a rock and threatening its populations of mosses and lichens. These areas of scrub should be removed.

O. Both the broom and the bramble in this area are thickening and spreading as can be seen through the photo series (photo 19). Some small patches should be cut out to open up the area again and prevent a too dense scrub growth.

R. Following the 1995 fires natural regeneration in the south-western part of this area has returned the vegetation to a state almost exactly as it was in 1994 - see photo 21.

The bracken (*Pteridium aquilinum*) has not spread but an eye should be kept on this potentially invasive species.

S. *Erica* regeneration continues in the small part of this area that was burnt in 1995 - see photo 22.

T. Heather continues to increase in this area with about 8 plants of *Calluna* and 2 plants of Erica plus about 7 upslope. The Calluna patch is 1.80 x 1.68 metres but of diffuse growth. Another *Calluna* plant to the east measures 0.5 x 0.5 metres.

U. 4 to 5 clumps of *Calluna* are still present (1 main plant on the south slope and about 4 on the north slope). The largest now measures 1.20 x 0.90 x 0.30 m - a continued increase in size.

V. Photos 24 and 25 show a continued increase in the vigour of *Calluna* at this location. 2 large clumps of *Erica* are now present (1 in 1994). The oak may create a shading problem in future years. In order to control this it could be coppiced now - it should regenerate freely from a cleanly cut stump.

W. A slight decrease in *Calluna* - down to 5 patches from 4 with many seedlings in 1996. Now 4 patches of *Erica* are present; none was present in 1994.

Y. As can be seen on photograph 27 *Calluna* is present in the same patches as in 1994 but is perhaps less vigorous - this year it is probably because of the excessive rain encouraging grass growth. Photograph 28 shows continued spread of bramble and bracken at the edge of this area and this should be a priority for localised scrub control. The bracken should also be controlled by pulling out the rhizomes or at least by trampling in July.

Z. There is also a need for some bramble and bracken control here.

CC. Once again there may be a need to coppice the oak (see photo 32) at some point in the future.

DD. The heath species are still present in this area but there has been slight bramble encroachment and this area should be considered a priority for localised scrub control. See photograph 34.

EE. *Calluna* and *Erica* have apparently been lost from this slope (see photo 35) although two plants of *Erica* were found on the other side of the path. The slope was burnt during 1995 and perhaps the fires were more frequent or hotter and have killed off the Calluna. One plant found in 1996 could no longer be seen.

Invertebrate Records

Casual records of invertebrates were made during the survey. The following table provides the data from the three year's monitoring visits. P = recorded as present but not counted, the number is given if the species was counted and a dash indicates that the species was not recorded in that year. A indicates that the species was noted as being abundant. Weather was poor during the 1998 visit and so fewer invertebrates were seen.

| | 94 | 96 | 98 |
|---|---|---|---|
| Grayling | P | 6 | - |
| Small heath | P | - | - |
| Small copper | P | - | - |
| Clouded yellow | - | P | - |
| Painted lady | - | P | - |
| | | | |
| Silver y | - | P | - |
| Rush veneer | - | P | - |
| Agriphila tristella | - | P | - |
| Agriphila straminella | - | P | - |
| Agriphila inquinitella | - | P | - |
| | | | |
| Mottled grasshopper | A | - | P |
| Field grasshopper | P | - | P |
| Meadow grasshopper | P | - | P |
| Dark bush cricket | P | - | P |

## CONCLUSIONS

The major changes that have occurred since 1994 on Troopers Hill are as a result of fires in 1995. Areas of grassland and heath which were affected by these fires appear to have recovered except in area EE. Even where regeneration was slow in 1996 a strong recovery was seen in 1998. The effects on areas of scrub, which were more severe including the killing of mature shrubs, have largely been obscured now by new growth and indeed the fires have increased the plant diversity by opening up areas which were formerly dense scrub and allowing additional plant (and probably invertebrate) species to thrive. Dense scrub is of value for birds and certain invertebrates and plenty still remains on the site. The fires appear to have had little long term effect on the vegetation of the hill but more frequent fires would probably have a more serious adverse impact.

Apart from the continuation of a healthy recovery from the 1995 fires few changes were detected. The rate of scrub encroachment continues to be very slow, probably limited by soil fertility. There are a few areas, however, where scrub is very slowly encroaching on heath vegetation and some limited clearance in these areas would probably be beneficial in the 1998/99 season. These are areas J, N O, V, Y and DD. Japanese knotweed control is needed in area C.

Dawn Lawrence and Rupert Higgins
Wessex Ecological Consultancy