# The Landscape of Forests and Woods

Forestry Commission Booklet No 44

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London : Her Majesty's Stationery Office

# Foreword

Dame Sylvia Crowe retired as Landscape Consultant to the Forestry Commission in 1976 after 13 years of pioneer work.

In producing this booklet, which is an extensive revision of the one first published in 1966, she has drawn upon her unique experience of landscaping British forests over many years. Her opinions on landscape design principles which should be applied in forestry to obtain a satisfactory balance between beauty and function in the landscape, are admirably outlined in this work. Her principles have been adopted as the Forestry Commission's policy on landscape design and will be implemented by its staff.

I hope this booklet will be of interest and practical use outside the Commission; to the general public who may gain a fuller understanding of the landscape design objectives of the Forestry Commission; to woodland owners whose aim of caring for the countryside is similar to our own; and to countries abroad with similar landscape problems.

The Forestry Commission is greatly indebted to Dame Sylvia Crowe for all the work she has done on its behalf. I have the greatest pleasure in commending this booklet and hope that it may have a wide circulation.

John Mackie
*Chairman*
Forestry Commission

January 1978

First published 1978

ISBN 0 11 710186 9

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# The landscape of the multi-purpose forest

A landscape is influenced by all man's activities and land-uses within it. Landscape quality is not therefore a separate attribute which can be applied independently, but an element incorporated into all aspects of management.

The components of forest land-use in addition to timber production are wildlife conservation, recreation and shelter – these elements should be planned in relation to each other, both functionally and visually, within a comprehensive plan.

In most British forests and woods, timber production is the prime use, and therefore integration of the crop into the countryside remains the main landscape responsibility.

The basis of successful integration is to understand the character of the landscape, and to carry out all forest operations in sympathy with it. To achieve this, there must be an appreciation of each type of landscape and of the qualities which distinguish it.

## The landscape character of the areas to be afforested

The visual character of a landscape is influenced by the configuration of the ground and the scale of its variations; the existing type and pattern of vegetation and land use and the prevailing colour of rock, soil and structures. This character determines the extent and pattern of the forestry which will look right in any given landscape, the desirable type of afforestation, and the appropriate siting, material and colour of buildings.

*A landscape of deep colours. The underlying geology provides the reddish tints of the wall and buildings, whose warmth is picked up by the brown-green of the open hills. Depth and contrast is given by the conifers*

## Landscape analysis

Landscape patterns have evolved from past land use based on geological and climatic conditions. In arriving at wise planning decisions involving changed land use which may affect amenity and conservation, the essential character of the landscapes under consideration should be analysed and understood.

A site assessment is taken for granted in ascertaining soil and climatic conditions. The visual assessment is less straightforward, but equally important, if landscape values are to be conserved. A landscape analysis should cover both the general type of regional landscape and the character of an individual site.

The regional pattern usually determines the scale of forests and woods which will give the desirable contrast between open ground and afforestation, and between one type of vegetation and another.

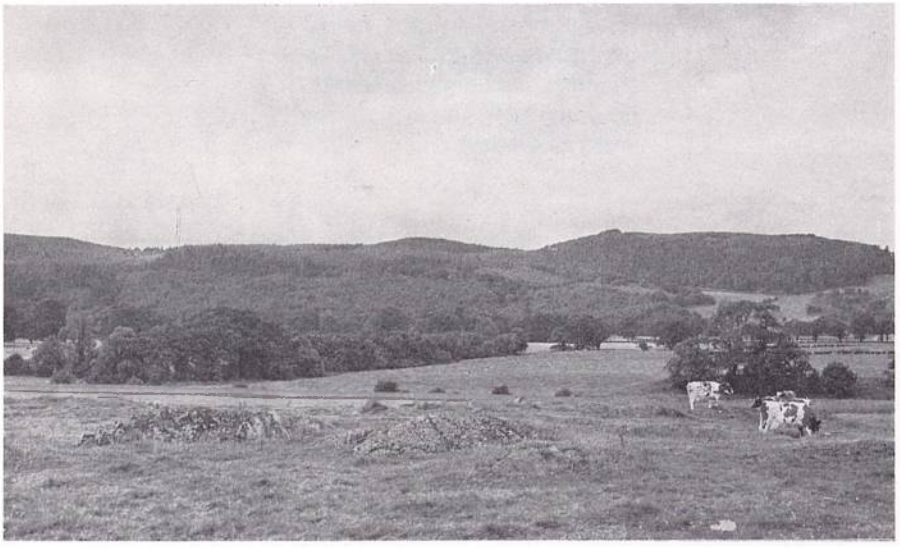
The scale of this contrast varies from one region to another. At one extreme are the large-scale rolling hills of the Border country, which can accept great areas of forest provided there are large-scale contrasts of open ground and some variation in vegetation.

At the other extreme are regions like the Lake District and parts of North Wales with their small-scale contrasts of land form and delicately modelled hills. Here every plantation must be treated individually and fitted into the intricate pattern.

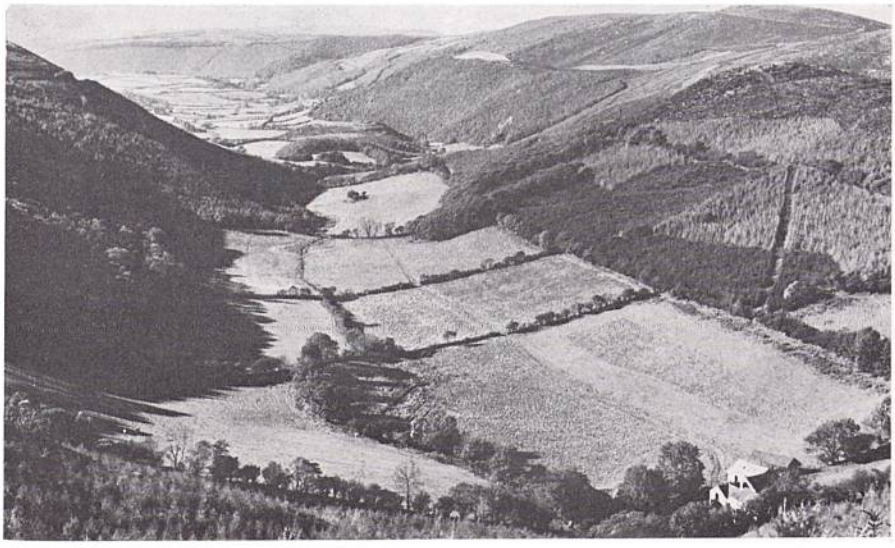
*The wide hills of the Border Country*

*The intimate hills of Wales*

*Glentress forest near Peebles*



*The planted hills of the Stewartry*

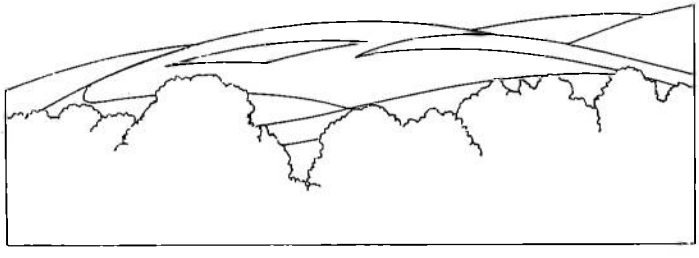


*Agriculture in the valleys sheltered by wooded hills*

Intermediate scales and different patterns are exemplified in other regions. In Peeblesshire, the contrast is provided by some of the clearly defined hills being wholly planted and others wholly open.

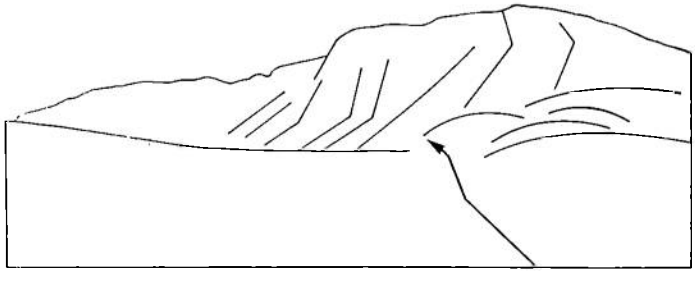
In Kirkcudbrightshire, planted hills contrast with open valleys. In Devon the reverse is often seen, trees occupying the steep valleys with agriculture on the plateaux.

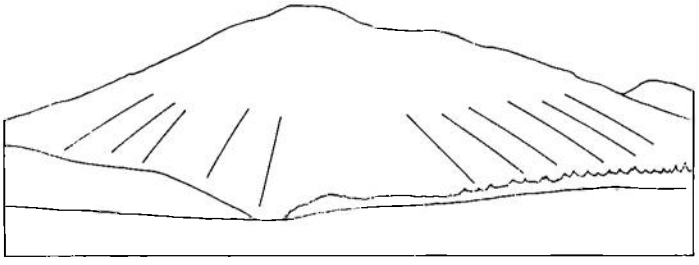
A recurring pattern, often very efficient in land use is the afforestation of steep hill sides sheltering agricultural valleys and leaving the upper land open for grazing.



Landscapes have characteristic topographical shapes, based on their underlying geology. The shapes may be smooth and flowing, as in the agricultural areas of Devon.

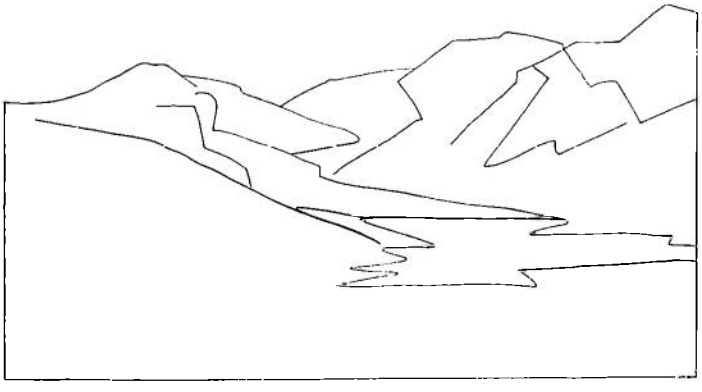
In West Scotland the strong-angled strata contrasts with the rounded drumlins. Man's influence has added the road pointing to the heart of the composition.





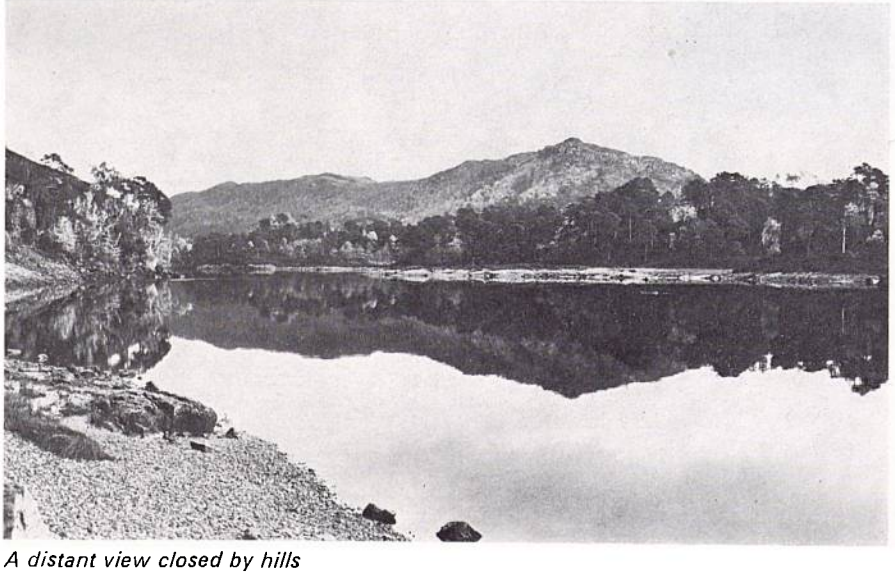
One strong focal point may dominate the composition, accentuated here by the directional gullies and the base-line of trees.

Strong, interlocking forms make up a complex pattern of shapes, textures and colours in North Wales.



*Forestry on an old mineral working area*

*A landscape of extensive views*



*A distant view closed by hills*

In each case the particular characteristics which lend beauty or distinction to the landscape must be recognised and analysed, so that it will not be diminished by any change of land use.

Equally, features which degrade the landscape should be noted as they can often be screened by planting, or better still restored to good land use, as has been done on many old mineral workings.

In some areas the views are extensive and must be considered in a wide context of distant prospects.

In other cases the views are limited by the folded nature of the topography, resulting in tracts of dead ground lying between ridges whose skylines form the limits of the view.

On the enduring base of topography is imposed the more transitory pattern resulting from land-use. This may be in the form of field pattern or of vegetation which is subject to change, albeit often over a very long time scale. The decision whether and how change should take place requires critical and dispassionate analysis.

This analysis should consider the intrinsic beauty of the existing scene, the part it plays within the regional setting, its relevance to present land-use and its contribution to conservation and human enjoyment.

This last quality in particular must be considered in a wide regional context. For instance, open hills fill a genuine human need; the enjoyment of untrammelled space and the sensation of not only looking at, but walking through, wide views. The importance of this value must be assessed in each case in relation to the extent of open ground in the region.

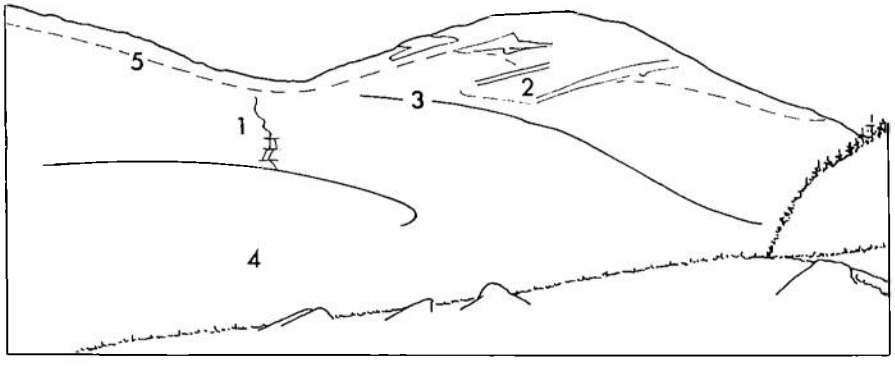
## Site analysis

The broad landscape of the general scene will be a guide to the acceptable scale and form of forest planting, but in applying the general principle a more detailed survey of each site is needed.

Outcrops, cliffs, burns, waterfalls and gullies give interest and structure to a hillside. These features should be respected and not obliterated by planting. Their appropriate setting, whether of open ground, indigenous trees, or specially placed crop trees should be given ample space and worked back into the main crop, so that they appear as a natural feature in the forest landscape. Often the most interesting features occupy ground where growing conditions are poor, or extraction difficult, so that the crop loss is small.

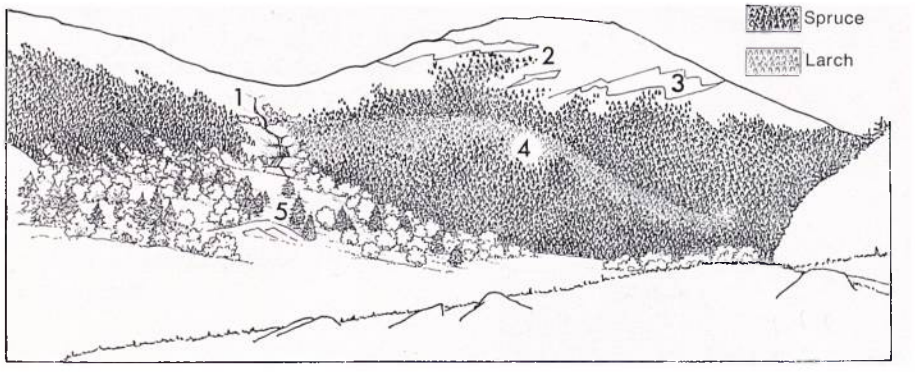
*The effect of Birch and Rowan which have regenerated on unplanted rocky buffs can light up a whole hillside of spruce plantation*

Individual sites need detailed analysis. The attraction of this site lies both in the simplicity of the main composition and the detail interest of the outcrops (which lie just above the upper planting line), and the burn with its waterfalls.




ANALYSIS

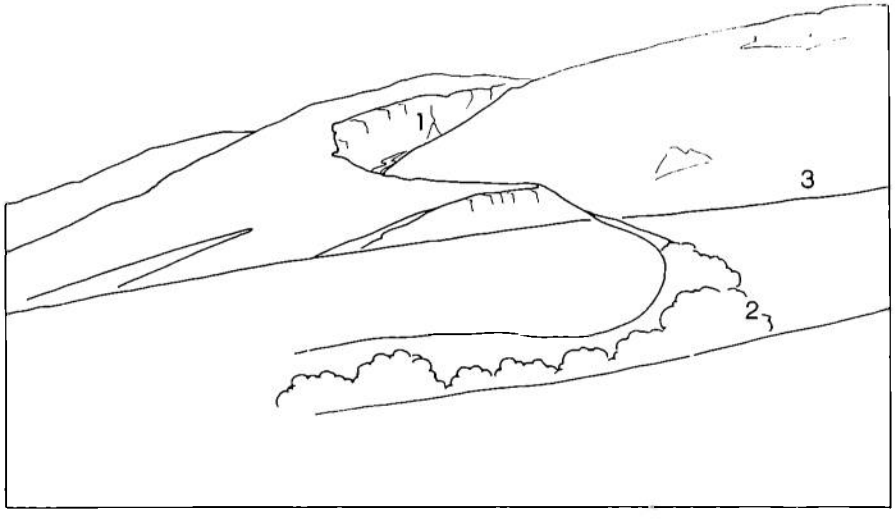
The main features of the site are the burn and waterfall (1), the rock outcrops (2), the shoulder of the hill (3), the broken foreground (4) and the upper planting line (5).




SOLUTION

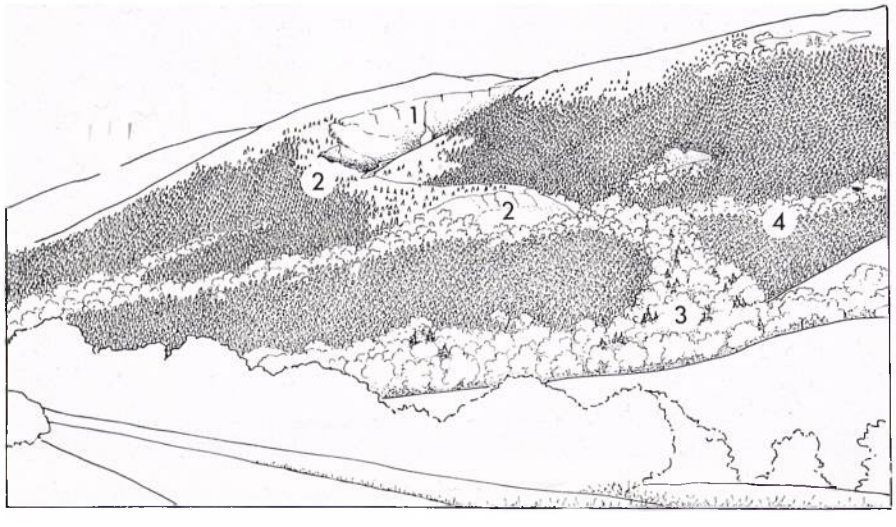
If this hill were planted, the modelling of the hill formation (4) could be accentuated with larch; a broken upper planting line could recognise the rock features (2, 3). The planting, if kept well back from the burn (1) and open in the foreground (5) would reveal the waterfalls.

A hillside whose beauty is lessened by the forest road and the present shape of the plantations.




ANALYSIS

The basic form of this landscape is its strong S composition leading the eye to the waterfall (1). The composition is strengthened by the valley broadleaves (2). There is some scarring by the forest road (3).



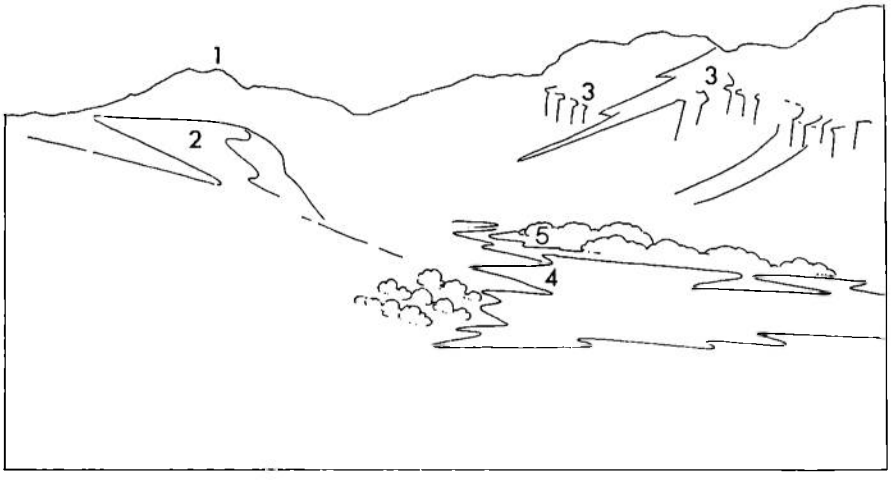

SOLUTION

The view of the waterfall (1) could be retained by leaving areas unplanted (2). The composition would be accentuated, and the road scar masked (4), by extending the valley broadleaves (3).

A landscape of strong form, yet rich in detail, interest and variation of colour, form and texture.

ANALYSIS

Features of special interest are the dramatic skyline (1), the dominant headland (2) in the middle distance and the strongly marked bluffs and cliffs (3). In contrast with these rugged surroundings, the valley (4) forms a placid central feature leading the eye towards the distant col. Broadleaved trees (5) form an essential transition between the humanised valley and the rugged hills.




Any additional forestry would need to be grafted in with great care between the rugged rocks and the gentle valley, maintaining the cushioned framework of the broadleaves.

## Planting to topography

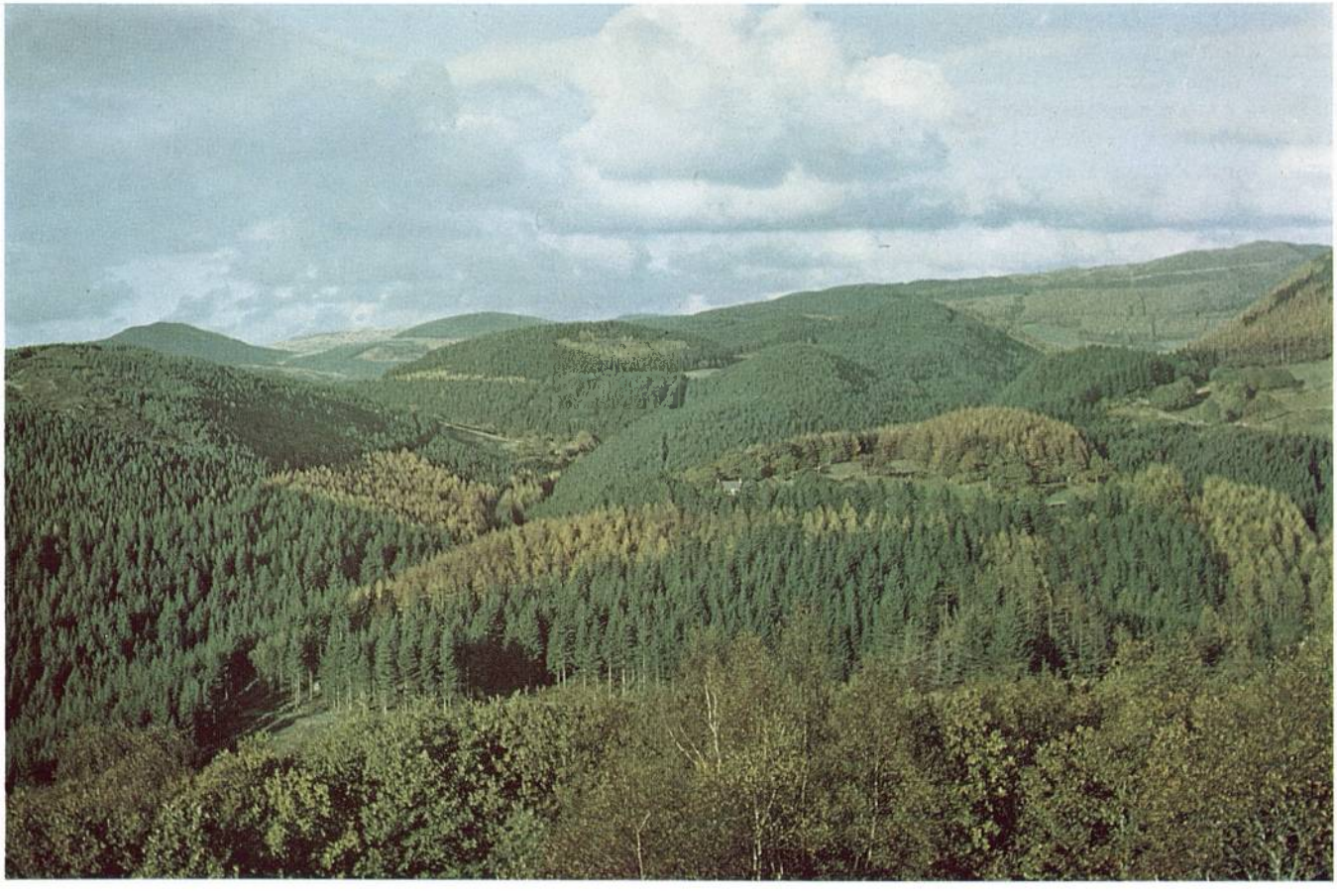
The analysis of each landscape from its regional type to its detailed characteristics is the guide to the form which plantations should take.

The shape of planting concerns both the pattern made by different species within the forest and the outline of the planted area as seen within the surrounding landscape.

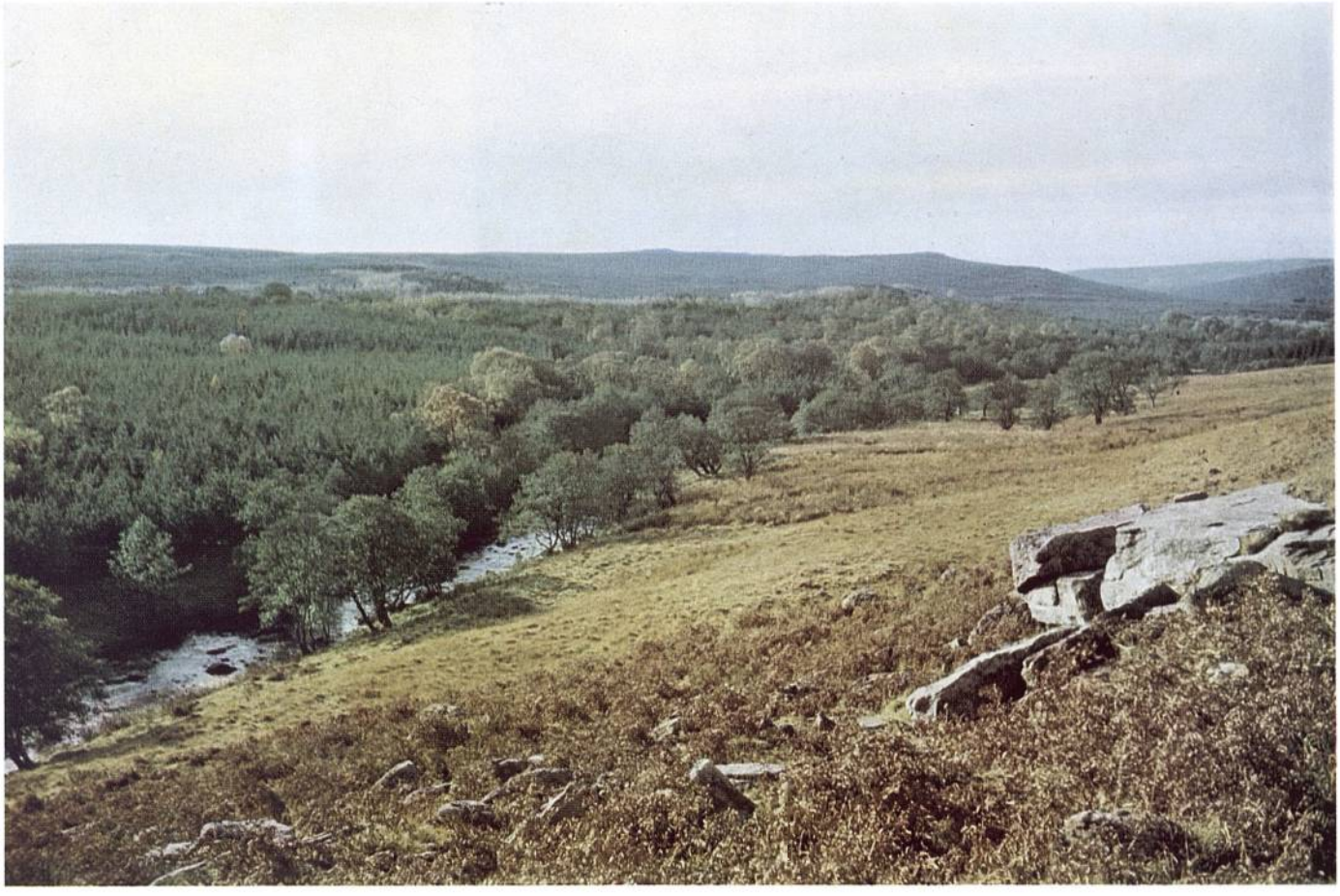
The basis of success in both directions lies in planting in sympathy with the topography. While the forester's control over the outer boundary is sometimes constrained by the acquisition boundary he can do much to alleviate any ugly line, while his control over the internal shapes is absolute. On terrain of little geological variation it is often more difficult to find an acceptable shape since the guide-lines are less obvious. But the planting should still be related to the topography whatever its scale and character. In doing so it can accentuate the rhythm and flow of gentle land-forms, and add to any special quality the scene may have.

The long straight boundary to a forest is often determined by the acquisition line. Control over the external boundaries can only be influenced at the time of acquisition and therefore the landscape aspect should be considered when the exact line of demarcation is being negotiated, even though an ideal solution may not always be obtained. Often a very small adjustment can make the difference between planting shapes which accord with the landscape and those which damage it.

To achieve plantations which conform to the configuration of the ground, long straight boundary lines should be avoided, particularly if they run at right angles to the contours. Boundaries following the same contour along a hillside may also appear straight when seen from the same elevation on the far side of a valley. Straights when not too long may be acceptable on the flank of a hill when they run diagonally over the contours. They may also be acceptable at the lower margin, if they relate to the valley field pattern. On the upper margin the outline is more effective when it accentuates the form of land, by either running up to the skyline on cols, and dropping at the high points or, more rarely, and on lower elevations, covering the headlands and allowing open land to sweep up to the cols.



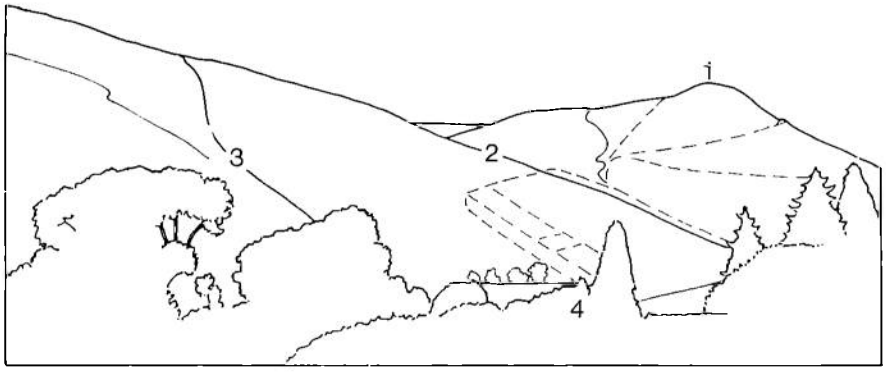
*The beauty of the forests in part of the Lake District and Wales is due to the shapes and sizes of the broadleaf and conifer plantations being in the right relation to the shape and scale of the terrain, the pattern of the planting accentuating the modelling of the hills instead of blanketing it.*
*The right-hand foreground shows planting in sympathy with contours. Only the square block on the left of the valley is incongruous*



Wider spacing at the forest edges may help to merge the plantation into its surroundings, particularly if indigenous growth establishes itself; its form, colour and texture will give a sympathetic transition between the dark, vertical conifers and the softer, russet-toned character of unplanted hillside.

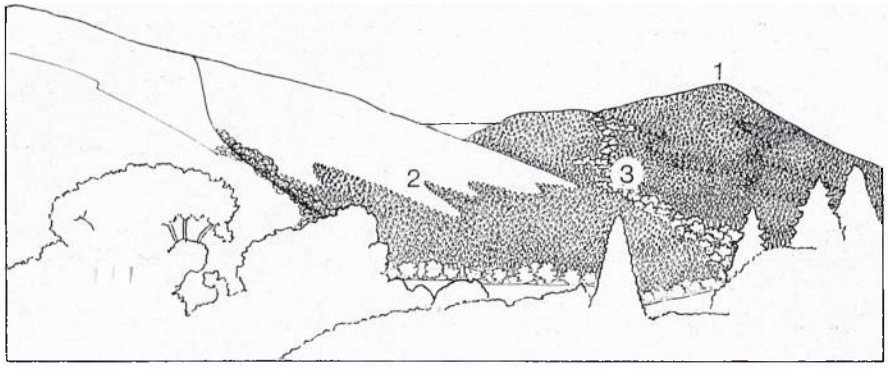
Often the tilt of the underlying strata shows in the pattern of a hillside and the angle of this tilt can be repeated in the forest outline. Where planting runs out into rocky terrain, a few outliers between the outcrops will give the forest edge a natural appearance.

A landscape of very strong form has had an unsympathetic pattern of forestry imposed on it.




ANALYSIS

The landscape features which should be respected in afforestation in the area are the focal points of the peak (1) with its slightly asymmetric form, the sweep of the left-hand hill (2) flanking the focal hill, the gullies (3) which give articulation to the hillside and the fine grouping of the foreground trees (4).



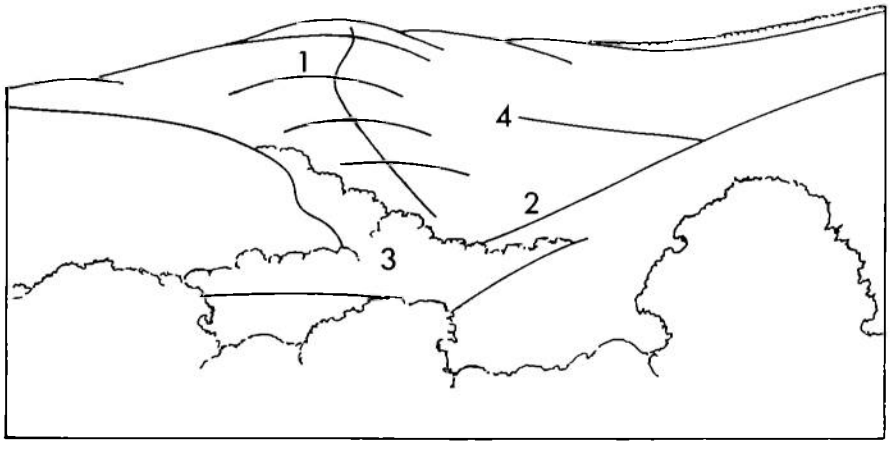

SOLUTION

Planting and future felling coupes should respect the unity of the focal hill (1) and the manner in which it grows out of the surrounding landform.

Planting should be extended with a more sympathetic upper planting line (2) as far as the gulley (3), to express the unity of the flanking hill and its lead up to the focal hill.

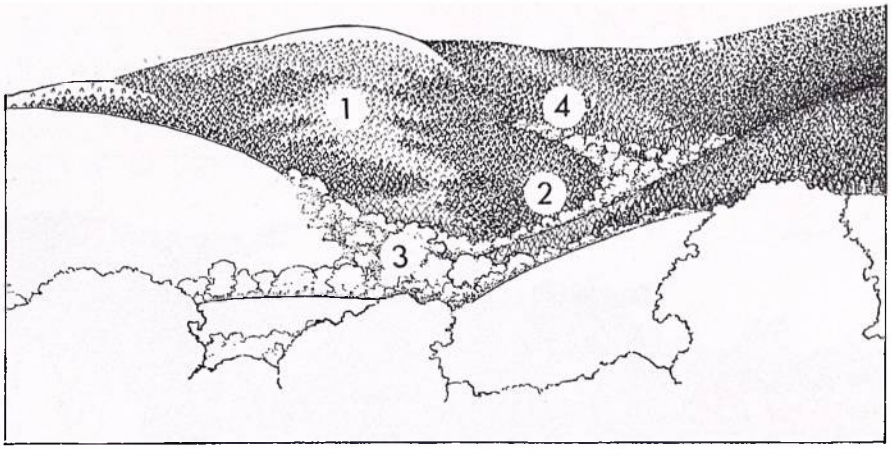
Indigenous growth should be encouraged in the gullies and the broadleaves strengthened at the lower edge of the plantation to tie the forest into the valley woods.

The great beauty of this landscape lies in the subtlety of the land-formation.




ANALYSIS

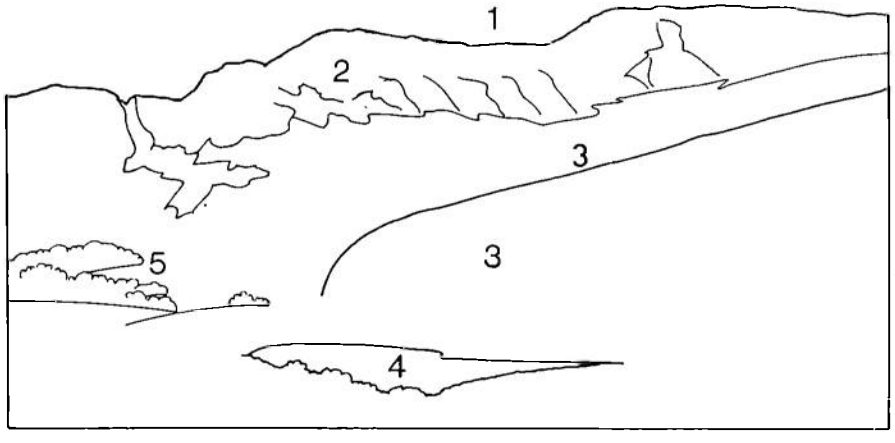
The strongly modelled shoulder (1) flanks the amphitheatre-shaped valley (2). The drift of broadleaves (3) accentuates the composition whilst the forest road (4) cuts across it.




SOLUTION

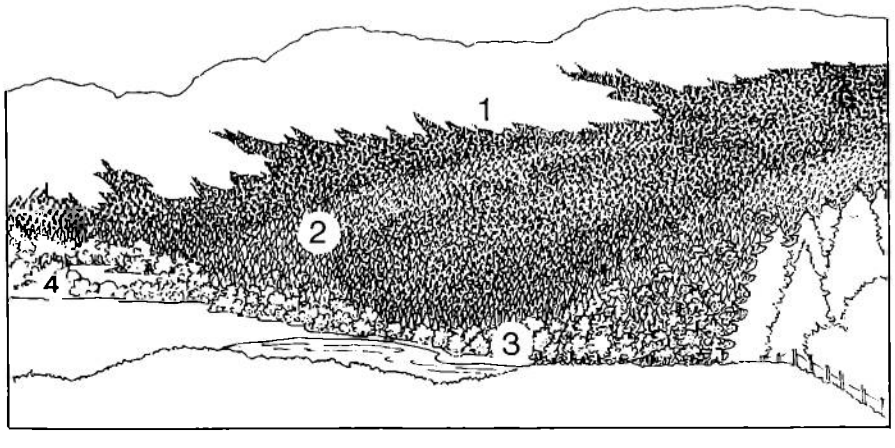
The modelling of the shoulder could be accentuated by larch (1). Broadleaves would accentuate the valleys (2), linking them to the existing trees (3). The encouragement of native growth at the sides of the forest road (4). curving down to join the valley broadleaves could permanently heal the road scar.

In this example, afforestation forms the middle distance between an open foreground and a background of hills above the planting line.




ANALYSIS

The chief landscape features are the skyline (1), rugged, yet with a rhythmic dip-scarp formation, and interesting cliffs and outcrops (2). The middle ground (3) is rather featureless but there is a directional grain down to the lake (4) in the foreground and the valley broadleaves (5) add contrast and texture.

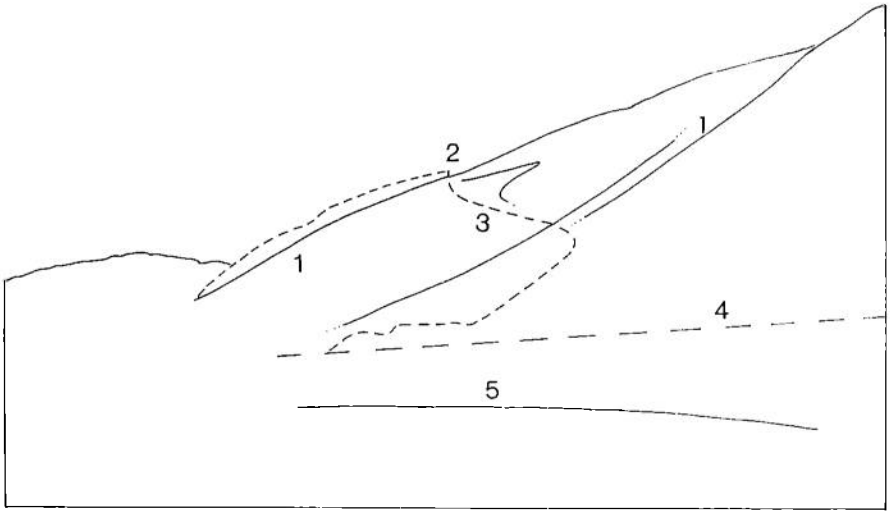



SOLUTION

The background interest is accentuated by keeping the trees well back from the cliffs and outcrops, and running them up the flushes.

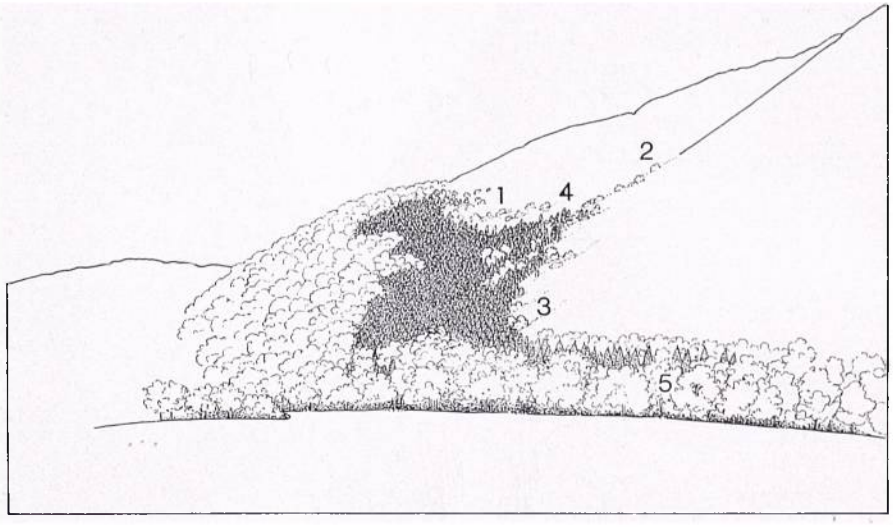
Drifts of larch (2) follow the grain of the middle-distance land. Larch and broadleaves extend along the lake shore (3), and the broadleaves are strengthened in the valley (4).

A scene whose character is formed by the way in which the flanking hills slide down gently into the valley floor, becoming tree-clad as they near the lower ground.




ANALYSIS

While the wooded nose of the central hill is in character (1), the forest crosses the skyline at an awkward angle (2) and the upper line (3) does not inflect to the hill's formation. The road line causes a scar (4) and the valley trees in the foreground have been reduced to a weak line (5).




SOLUTION

The general outline of the forest would be improved by extending the planting up a small flush (1) just below the skyline, up the gulley (2) and towards the road (3). In detail, it would be improved by merging the edge into the hillside by wide-spaced planting and the encouragement of broadleaves. Broadleaves planted between the road and the valley floor would both conceal the road scar and strengthen the broadleaved character of the valley (5).

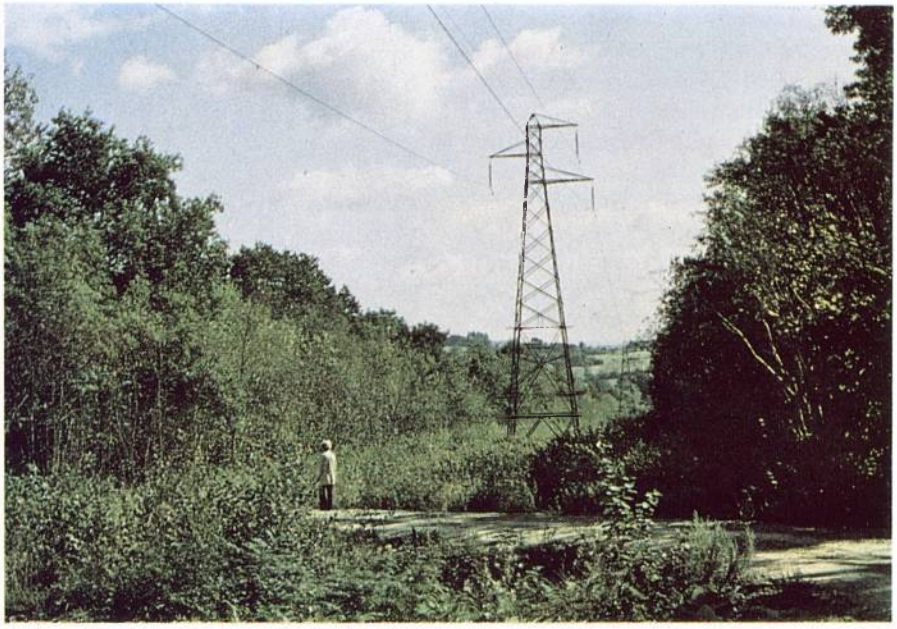
Some of the worst patterning within the forest boundary is caused by straight rides and roads cutting across contoured ground. Those now seen are mostly in old plantations.

Line thinning or felling of rackways for cable cranes may produce an ugly visual effect.

In both these examples the rigidity of the top planting line is even more unsightly than the rides.

From the outer view these rigid lines are most damaging when seen on a hillside, but remembering public access to forests the appearance from within must also be considered and a series of long, straight rides can be daunting to walkers.

The new practice of curving the rides and grading the roads diagonally to the contours is producing excellent results.



When power lines traverse a forest the trees are cleared on each side of the line to give a long straight ride. The harshness of these clearings can be modified if advantage is taken of the fact that the safety clearance for lines is greatest at the centre of each span and least at the tower position, the field of insulation forming a parabola both vertically and horizontally.

The latitude which this gives allows an interesting edge to be developed, with a very high conservation value.

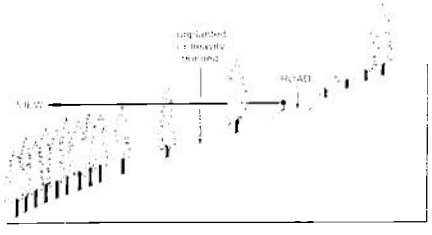
Here in Gravetye Woods, the Forestry Commission will control the regrowth on the wayleave in selected sensitive sections.

## Implementing the landscape principles

When a new plantation is to be established the site must be looked at from all available view-points.

The general appearance from all directions should be considered, even if some view points are unfrequented. A new road or reservoir may well reveal it within the lifetime of the forest. If a shape is good it will look right from all aspects, just as a piece of sculpture does.

Attention should be given to views from roads, paths and access points. The omission of quite a small area of planting will often suffice to perpetuate some special view, particularly where the ground falls away from the view-point.



After the first assessment of the site, a preliminary layout can be plotted on a contoured survey augmented by photographs and overlays, and then re-checked on the site.

Since the important views of a hillside plantation may be from far distant points, there are practical difficulties in demarcating the desired shape on the ground. The use of marker flags is helpful, and where necessary a walkie-talkie can be used to guide their placement from a distant view.

## Tree species as an element of landscape

The scale, pattern and colouring of landscapes influence the effect which different species will have on the scene.

Beyond the basic need to select species which will produce good timber on a given site, there are two other considerations. The first is conservation in its broadest and long-term sense, the second is the appearance of the landscape. The requirements of these two values almost always coincide.

The Forestry Commission's broadleaf policy should ensure the perpetuation of broadleaves in those parts of the country where they are capable of growing well. But in those areas where conifers are the only reasonable timber crop, the incorporation of sufficient broadleaves to ensure both conservation and landscape quality needs careful planning to ensure maximum effect with minimum loss of timber.

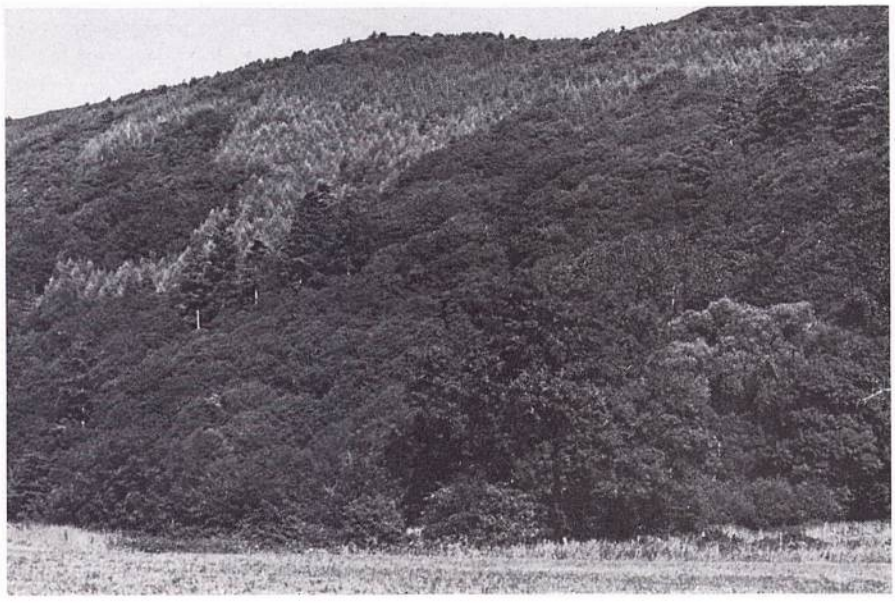
It is now accepted policy to retain certain indigenous elements such as the Sessile oak which has survived in steep gullies in the highlands, and the birch and rowan on rocky, unthrifty knolls. Protected from grazing by the forest fence any unplanted areas are likely to colonise with native trees, if seed parents are present, or introduced. This indigenous growth at the forest edge, particularly where it runs out onto a mountain-side, forms a transition of texture and form as well as colour, which blends into the surrounding ground.

*Leaving breathing space at the edge of rides and forest boundaries will encourage this process*

Keeping the conifer crop back in an irregular line from the margins of streams and planting drifts of alder, will benefit wildlife as much as appearance. In Kielder it has been found that the provision of alder and willow for browsing diverts the deer from eating the bark of young conifers.

The encouragement, and where necessary, introduction of natural food plants as under-storey and ground flora is as beneficial to the landscape as to conservation.

Further opportunities of introducing broadleaves are provided by the various recreational facilities now being created in forests, which may well justify an increased broadleaf content in the surroundings, the effect of which should be considered in the distant view as well as at close quarters.



*Larch accentuating land form*

*A good example of mingling light-foliaged larch and broadleaves with dark-foliaged evergreen conifers*

Local native shrubs should also be used freely in recreation areas. They not only add interest but are invaluable for screening and for guiding visitors unobtrusively onto the desired routes.

The visual and ecological value of broadleaves can be augmented by larch, which has the great landscape merit of seasonal colour change, and when the crop begins to open up produces an interesting forest floor.

Larch are often most effective planted in drifts to extend the deciduous value of the necessarily limited areas of broadleaf. They may also be effective in accentuating the modelling of the ground, planted on the spurs and breasts of hills, and often following the pattern of bracken. In all cases they should merge gradually into the surrounding crop.

Both larch and broadleaves are usually more effective planted in drifts related to the topography rather than scattered thinly and evenly through the dark conifers, although the overall mixture can look well if the percentage of deciduous trees is high enough. About 25 per cent gives a telling result.

Where there is variation of soil and topography, the best results come from good forestry practice in changing the species to suit the situation.

Good examples of this are to be seen in many of the older forests, where the pattern of the tree species follows the original pattern of bracken, which was used in fact as an indicator plant at the time of tree planting.

The placing of relieving broadleaves should be considered for each individual landscape so that they may make their greatest impact. They are least effective singly or in thin lines. The practice of leaving a belt of broadleaves beside roads improves the appearance from the roads and is therefore worthwhile, particularly in flat country. But in hilly country the distant views show it as a hard fringe to the forest and a better result for both near and distant views is achieved by breaking the parallel line in sympathy with the land-form and allowing the stands of broadleaves and conifers to tongue into each other.

In some places the broadleaves may be most valuable in mixture with the conifers, in others they will be more effective in a group or drift related to the topography.

The broadleaves may often emphasise a valley by following a stream bed, or, in a country of low elevations, broadleaves on the higher ground may be more sympathetic to the land-form. The relative position of the conifers and broadleaves will of course largely be determined by the soil conditions. In areas where broadleaved crops are possible, they may be given the better and more sheltered ground. Conversely, when site conditions will not allow them to develop as a crop, they may be relegated to the harsher positions, leaving the better ground for the conifer crop.

In conserving broadleaves within the forest, it should be realised that the relieving broadleaves in the valley are usually off forestry land, and if they were felled, the loss to the appearance of the forested hills would be considerable, while the importance of broadleaves within the forest boundary would be proportionately even greater.

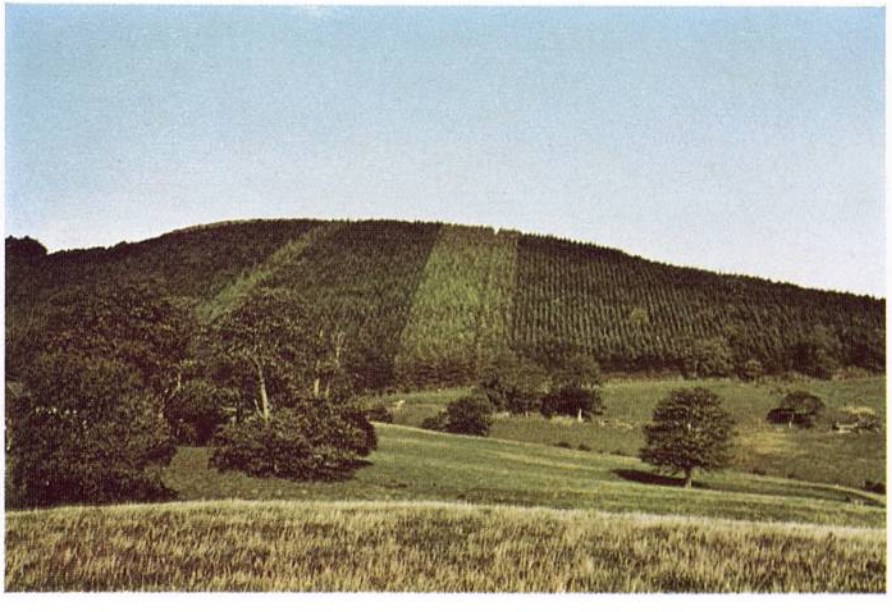
The effect on the landscape of these tongues of broadleaves is very great in proportion to the small area occupied by them

A hillside planted with conifers may often be linked very acceptably to an agricultural valley with its broadleaved hedgerow trees if broadleaves also feather up the gullies, or sometimes the ridges on the hillside, and thereby unite it to the valley. This pattern also provides the ideal habitat for bird and animal population.

*Planting in vertical bands of alternate species gives a hard, unnatural appearance which should always be avoided. On the other hand, the division into hard blocks contradicts the shape of the landscape*

Often two species can be most successfully mixed by planting groups of one species in a matrix of the other. This is particularly valuable where it is desired to obtain an early financial return from conifers in a young woodland intended eventually to become predominantly broadleaved.

Species planted for other than the timber value should in general be indigenous to the region. Both the visual and ecological characteristics of the British countryside have been impoverished by the decline in native plant communities and these should be regenerated wherever the opportunity arises. There are, however, sites where aliens such as *Nothofagus* or *Acer platanoides* will provide timber values as well as deciduous relief and these can be of great benefit to the landscape.



## The integration of forestry and agriculture

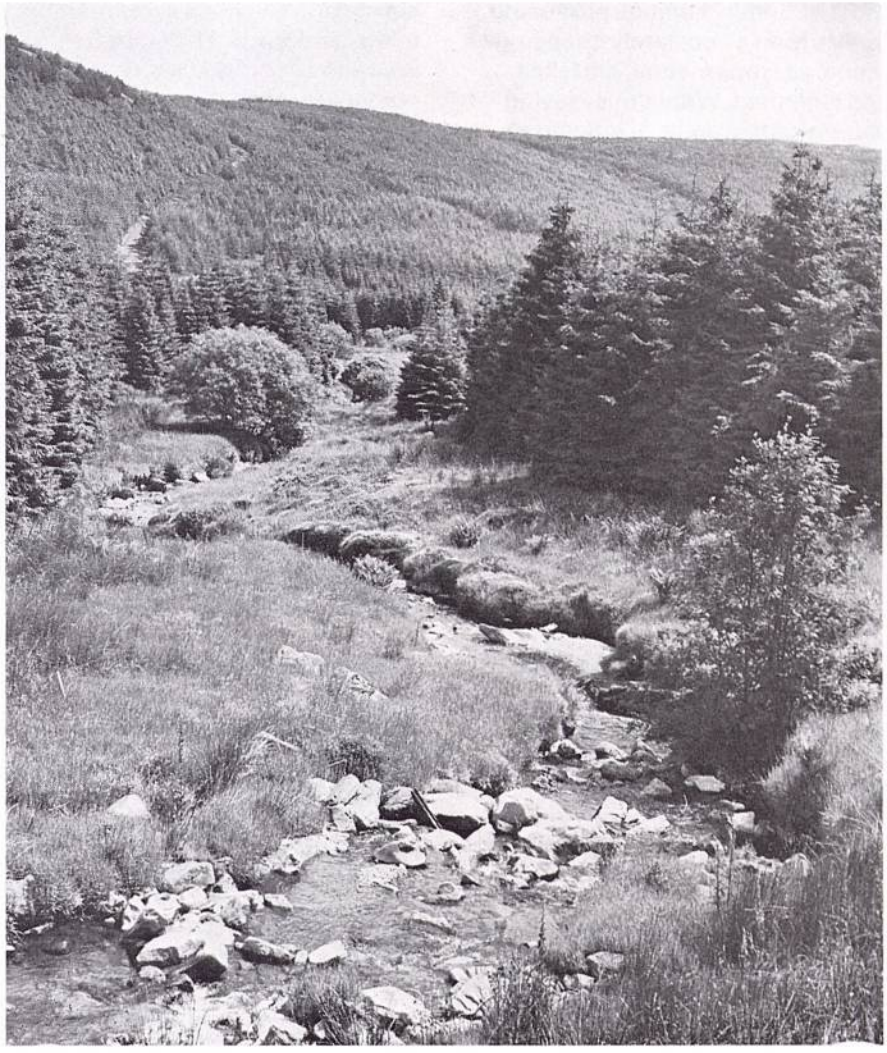
Since a decisive factor in the successful introduction of forestry into many landscapes is the maintenance of an acceptable balance between planted and open areas, the integration of agriculture with forestry is a vital landscape consideration.

Wherever this integration is successfully accomplished, the landscape gains. Many good examples of Forest Worker Holdings are to be seen, as well as larger farms which have benefited by shelter provided by the forests. Good examples are those of Palgowan on the Water of Minnoch and Bents Farm, near Newton Stewart, both in Kirkcudbrightshire.

At Ystwyth Forest, Dyfed, a joint scheme was laid down in 1956, whereby the 1,600 hectares acquired was allocated between forestry and agriculture. Since that date some 770 ha have been planted, and the stocking of sheep and cattle on the remaining 830 ha has increased over that formerly grazed on the original 1,600 ha. Provision of suitably placed shelter belts, and the construction of forest roads, have also helped to use the land to the best advantage, and the overall labour required for agriculture and forestry has increased from 4 men before integration to around 18/20 men now employed in the forest and on the farm. At Glenlivet Forest, in Grampian, there has been gradual progress towards integration of forestry, agriculture, and sporting interests. Hill farmers have come to realise the advantages to their stock and grass crops of the ever-increasing shelter, and of the fencing, resulting from afforestation. Out of the 4,565 ha owned by the Forestry Commission, over 2,400 ha have been sold voluntarily by the tenant farmers since 1951.

*An interesting example of successful integration by the Commission is at Grizedale Forest in the Lake District where the original acquisition of 1,225 ha comprised 7 farms chiefly devoted to hill farming, with a limited amount of arable land. By a voluntary re-arrangement of the grazing land some 963 ha have now been planted leaving 262 ha in permanent agricultural occupation, made up of 4 farms and one smallholding. The emphasis is now on intensive, mainly dairy, farming. The area planted has been achieved without any permanent loss in agricultural production, although in effect 75 per cent of the hill land has gone over to forestry*

While integration with agriculture gives a large-scale contrast between forest and open land, there are also opportunities to provide this contrast on a small scale within the forest, by a generous treatment of strays, rides, road-verges and stream sides. These contribute most to the landscape if their width is allowed to vary in sympathy with the lie of the ground, instead of running in a parallel strip. They should also be allowed to break into the edge of the plantation, giving a sense of penetration and space as well as increasing the edge value for conservation.



*The planting along streamsides often crowds too closely to the edge*

## Felling

Most of Britain's timber-producing forests form a constantly changing scene, as crops mature, are felled and replanted. Within this moving pattern certain areas of retention may sometimes be formed of such features as old oak in gullies, or of stands managed on a long-term basis.

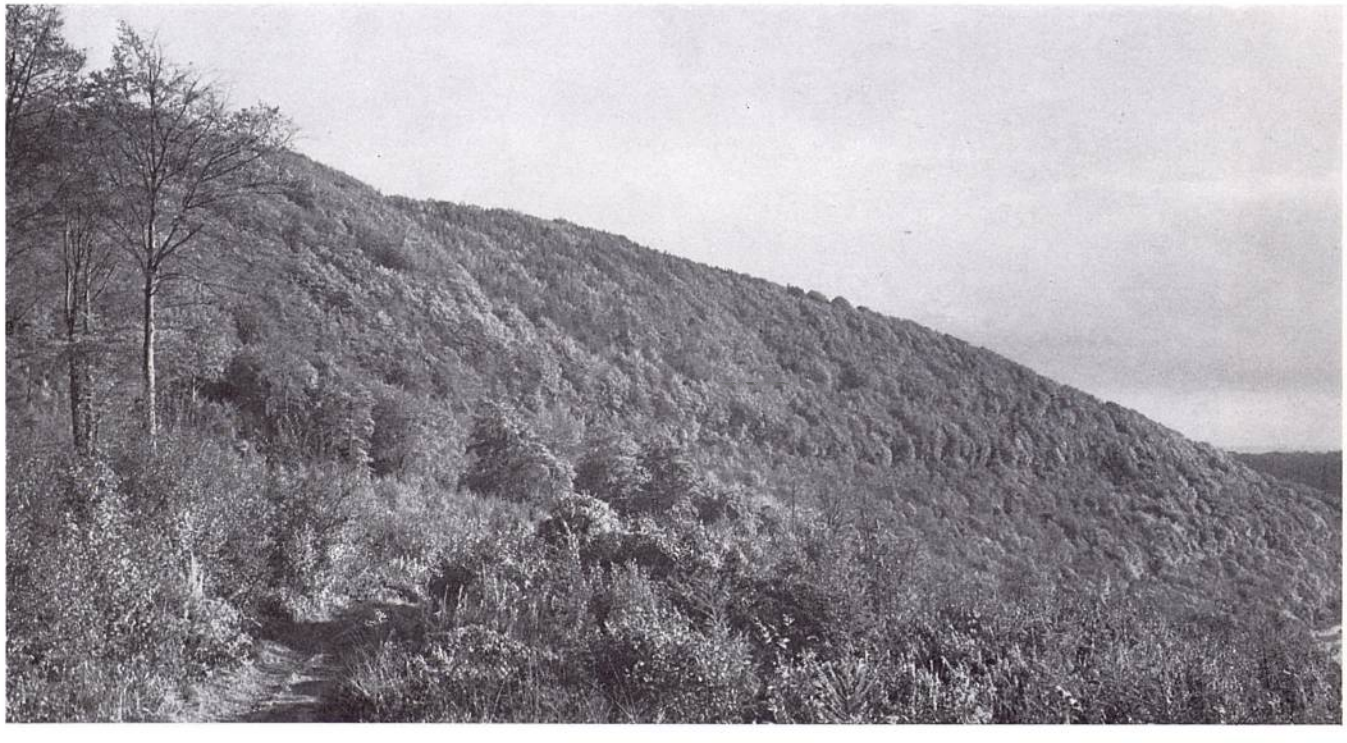
There are thus two elements of the forest landscape to be considered : a usually small component of semi-permanent structure and a large component of constant change. The relationship of these two components is one of the most important steps towards creating a good forest landscape.

The felling programme offers an opportunity to do this and to develop existing even-age plantations into normal forests. The requirements of an even flow of timber supply will in itself ensure some spacing out of the fellings, and this can be put to good advantage by retaining to a longer rotation good stands which are making a valuable contribution to the landscape. They may be important in the distant view, perhaps forming the background to buildings, or screening a road, or giving strength to the base of a hill, or their value may be to the internal landscape, providing a setting to recreational areas and walks.

In forests where visitor enjoyment is a major factor, the retention of mature trees in belts and drifts can be more valuable than in clumps. This allows the continuing experience of walking through a stand of high trees, as opposed to the static experience of standing beneath a clump. This does not, of course, belittle the value of certain famous clumps marking hill-tops, but these gain in importance by being exceptional land-marks, standing out from the general pattern of flowing continuity which most landscapes show.

Sometimes trees in rocky areas may be difficult to harvest, and can be retained with advantage to the landscape. Areas of retention form a long-term or even permanent framework within which the shorter-term rotational fellings take place.

The retention areas may be of forest crops managed on a long-term basis, because of their vital contribution to some aspect of the landscape. Since their retention and special management may well cause a loss of revenue the utmost care is needed in their selection to ensure that they will give the greatest possible landscape value. But there are also areas which can be retained with little or no loss, and full advantage should be taken of these in creating the permanent framework of the forest structure. Deep gullies, rocky outcrops and cliffs, inaccessible ground, can render the retention of natural woodland and scrub an economy rather than a loss of revenue.



*Offa's Dyke near Tintern, rich in native trees, shrubs and flora is of immense landscape and conservation value as it runs through the cropped forest on the easier ground below it*

*The lower retentions link the afforested hill to the broadleaves in the agricultural valley*

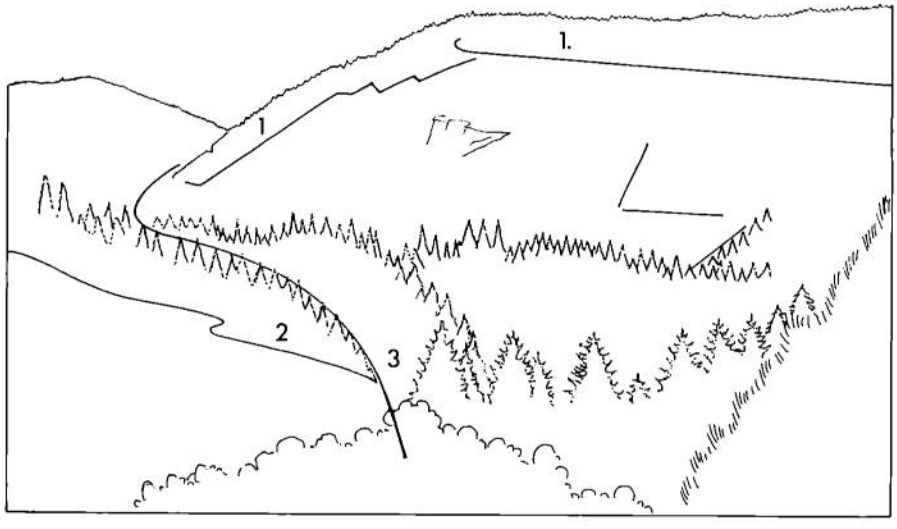
*On the hill, retention relates to the basic land-form and to local features. Natural growth is conserved on the rocky knolls. The first step has been taken towards creating a normal forest*

*The old beech belt forms a natural feature for retention, linking Quantock Forest to the surrounding landscape, forming a wind-firm edge and the setting for a walk. Felling coupes within the main body of the forest will follow the long, sweeping lines of the landscape pattern*

Felling programmes present possibilities of either damaging the forest landscape, or of improving it. Improvement may be effected by using the opportunity to rectify ugly planting shapes or to open up new views.

Interest within the forest can be greatly increased by the succession of open spaces revealed by felling and the often spectacular flush of wild flowers which appear as a result of the access of light. On the other hand, damage may be caused by destroying the canopy where it forms an essential part of the landscape, as for instance, on exposed skylines and by creating cleared areas whose shapes and/or size will disrupt the landscape.

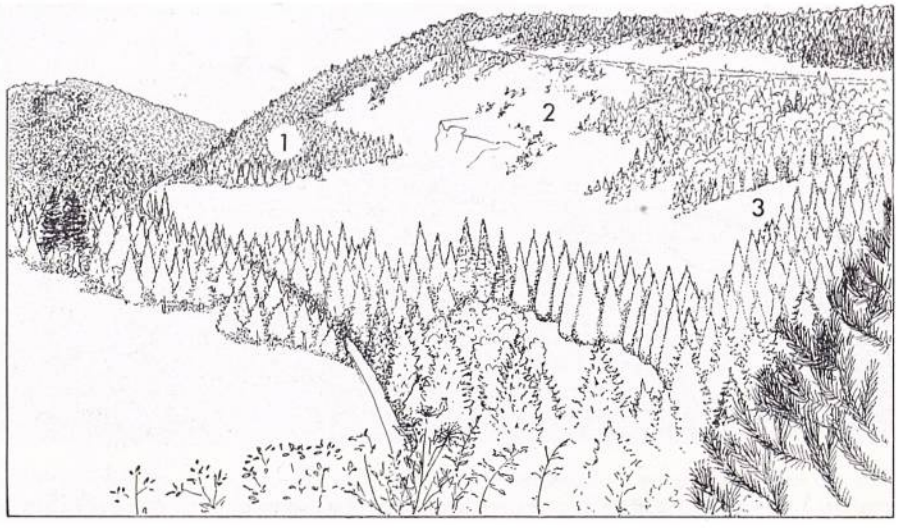
Where selective felling is practical, no landscape problem arises. But in the case of clear felling, landscape consideration should be given to the siting, size and shape of the coupes.




ANALYSIS OF FELLINGS

In this case, the trees which have been retained clothe the profile (1) of the hill and emphasise the long valley (2). The natural growth has been conserved along the road (3).

Additional retentions to enhance the landscape would have been an extension (1) to give depth to the profile and to leave a scatter of natural growth near the rock outcrops (2). The coupe could be shaped in sympathy with the line of the hill (3).



Felling also gives an opportunity to rectify the shape of plantations where these are an ugly feature in the landscape. The shape of felling coupes should be in sympathy with the form of the landscape, and the analysis of the essential anatomy of the landscape is as important in felling as in planting.

Where a large area is to be felled in a series of coupes, taken over a period of years, the effect must be considered not only of the first coupe but of subsequent ones made before the first replanting has matured sufficiently to register in the landscape. There is a danger of a hillside assuming a moth-eaten appearance by being scattered with small areas of newly planted trees, and a better effect may be obtained by taking somewhat larger coupes shaped carefully to the topography.

An unsightly feature in clear felling is often the dead brown severed edge of the stand behind the coupe and, where the choice exists, this appearance may be avoided by felling from the top of a hillside downwards. Some of the newer extraction techniques such as the overhead cable crane may be used to good advantage, in extending the possibilities of felling to the required line. The edges of felling coupes can also be improved by thinning into the severed edge of the remaining crop, where risk of windblow is not too high.

Felling programmes should be looked upon not as the cause of unfortunate scars, but as opportunities to improve the existing landscape features which were blanketed out by earlier planting and which can now be given their full value in the replanting plan.

Coupes of as little as two hectares may look wrong if they are taken out as rigid rectangles backed by a solid wall of standing forest. Whereas coupes of many times the size can add to the appearance of the forest if they are shaped to give a sense of penetration into the forest, or towards a view.

Groups are both more likely to be wind-firm and give a more telling appearance than single trees. The retention of a few groups of more mature trees can be very helpful to the appearance, both from within and outside the wood.

On sites of low elevation the appearance of coupes from within the forest may be more important than from outside, but the same basic principles apply. The coupes should take full account of the contours even if these are slight, and again the shaping of the coupe is more important than its size.

A broken shape giving the effect of glades penetrating into the forest and strong promontories of trees breaking up the open ground can allow an area to be felled which, if taken as a square block, would be both ugly and harmful to conservation. The likely effects of windblow must be taken into account, or the best intentions in leaving groups of trees standing may be nullified.

Where the pre-thinning of severance lines is practicable the risk of windblow may be minimised, with the additional benefit that a well-furnished woodland edge will be revealed at the final felling.

*Large coupes can often be taken out without damage to the landscape, provided they are shaped with due regard to the topography and climate. Usually a complex shape with inlets and promontories will fit in more easily than a large simple shape, which may well be out of scale*

*In Exeter Forest, Devon, a clear fell of 10 hectares has been taken, leaving 1.1 hectare retention, The carefully shaped belt of retention not only conserves the scale and pattern of the distant view (above) but adds interest to the footpath and provides a corridor of conservation (below). Owing to good ground conditions windblow has not been a problem*

## Conservation and the landscape

A healthy landscape, in balance within itself and within its surroundings, is likely to look right as well as in the long-term, favouring forests and farming through sustained fertility and an ecologically healthy environment.

Everyone is aware of the problems which may be associated with the pure coniferous forests which have been created. In order to achieve a balanced environment in these conifer forests it may be necessary to introduce an element of broadleaved trees at certain points, such as in rides and clearings or related to streams and viewpoints. This would allow for a change of habitat for different species of birds, animals and insects.

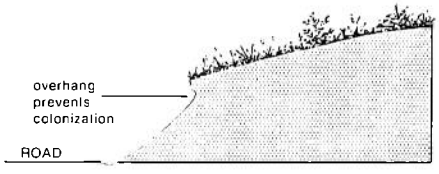
The admission of light at the forest edges, the encouragement of shrub layer, the provision of deer lawns and ponds are as much an enrichment of the visual (and hence the recreational value) as of conservation. This natural correlation can be increased by ensuring that the siting and shape of the open strays and ponds shall be visually satisfying as well as serving wild life.

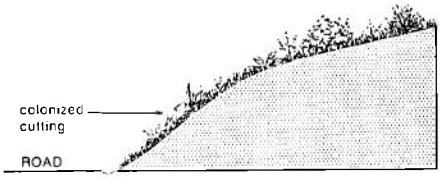
There has been a marked decline in common forest flora since the beginning of the century. This is partly due to over-picking and even lifting of plants (particularly primrose), but it is also the result of changed forestry practice. For example, woodland managed as coppice encouraged an amazing flush of flowers in the first few years after coppicing. The admission of light by widening out rides and thinning glades in selected areas could restore these conditions, even though on a comparatively small scale. The wide rides of Friston Forest, East Sussex, have developed a remarkable flora. This is encouraged by cutting the verges at the side of the rides only once a year, after flowering. Different soil conditions will require different regimes, but deliberate management for the encouragement of wild life on verges is now widely practised and could be extended with advantage.

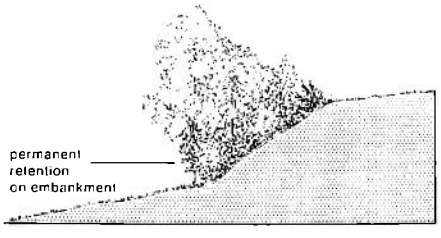
*A fire pond deliberately designed to attract water fowl as well as to add to the visual attractions of the forest and form new habitats for the conservation of wild life*

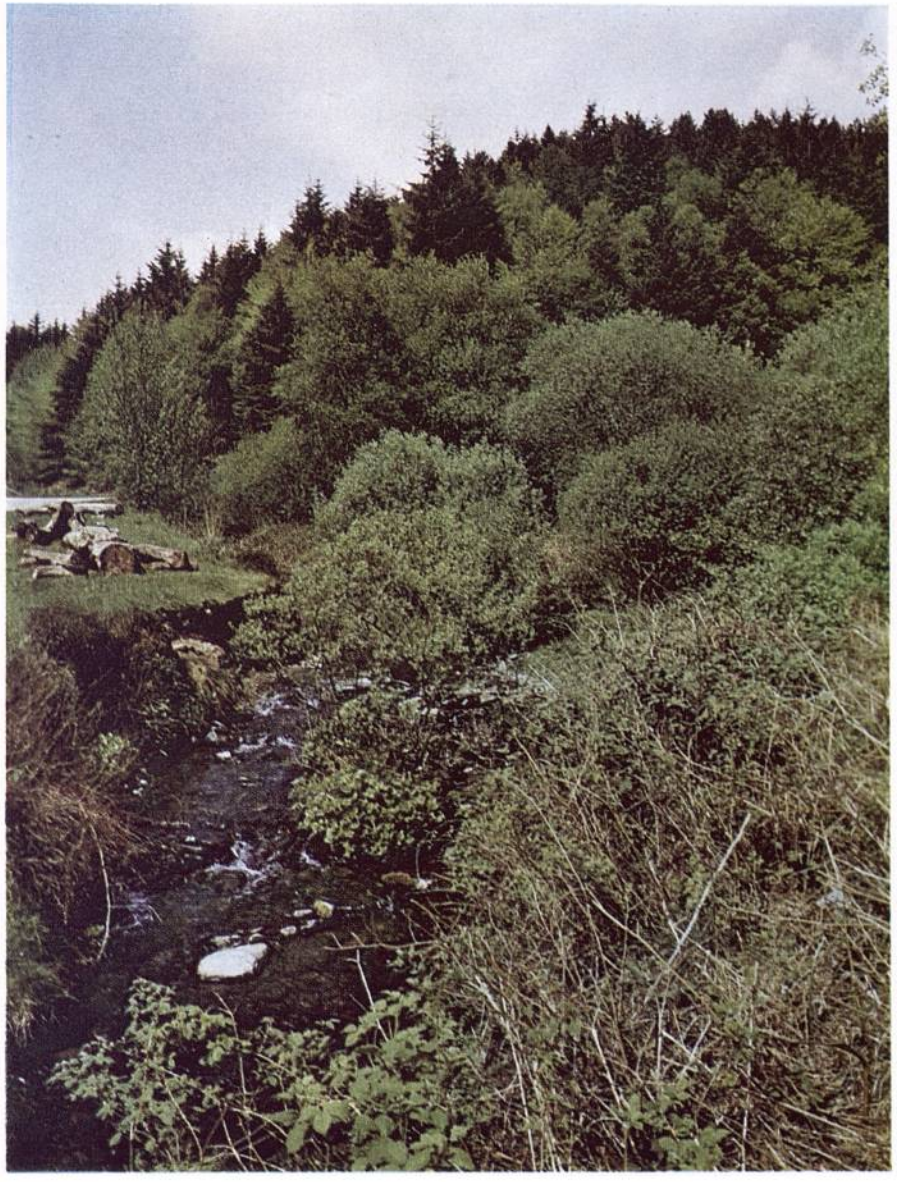
After all earth-moving operations, the ground should be left in a condition in which it will become stable, and colonisation by plant life readily take place. This applies to the banks of streams and to damage caused by removal of gravel or other road material as well as to road embankments and cuttings. Over-steep or overhung road cuttings, where vegetation cannot readily get a foothold, must be avoided.

In sensitive areas and where steep banks are unavoidable, colonisation can be helped by pit planting sods of the local herbage and shrubs or by scattering seeding branches of broom or gorse. In damp situations, willow wands will quickly take root and retain the soil. Where the slope is very steep, they can be applied as a willow mattress.



*Indigenous growth along a water-course has visual and conservation importance*

There is great benefit to conservation in a forest structure varied both in age and species. This and the retention of the occasional old tree, the provision of maximum 'edge' conditions by planting and felling in irregular shapes, applies equally to the visual landscape.

The conservation need for some areas to remain under permanent cover for the sake of those species which cannot survive exposure suggests the advantages of a system of permanently established ecological corridors which would also serve recreational and visual needs. In many cases this could be achieved by retaining indigenous growth along water courses, ravines and rocky ridges linked where appropriate to road- and ride-side reserves. This would entail only a rationalisation and extension of practices now largely accepted.

Almost all the precepts set out in 'Wild Life Conservation' (FC Booklet No 29) (R. C. Steele) conform with the visual requirements for a good forest landscape.

## The value of small woodlands

While the major recreational resources are within the larger forests, the smaller woodlands, especially in southern Britain, have a very important part to play. Where they are set in an agricultural countryside, they form reservoirs of wild life, without which the countryside would be severely impoverished.

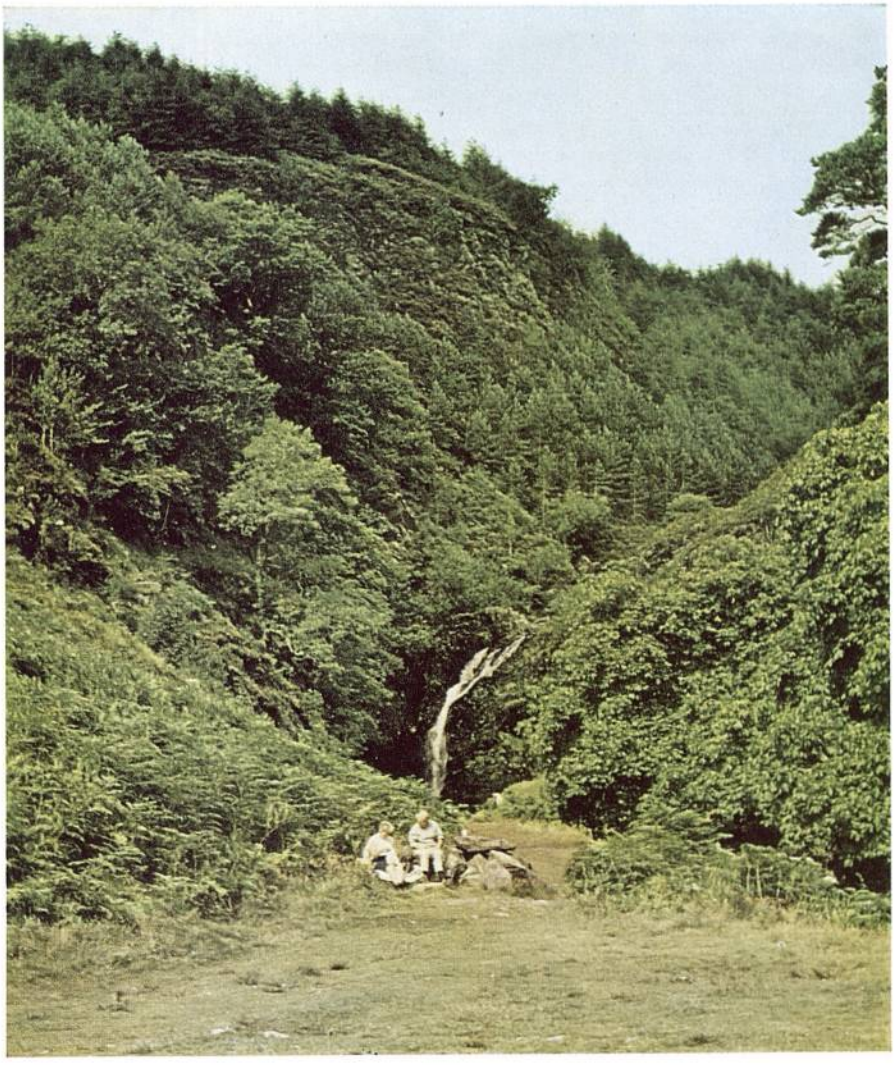
While they can provide invaluable areas for walks and quiet enjoyment, their role as islands of conservation should not be endangered by putting them to any use which would take away from their character of woodlands and wild life habitats. On the contrary, their effectiveness should be extended wherever this is possible by increasing the tree content of the surrounding countryside.

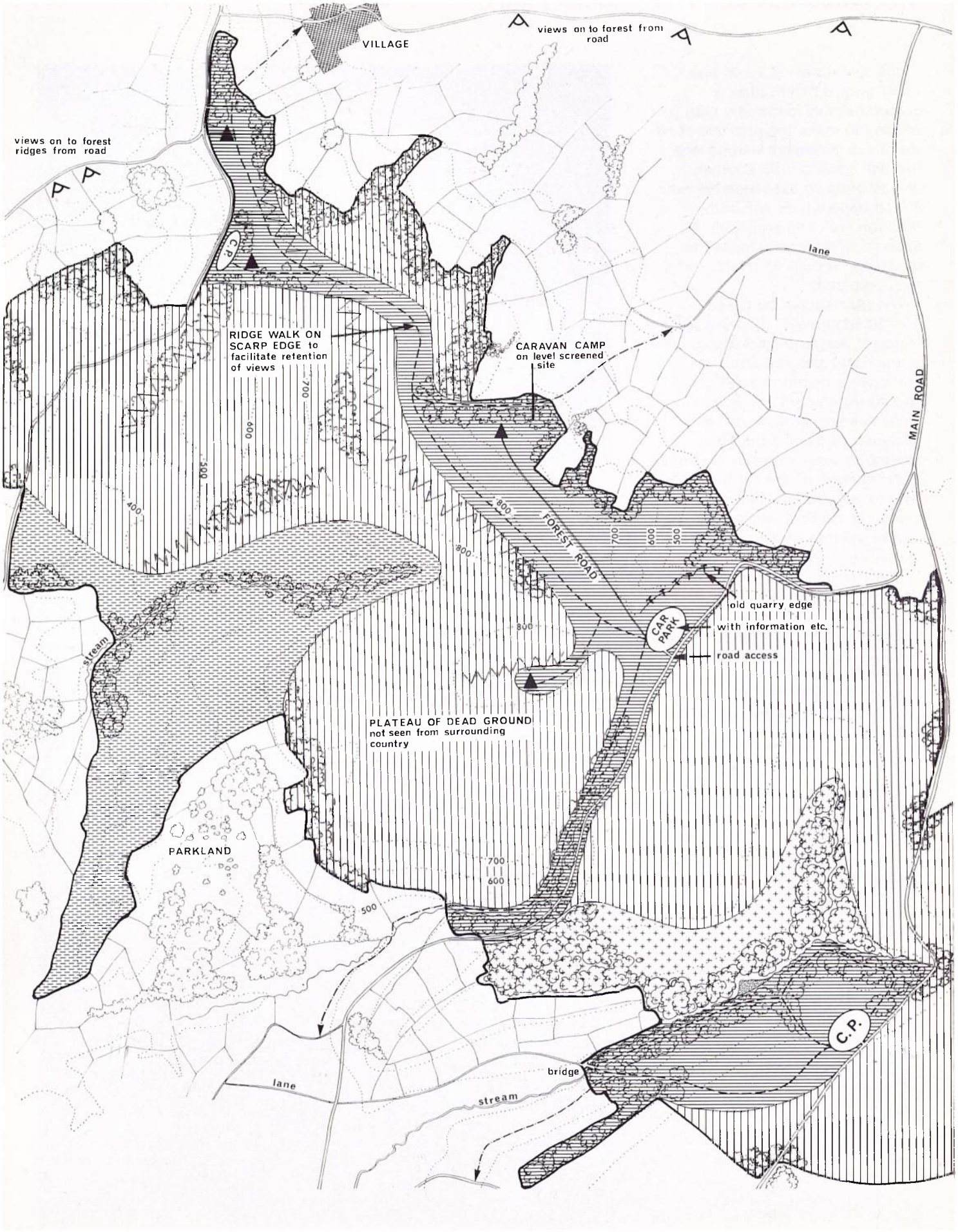
# The landscape and recreational plan

Since each forest is a complex multi-purpose landscape, a comprehensive landscape plan is needed to make the best use of all resources, to ensure that no one use will conflict with another, and to bring all uses together into a landscape which will both function well and look well. An analysis of the character of the landscape should be made, and a plan prepared.

The plan should be based on contoured surveys, showing natural features, outstanding views, points of public access and areas of particular attraction to visitors. It should also record any fragile areas needing protection from over-use, and soil conditions relating to wear capacity. It should cover enough of the surrounding land to put the forest into context, including the footpath and bridleway links to the countryside and villages outside the forest.

This factual survey can form the basis for a recreational plan, ensuring that while attractive natural features are enjoyed, no part of the forest received more wear and intrusion than it can support. Conservation of resource should always take precedence over demands for use.




VILLAGE
views on to forest from road
views on to forest ridges from road
C.P.
RIDGE WALK ON SCARP EDGE to facilitate retention of views
CARAVAN CAMP on level screened site
lane
MAIN ROAD
FOREST ROAD
old quarry edge
with information etc.
CAR PARK
road access
stream
PLATEAU OF DEAD GROUND not seen from surrounding country
PARKLAND
bridge
lane
stream
C.P.
700
600
500
400
800

KEY

viewing points

prominent skylines

footpath in forest

public footpath outside forest

broad-leaves within forest

broad-leaves on adjoining land

C.P. car park with picnic area

stream

area of fragile ecosystem containing S.S.I. No access

area of naturalist interest with deer lawns, pools—separated from picnic area by stream

area of maximum public access

forest boundary



A plan, based on a contoured survey of the site should be prepared before any work is started. This plan should be related to the overall recreational and landscape plan to ensure that it accords with the agreed policy:

1. No facility, such as a camp or car park should be sited so near to an area of special attraction that they detract from its value – eg a walk from a car park to a waterfall is preferable to cars parked near the fall.

2. Sites for camps and large car parks must be selected and designed not only to avoid visual intrusion, but also to avoid damage to their environment through erosion or compaction.

However good the site may be it will require some landscape design, often involving land-shaping and planting.

3. All structures should be sited and designed to fit into the forest landscape, avoiding any suggestion of the urban, the suburban or the trivial, and their numbers should be restricted. Too much picnic furniture, and too many signs give an urban appearance and suggest over-organisation. The best organisation, in all good landscape work, is not obvious.

The design of recreational facilities is not dealt with here, but certain guidelines should be followed if the overall quality of the forest is to be conserved.

*An example of serious erosion due to high visitor use in a forest recreation area*

## Structures

The design of buildings is an architectural skill, but certain general principles governing their relationship to the forest landscape can be identified.

In Britain, which as a whole is over-urbanised, the forests represent an invaluable rural element, affording an escape from the town into the forest to those who are overwhelmed by the built environment. This means that there should be no buildings within the forest except those necessary for its proper functioning in either its timber-producing or recreational role.

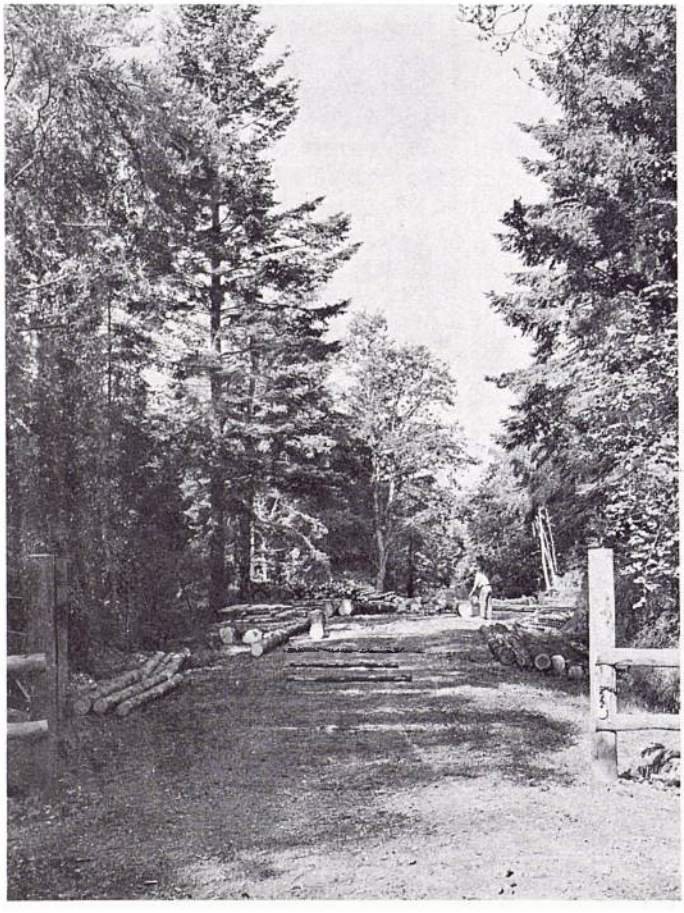
In siting and design, all constructions should be simple, unostentatious, functional and free from whimsy. Simple timber structures will often be appropriate, or the local tradition of farm buildings may suggest the right type of design. Long, low buildings set round a yard form a typical farmstead pattern which could often be adapted for forest offices or camp warden's house and shop. This arrangement gives a screened central yard for stores and vehicles which now often spread out into the forest scene. Where available, existing farms and their buildings should be converted in preference to erecting new buildings.

Buildings which are low in proportion to their length are always preferable to the sentry box or tool shed type of building. Where paint or colour wash is being used, pure greens should be avoided.

A well-proportioned building may look well in one of the traditional farm building colour schemes. These vary from one region to another, but the use of white for walls, dark grey for roof and black or oxblood red for doors, is widespread and usually appropriate.

Natural wood can scarcely look wrong in a forest. Dark colours are recessive and the earth colours with their touch of warmth, merge well into a wooded background. Camouflage colours, particularly in the khaki range, are usually more suited to small structures than to larger buildings which should be designed to be compatible with, rather than invisible in the landscape.

The sight of forest operations adds interest and is usually enjoyed by forest visitors, but some of the permanent working areas, such as loading bays, can take away from the continuity of the forest scene. This one in Exeter Forest has been sited so that it does not break the view down the forest ride.



## Woodlands as part of the planned landscape

Now that the multi-purpose character of woodlands is recognised, they can be seen as positive elements in a planned town and countryside. Their great value for recreation should lead to new woodlands being planted for this purpose. They can be particularly valuable on the outskirts of towns or in Green Belt areas. They form the ideal buffer between town and agriculture. An outstanding example of a forest planted solely for recreation is the Amsterdam Bos. Covering an area of 895 ha this provides outdoor activities for the people of Amsterdam.

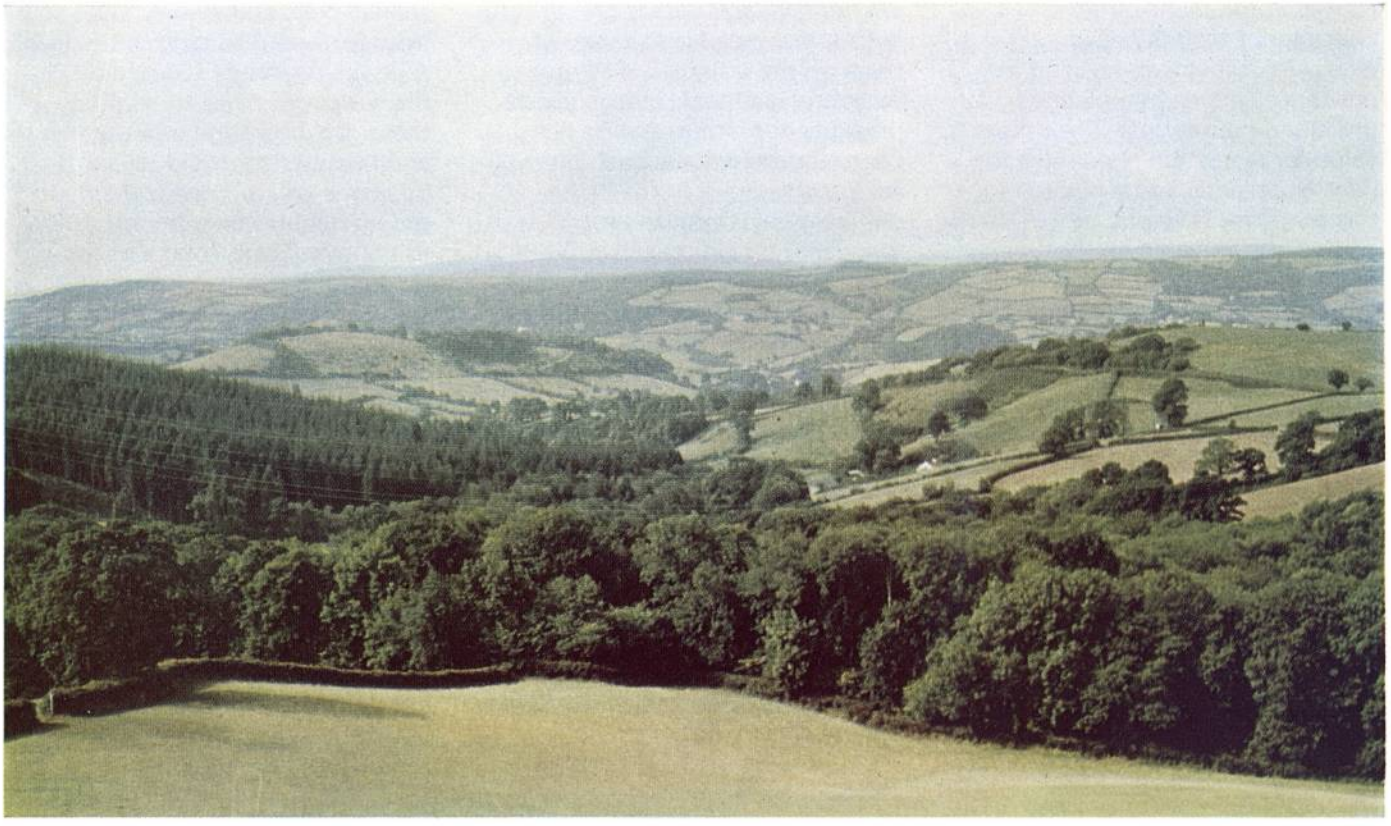
A far more intensive recreational use is appropriate in town forests than in those in the country, and this distinction needs to be kept clear.

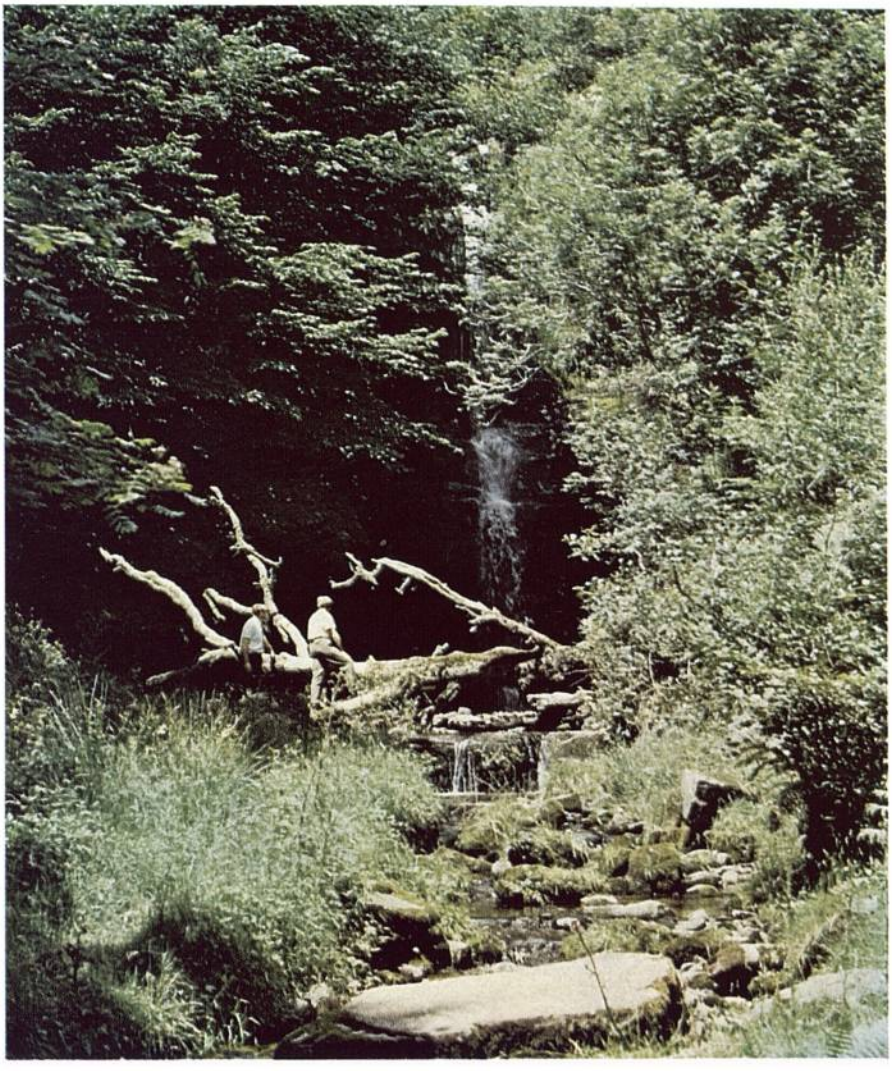
While we do not have the new lands created by the Netherlands, we do have great areas of industrial waste lands, many of them on the outskirts of towns where recreational landscapes are most needed. Afforestation has been started in many such areas. An imaginative plan for Stoke-on-Trent envisages an extensive woodland threading through the Five Towns. But even quite small woodlands planted on wasteland can enhance the appearance and health of the landscape and provide future recreational areas. A huge field for tree planting is awaiting action.

Woodlands as part of a planned landscape also have their part to play in the countryside. The reduction of trees caused by the removal of hedgerows and by Dutch elm disease is a serious loss to landscape, conservation and timber reserve. The establishment of new small woodlands, copses, shelter-belts and even groups of trees is needed to replace the loss. A positive attitude would find many opportunities to provide these. Co-operation with farmers and landowners could reveal positions where trees could be grown better than other crops, or to the overall advantage of the land and those who live on it.

Projects for water undertakings, mineral workings and industry often result in opportunities to establish woodlands on what would otherwise be waste or misused land. The ecological poverty of over-mown grass could often be replaced by the far richer woodland ecology.

A positive attitude is needed to all forest planning, planting and management to ensure that every woodland is, and is seen to be, an asset to the landscape and to people.





The drawings in the text were made by Christine Darter whilst that on the title page was drawn by John Brookes.

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Printed in England for Her Majesty's Stationery Office by
Raithby, Lawrence & Company Limited at the De Montfort Press:
Leicester and London
Dd 586204 K68 1/79

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ISBN 0 11 710186 9