

THE STREAM

Totley Brook is one of the two large streams in Totley, the other being Old Hay Brook, which forms the boundary between Totley and the neighbouring village of Dore. Totley Brook serves a similar function, delineating the boundary between Totley and Holmesfield. The two streams are of similar size now, but prior to the building of Totley Tunnel in the 1890s, Old Hay Brook was both larger (in water-flow terms) and more important from an industrial viewpoint.

All the evidence points to the fact that there was never any industrial development of Totley Brook in the vicinity of the wood. The nearest water powered works appears to have been near the confluence of the two streams at the foot of Bradway Bank. There are no areas within the wood which give the remotest indication that they could be relics of industrial development.

The source of Totley Brook is nearby on the eastern slopes of Totley Moss, a few hundred yards from the present Fire-Brick Works. At this point, the stream is very clear and carries little or no sediment, and the animals reflect this, few species but dominated by Stonefly nymphs, and larvae of the Caddis *Philopotamus*. There is also an abundance of very bright green algae which is totally absent from the rest of the stream. The brook then passes under Baslow Road via a culvert and skirts the edge of a small refuse tip. There is a bright orange tinge to the water as it emerges by the side of the tip, which is reminiscent of that caused by the presence of iron salts in the rocks. There is also the possibility that this originates within the tip itself, as there is a large amount of iron, in one form or another, included within the materials which have been deposited.

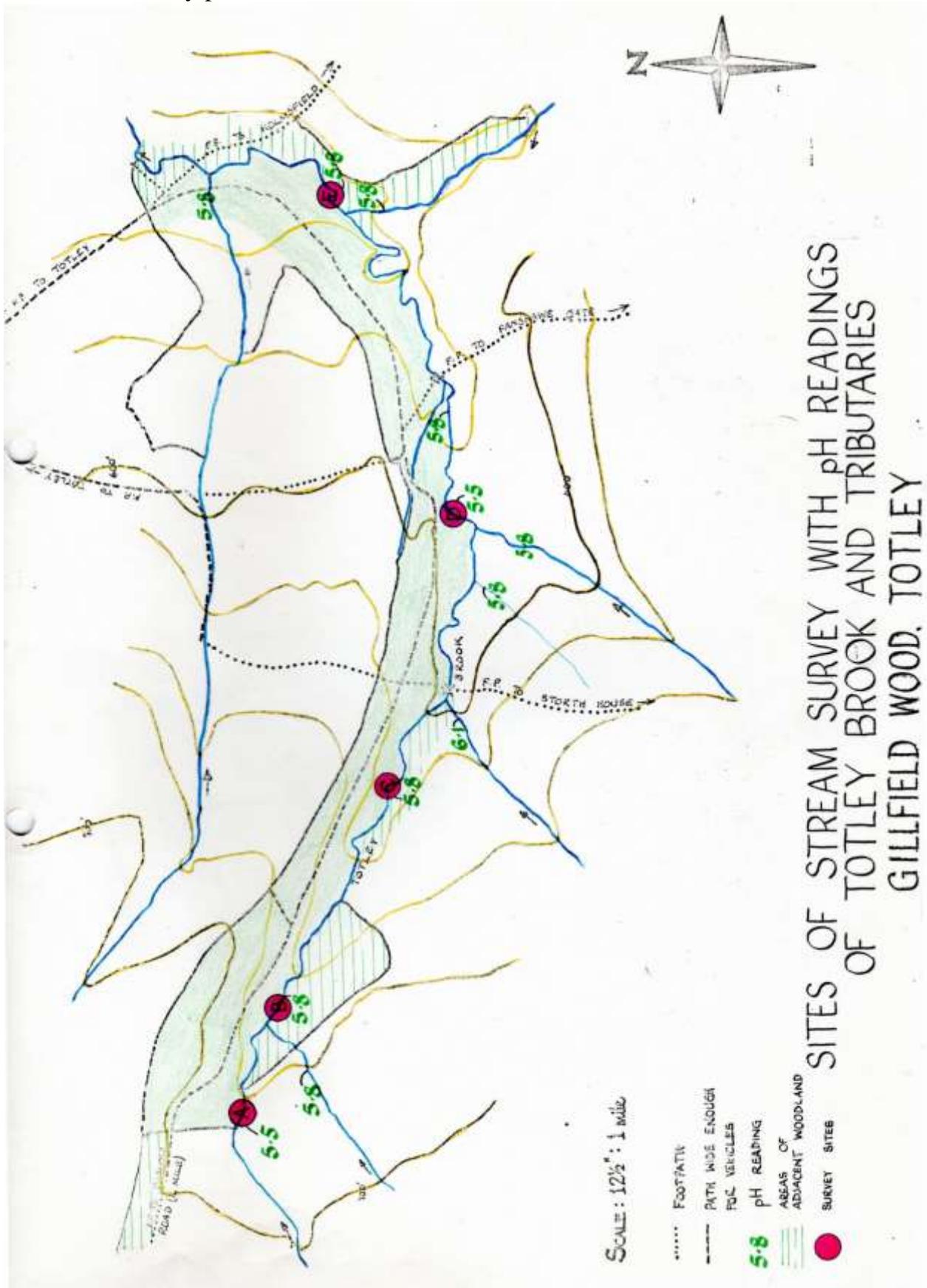
The stream winds its way across three fields which are used for pasture for cattle. These animals have ready access to the water and, as a consequence, it is fouled regularly. The pH of the stream at its point of entry to the wood, is 5.5, and this fluctuates little throughout the length of the survey. Four major tributaries join the brook, and these are shown on the map on page 30, together with the pH values for each.

The present course of the stream has changed little over the past few years, and there are only two places where there is evidence of a previous watercourse significantly different to the present one. One of these in particular, is quite striking, and indicates where the stream undercut the bank, which subsequently fell into the stream and diverted it to a new course about ten yards away. There are areas of alluvium, where the land is flat and tends, as a consequence, to be rather wet. Several narrow drainage channels have been cut to alleviate this problem, and these can be picked out quite readily by their obvious straight path.

The bed of the stream varies somewhat throughout its length, being rather silty at the western end, and gradually becoming less so further downstream. There is no point within the wood, however, where the stones are free from a soft clinging detritus, and this obviously acts as an inhibitor of some freshwater animals which prefer more 'clean'

The Vegetation in Gillfield Wood

conditions. The substratum is mudstone and siltstone, and these rocks can be seen on the streambed at many points.



A survey of the animals was made in early May 1975, so that some idea of the species and their frequency could be established. Five sites were chosen, and each was sampled for the space of ten minutes, the animals were identified, counted, and returned to the water. The results can be seen in the graph on page 32.

Site A was situated at the western extremity of the wood and had a silty stream bed. The current was quite fast, and the site was frequently disturbed by cattle drinking. Very few animals were found, but the striking contrast to the other sites was the high number of *Limnaea pereger* [*Radix balthica*] which were found there. It was interesting to note the absence of the limpet *Ancylastrum fluviatile* [= *Ancylus fluviatilis*], which figured so prominently in the other samples.

The second site, B, showed a marked improvement with double the number of species and also a big increase in the total number of organisms found. The bed of the stream was more stable and there was no interference from farm animals. The site was overshadowed by mature woodland, which would probably mean a heavy deposition of dead leaves in autumn. Interestingly, the highest number of River Limpets (*Ancylastrum fluviatile* [= *Ancylus fluviatilis*]) were found at this point, and Stonefly nymphs (*Perla sp.*) were found for the first time. These two species probably prefer the clearer and less silty conditions offered by this site. The specimens of *Limnaea pereger* [= *Radix balthica*] here were, on average, much smaller than those found in the previous sample.

Site C was similar to the last one, in that the stream bed was solid, and the water shallow. There were many small stones and most of the animals were clinging to these. There was a marked increase in the number of species compared with the last site (eleven compared with six at site B) but a drop in the actual number of specimens found. This was the first site that *Hydrobia jenkinsi* [= *Potamopyrgus antipodarum*] was found, although it increased in numbers quite strikingly at the two later samples downstream. Animals present for the first time included: the flatworm, *Polycelis felina*; *Gammarus pulex*, the Freshwater Shrimp; a small species of Stonefly nymph, *Isoperla sp.*; a single Water Cricket *Velia caprai*. This last was rather an oddity, since these Bugs usually occur in aggregations, and although I searched the stream banks thoroughly, I could no trace of any other specimens.

Site D was a wide, shallow area at the base of a steep bank.

PLATE 13: Site D on Totley Brook



Note the half-submerged stones and the open aspect to both sides of the stream. Beyond the right of the frame is open pasture which occasionally has horses in but fouling of the stream from this source would appear to be limited.

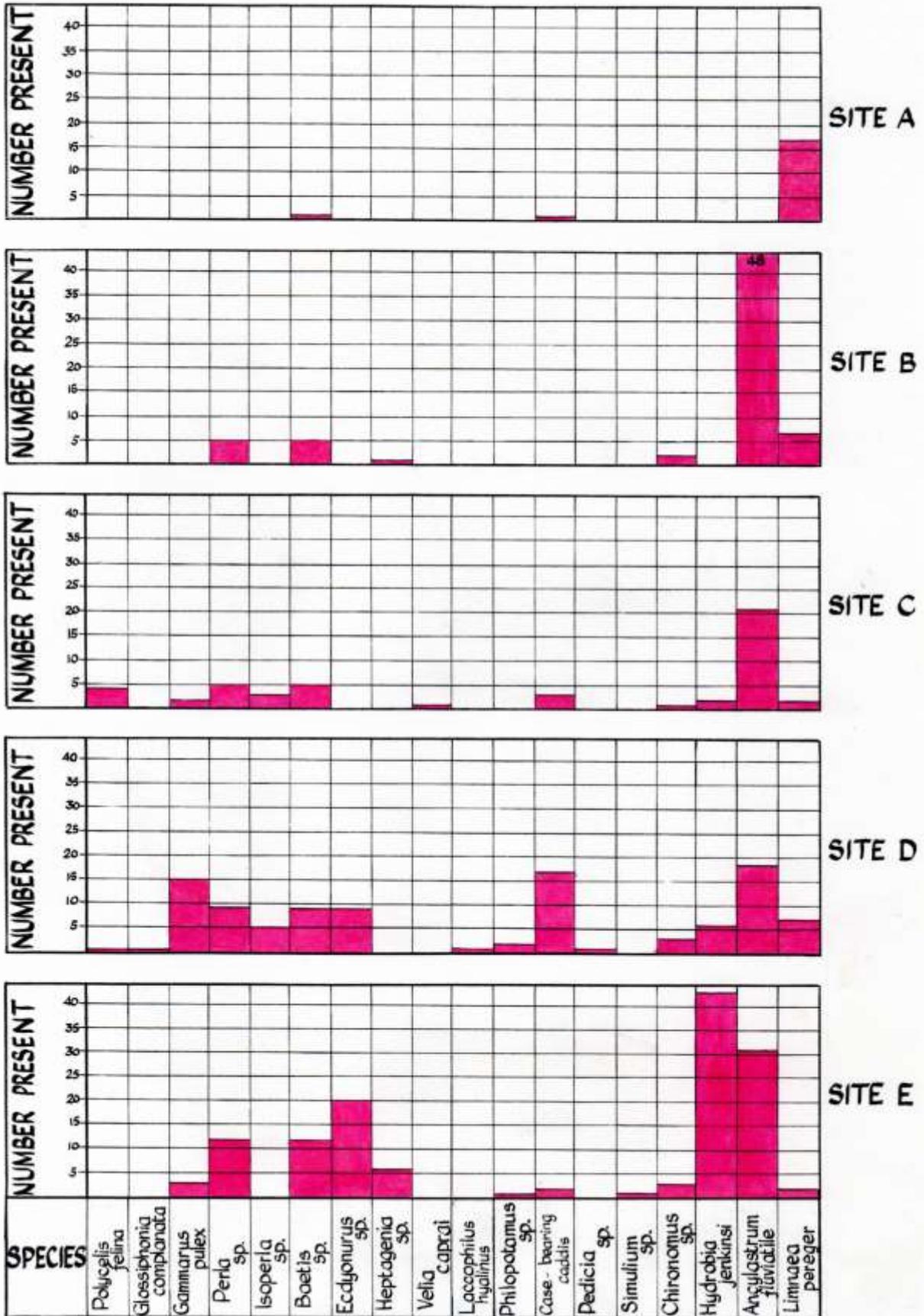
This site provided more species than any other, fifteen, and also a high number of animals. The largest increase was in the numbers of *Gammarus pulex* (15 as opposed to 2 at the last site); and the case-building Caddis (17:3). Five species were found for the first time: *Glossiphonia complanata* a leech which feeds upon freshwater snails and midge larvae; *Ecdyonurus* sp., a Mayfly nymph which is remarkable for its adaptation to a stream environment, being dorsoventrally flattened to enable it to cling to stones more efficiently in a strong current; *Laccophilus hyalinus* a Water Beetle of the Dytiscidae was found near the edge of the stream - this species is noted as "rare in the north" (E.F. Linssen, Beetles of the British Isles, Warne 1959) and the very large white larva of a fly *Pedicia rivosa*, which is a large Crane-fly, was found under a stone at the water's edge, this was the only specimen of this species found at all. The number of species present at this site is probably due to the different habitats found here: shallow water with both fast and slow water; stones embedded in mud near the bank; and one or two deeper channels.

The last site surveyed was near the 'Swimming Pool' referred to on page 16 and was fairly shallow with stones resting on a stony stream bed. Two new species occurred here: *Simulium* sp. the larva of the Blackfly, a biting fly; and *Heptagenia* sp., a Mayfly nymph which resembles *Ecdyonurus* in size and shape, the main identifying feature being the gills, which are 'feathery' as opposed to those of *Ecdyonurus* which are leaf-like. Specimens of the latter nymph were very common, and there was a general rise in the numbers of Mayfly and Stonefly nymphs, with a corresponding drop in the numbers of case-building Caddis. The largest rise in numbers was that exhibited by *Hydrobia jenkinsi* [*Potamopyrgus antipodarum*], forty-three were collected as opposed to two at site C, and six at site D.

The results of this survey were very interesting, in that certain freshwater animals are used as indicators of pollution, notably Stonefly and Mayfly nymphs, *Gammarus pulex*, Caddis larvae, Bloodworms and *Asellus*. Using these species as a rough guide, it would appear that the stream is freer from pollution downstream than near its entry into the wood. Stonefly and Mayfly nymphs (indicators of pure water) are certainly more numerous in the lower reaches surveyed. this type of assessment is not strictly accurate, since no account is made of physical factors in the stream, but it certainly reinforces the visual impression that the stream does not have the appearance of a truly 'clean' brook at the western end of the wood.

Of the larger freshwater animals, Trout (*Salmo trutta*) and Bullhead (*Cottus gobio*) are both found in Tootley Brook, although the Bullhead is not nearly so common as the Trout. Several birds depend upon the brook for their food or refuge, amongst these are the Moorhen (*Gallinula chloropus*), Mallard (*Anas platyrhynchos*) and the Heron (*Ardea cinerea*) which visits the wood from time to time.

BLOCK GRAPH SHOWING NUMBERS OF ANIMALS FOUND AT FIVE SITES



VEGETATION

The vegetation of the wood is dominated by the trees, which can be divided into two groups; those which are probably natural in origin; and those which have been planted by man. Of the twenty-nine species of tree and shrub found within the wood, nine almost certainly owe their existence to human hands. These are the introduced species: Scots Pine, Western Hemlock, Larch, Sycamore, Hornbeam, Beech, Sweet Chestnut, Red Oak, and Pedunculate Oak (Sessile Oak has been planted within the last ten years but has not been included in this list because it is a native of this type of habitat and may well have numbered among the original members of the wood's flora).

As has been noted in the Introduction, the major part of the tree population is still in its infancy, and the vast majority of these saplings have been planted within the last ten years. Some of the saplings to be found are the result of natural regeneration; however, the Birch saplings being a good example of this. Numerically, the dominant trees are probably Red



PLATE 14: Gillfield Wood trees near western gate (Autumn 1974)

Oak, Larch and Sycamore, in that order, but of these, only the Larch is likely to stand out to the casual observer. This is because trees of this species have been planted in densely packed single species plantations, and this, allied to the rapid growth, make these trees quite distinctive. The Sycamores and Oaks have been interplanted over large areas but, because of their much slower rate of growth, these trees have had little impact upon the woodland landscape so far. This can be seen quite clearly at the western end of the wood, where these two species have been planted across the whole hillside, yet the area appears almost devoid of trees, even in summer.

These small trees can be taken as evidence of the landowners' intent to plant the wood as a commercial undertaking, and the larger trees as the remnants of Gillfield prior to the last felling in 1943-4. Plate 15 shows a broader view of the western end of the wood taken from the original gateway and gives a good idea of the general appearance of the wider parts of this linear wood. These young trees have not yet (with the exception of Larch) reached a size whereby they create their own distinctive microhabitats and so can contribute little in the way of scientific examination at this time. What will be most interesting is to observe the growth of these trees throughout several years and note the changes in ground flora which take place beneath their branches.



PLATE 15: Gillfield Wood View from old gateway, looking ENE. Note dip slope down to Tottle Brook at extreme right.



Key to PLATE 15
A: *Acer pseudoplatanus*
B: *Fagus sylvatica*
G: *Alnus glutinosa*
L: *Larix sp*
Q: *Quercus petraea*
R: *Quercus borealis* [*Quercus rubra*]

Basically, the older trees are to be found around the periphery of the wood, and the younger trees largely filling the gap between. There are exceptions to this, however, since the Birches (*Betula pendula*) are quite large and would appear to have survived the 1943/4 clear-felling as saplings. Thus, one may find a few small copses of Birch which support a flora usually dominated by Wavy Hair Grass (*Deschampsia flexuosa*). These copses have been utilised by the landlords for planting young trees (usually Beech, but a few Western Hemlock, *Tsuga heterophylla*, have been planted in one place). These can grow up in the light shade afforded by the Birches, and still receive some measure of protection from the elements. This can be seen in Plate below.

PLATE 16: Gillfield Wood, Autumn 1974.

This view shows a Birch copse and the associated ground and shrub layer. Left foreground is a Holly (*Ilex aquifolium*) and in the centre there is a sapling of Western Hemlock (*Tsuga heterophylla*). Top left can be seen the branches and leaves of a Beech (*Fagus sylvatica*) sapling. The ground cover in this copse is Creeping Soft Grass (*Holcus mollis*) with a small (one plant left foreground above Holly) amount of Bracken (*Pteridium aquilinum*).

This photograph covers the area designated as Quadrat B4 (see page 43).

The open parts of the wood are temporary features, and rather misleading, since trees have been planted but as yet are too small to catch the attention. On the drier slopes, these open areas are predominantly grass-covered as in the photograph below.



PLATE 17: Gillfield Wood - Autumn 1974

View showing open space near western end of wood, with saplings in foreground, Larch in middle distance, and mature trees on skyline.



Mature Trees are:

Beech

Sycamore Beech

In the flatter, wetter areas nearer to the stream, Bracken predominates, as can be seen from this photograph taken in the winter 1974-5 (see Plate below). The saplings in this view are mainly Red Oak (*Quercus borealis* [*Q. rubra*]), and Sycamore.



PLATE 18: Gillfield Wood - Eastern end. View from main path

This shows quite flat land sloping gently towards Totley Brook, which is situated about one quarter down the photograph. The dense growth of Bracken in this area can be seen quite clearly. Rosebay Willow Herb (*Chamaenerion angustifolium*) is present in considerable numbers on marshy ground in the middle distance.

The Larches which have been planted in the wood since 1965 have proved extremely difficult to identify as a whole. It appears that there are three varieties present; *Larix decidua*, *L. kaempferi*, and a hybrid of these two which has been named *L. eurolepis*. The characters which separate these species are quite minute, and the hybrid shows very variable detail differences somewhere between the two parent plants. Plates 19 & 20 below (photographed in 1975) show the male and female flowers of Larch, with a closer view of the female in plate 20.

PLATE 19: Male and Female Larch Flowers.

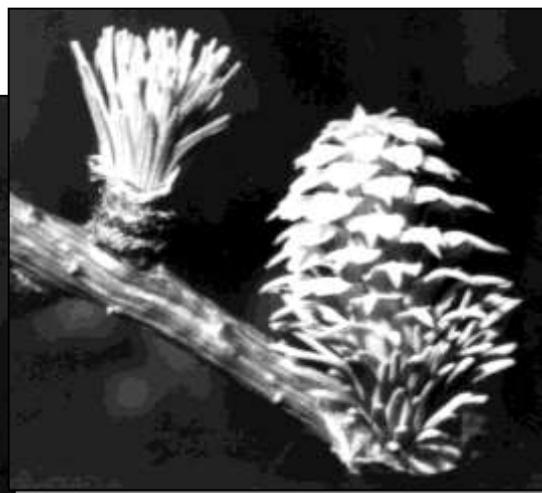


PLATE 20 (above): Close-up View of Female Larch Flower

THE FLOWERING PLANTS

A full and detailed study of the flowering plants in Gillfield Wood is beyond the scope of an integrated study such as this. What I have attempted to do is to identify as many species as possible during the autumn and spring, list them, and comment upon any species or succession which seems to warrant special attention.

Every species must be viewed in the light of the nature of the woodland itself, that is to say, an acidic soil with, as yet a small wood with little or no canopy layer.

The most interesting succession to emerge from this study is that found under Larches, originally studied for the effect of their shade upon the grasses found under them. As the quadrats indicate (see pages 48-9 & 51-4) during the winter months there was no indication of the great change which was to take place during spring. There was a quite comprehensive cover of *Holcus mollis* with merely the remains of last year's Bracken fronds. By April, these same quadrats showed a dramatic change in that they were nearly all showing an abundance of Bluebell (*Endymion non-scriptus* [*Hyacinthoides non-scripta*]) to such a degree that *H. mollis* was no longer dominant. Other members of this closely interlinked community became evident, such as Wood Anemone (*Anemone nemorosa*) which can be seen amongst the growing Bluebell community in the plate below.

PLATE 21: Wood Anemones and Bluebells

The finer leaves of *Holcus mollis* may be seen in the area to the left of the Bluebell.



It will be interesting to see to what extent the picture changes again as the Bracken (*Pteridium aquilinum*) comes to maturity during the summer. That this species is present is easy to determine because of the persistent dead fronds which clothe great areas of the wood throughout the winter months (see plate 22 below).



PLATE 22: View from Ridge showing the Bracken fronds, Winter 1975

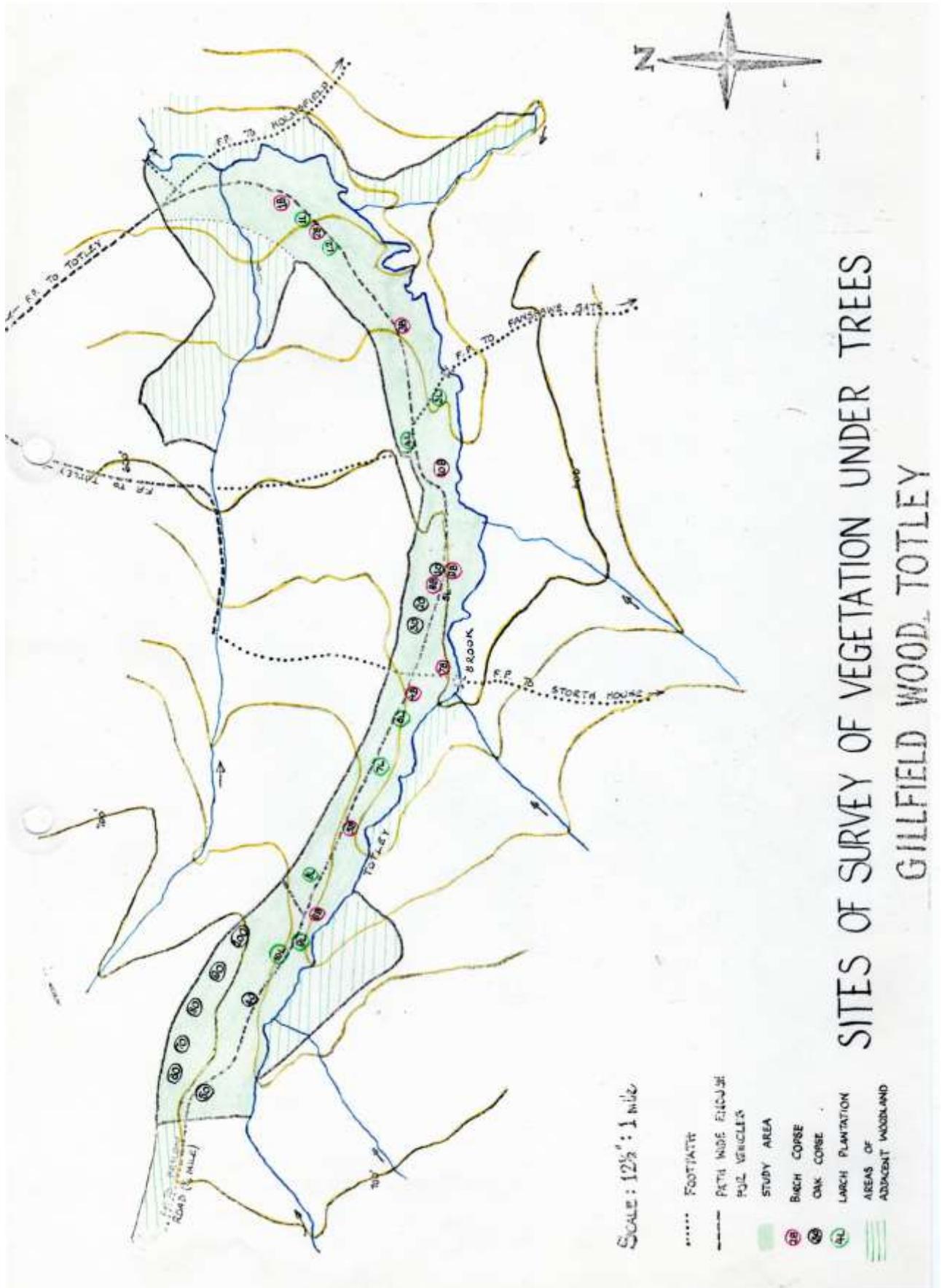
This photograph also shows quite clearly the very open nature of this area.

The grasses within the wood are limited as a general rule, to those parts where there is sufficient light for them to exist. This means in practice, that they are the dominant plants only around areas such as the main path, and certain species which are shade-loving by nature, in their chosen habitat. Certain areas of the wood have their own dominant species, such as *Deschampsia caespitosa* in the wetter parts (see photograph below).

PLATE 23: Wet Area showing Growth of *D. caespitosa*



The trees in any woodland create quite distinctive micro-habitats as they approach maturity, and often in single-species woods before that time. Observations made during the winter months of 1974-5 led to an investigation of plants in copses of specific trees, to attempt to find some correlation between tree species and the subsequent flora. This investigation was commenced in December 1974 and provided ultimately several possible avenues of study. The initial surveys were facilitated by the lack of ground cover, so that the indicator plants chosen could be studied more easily.



It was noticed, from casual observation, that the plants under certain trees (Larch, Birch, Sessile Oak) appeared to indicate that the Larch provided a different habitat to the Oak and Birch. This was tested, and ten sample sites of each species tree were chosen, and the flora examined (the results of this survey were tabulated in the report for December 23rd, 1974 on page 130, and also in the graph following this page).

The study sites were chosen carefully, and criteria were established for these areas. The sites should:

- ✓ Include a group of trees of one species only.
- ✓ Be facing approximately the same direction.
- ✓ Be situated away from the stream, where factors such as periodic flooding, constant shade, and possible introduction of agricultural fertilizers (in the waters of the stream) may make the site atypical.

It was evident from the results that there were wide differences between the habitats, especially the Larch and Birch samples.

The Larch plantations had been planted fairly recently and are very close together (4 feet being the average). The dominant plant in the shrub layer was Bracken, which was present in 80% of the samples. Blackberry (*Rubus idaea*¹), Honeysuckle (*Lonicera periclymenum*) and Rosebay Willowherb (*Chamaenerion angustifolium*) were found but they were very straggly and are possibly in the process of being slowly dominated in the competition for light by the Larches. The ground layer was almost completely dominated by Creeping Soft-Grass (*Holcus mollis*), the only other grass present being Tussock grass (*Deschampsia caespitosa*) in a wet area.

¹ Editor: Blackberry is a complex species with no single specific name.



PLATES 24 (above) and 25 (right)
Contrasting vegetation under Larch and Birch respectively

Possible causes for the sparse vegetation under Larches, appear to be either the heavy deposition of leaves in autumn, or the deep shade cast by these closely planted trees. The Larch needles are not removed from the immediate vicinity by the autumn winds, as are the broad leaves of the other deciduous trees, and so they form a deep layer which would cover the leaves of any broad-leaved plants. The possibility of shade being a factor is explored in the section following this (see page 44).

The samples taken under Oak showed less domination in the shrub layer by a single species, although man's interference became evident here, with the underplanting of the copse by Beech saplings. Bracken was still found on four sites, but *Holcus mollis* now took second place in the ground layer to Wavy Hair Grass (*Deschampsia flexuosa*). These two grasses were the only two present, and on two occasions were found growing on the same site (see chart on following page).

The Birch copses, although smaller in area than those of Larch and Oak, were predominantly open, and the light shade cast by the leaves evidently types of copse. The dominant ground cover was Wavy Hair Grass, although on two sites this plant was replaced by Creeping Soft-Grass, and in one very dense tangle of Dog Rose (*Rosa canina*), by Cock's-foot Grass (*Dactylis glomerata*). Beech

		SHRUBS				GRASSES			43
		BLACKBERRY	HONEYSUCKLE	BRACKEN	OTHER	CREEPING SOFT GRASS	WAVY HAIR GRASS	OTHER	%
								LIGHT LOSS	
LARCH	1								7.7
	2							TUSsock GRASS	9.3
	3								7.7
	4								10.0
	5				ROSEBAY WILLOW-HERB				11.2
	6								12.9
	7								12.5
	8								11.3
	9								12.0
	10								10.8
OAK	1				BEECH SAPLINGS				2.5
	2				BEECH SAPLINGS				3.2
	3				BEECH SAPLINGS				4.9
	4				BIRCH SAPLINGS				2.6
	5								3.4
	6								6.3
	7								5.4
	8								4.5
	9								1.8
	10								1.8
BIRCH	1								3.6
	2				DOG ROSE			COCKSFOOT	15.5
	3				BEECH SAPLINGS				3.4
	4				BEECH SAPLINGS				3.4
	5								2.5
	6				BIRCH SAPLINGS				1.7
	7				BEECH SAPLINGS				0.9
	8				BEECH SAPLINGS				3.2
	9				BIRCH SAPLINGS				8.2
	10				RED OAK SAPLINGS				4.9

Chart showing plants found under three species of tree, Gillfield Wood December 23rd, 1974

saplings had been planted on four of the sites, and this would seem to be good forest management, since the Birch trees cast a light shade (enough light can pass through for photosynthesis to take place) and would also help the young trees grow with straight trunks and hence provide more useful timber upon attaining maturity. Presumably, the Birches would be felled as the Beech trees become well-established.

An interesting distribution pattern was that of Bracken, which flourished under Larches and became progressively more uncommon under Oak and Birch. Its frequency in the three groups of samples almost mirrors that of Creeping Soft-Grass. A possible reason

for Bracken's success is that the Larch, in casting a heavy shade, provides damp conditions which are better suited to the Bracken prothallus than those of Oak or Birch.

The distribution of the two grasses, Creeping Soft-Grass and Wavy Hair Grass, proved very interesting and a further programme of investigation was planned in an effort to explain their occurrence more fully. A survey of pH values gave no help in this quarter, but merely confirmed that the wood was growing on an acidic soil, with pH readings between 5.0 and 6.0 and an average of 5.6. (One aberrant reading of 7.5 was found, but that was not in any area covered by this investigation)

A series of six quadrats, to give a more detailed look at, specific sites, was made (these can be found on the pages following this). A one metre quadrat was used, and two sites from each of the tree species were chosen. The plants under the trees were mapped in detail, and in the knowledge that there would be other species (particularly Bluebell, *Endymion non-scriptus* [*Hyacinthoides non-scripta*]) which would appear later in the year. It was therefore possible to concentrate upon the species which, it is hoped, may be able to explain satisfactorily the different plant populations in these samples.

Holcus mollis was dominant under the Larches, but nowhere did it approach the luxuriant growth of *Deschampsia flexuosa* under Oak and Birch. On the Quadrat L4, the point is made that, although *H. mollis* is the only ground cover plant, it does not form a complete carpet; and in L3, its distribution is very sparse indeed - actually covering a very small percentage of the quadrat - even though again it is the only ground cover present. This situation can be contrasted with the Oak and Birch samples where *D. flexuosa* is dominant and in the form of a thick, dense mat. The patches of *H. mollis* in quadrats O1, B10 and B3 are very sparse compared with the percentage cover of *D. flexuosa*. B1 shows a situation with only one species present in the ground cover.

A close examination of quadrat B3 provided a reason for speculation about the lack of light being an important factor in the distribution of these grasses and Bracken. This was a very uneven site and featured a large mound (indicated by the dotted line at the right of the diagram) which proved to be an old tree stump. The base of this mound was deep in the grass and very damp, and it was from this place that the Bracken rhizomes were spreading. *Holcus mollis* was restricted to a very small area behind the stump and away from any direct sunlight. This suggests that it may be more tolerant of heavy shade than *Deschampsia flexuosa*. This one site cannot be taken as reflecting the whole problem, but it provided the stimulus to look more deeply into the situation and gave one possible clue to the distribution pattern of these species.

It seemed likely, on a purely casual visual basis, that the Larch copses would prove to be more heavily shaded than the Oak and Birch copses, but a definite statistical survey was needed to give meaningful results. A series of readings was taken with a photographic exposure meter (Gossen Sixtar) with an incident light reading attachment in place. For those readings taken in the open (to give a comparative figure), the meter was held above head height, pointing upwards in a situation where there was no shade at all from surrounding trees. For the ground level readings in the copses the meter was rested on

The Vegetation in Gillfield Wood

the ground in an upright position. The readings were noted, and the difference between the two sets of figures was expressed as a percentage of the total light. The readings were taken in the same sites as those of the original survey of Vegetation under Trees (see page 40).

The first series of readings were taken on February 1st, 1975 and further readings were planned for April, to coincide with the breaking of the Larch buds, and mid-summer, when the vegetation in the wood will be at its peak, and the subsequent shade at a maximum. The readings obtained were:

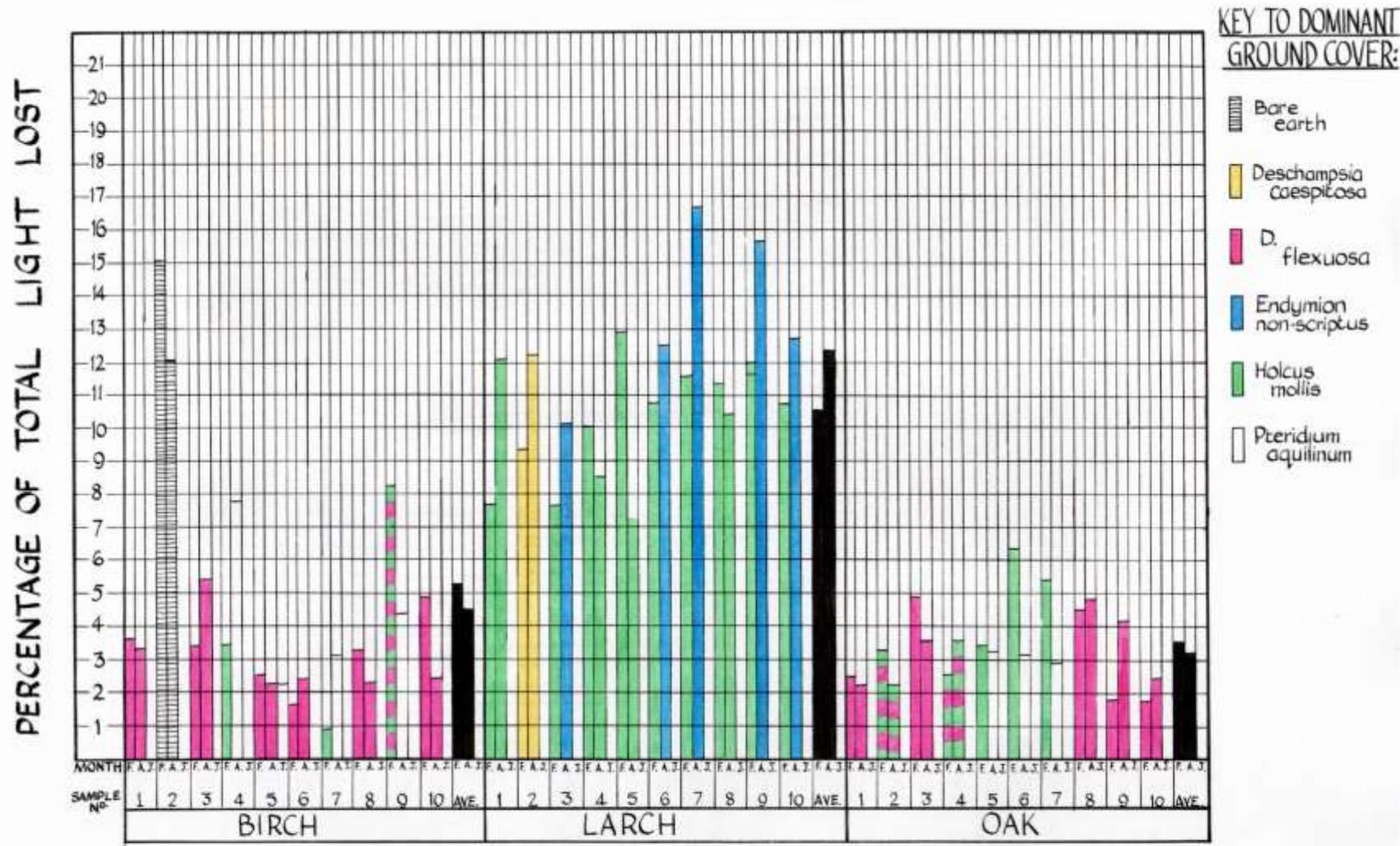
Sample	Open			Shaded			% Light Lost		
	Feb	Apr	Jul	Feb	Apr	Jul	Feb	Apr	Jul
OAK									
1	12.1	13.7		11.8	13.3		2.5	2.2	
2	12.6	13.9		12.2	13.5		3.2	2.2	
3	12.3	13.9		11.8	13.4		4.9	3.6	
4	11.8	13.7		11.5	13.2		2.6	3.6	
5	11.8	12.6		11.4	12.2		3.4	3.2	
6	11.2	13.0		10.5	12.6		6.3	3.1	
7	11.1	13.4		10.5	13.0		5.4	2.9	
8	11.1	12.5		10.6	11.9		4.5	4.8	
9	11.2	12.2		11.0	11.6		1.8	4.1	
10	11.2	12.2		11.0	11.9		1.8	2.4	
BIRCH									
1	11.6	11.9		11.2	11.5		3.6	3.3	
2	11.8	11.9		10.0	10.5		15.5	12.1	
3	11.8	13.0		11.4	12.3		3.4	5.4	
4	11.8	13.9		11.4	12.8		3.4	7.8	
5	12.1	13.7		11.8	13.4		2.5	2.2	
6	12.0	12.4		11.8	12.1		1.7	2.4	
7	12.1	12.7		12.0	12.3		0.9	3.1	
8	12.4	12.7		12.0	12.4		3.2	2.3	
9	12.3	13.6		11.3	13.0		8.2	4.4	
10	12.3	12.5		11.7	12.2		4.9	2.4	

Sample	Open			Shaded			% Light Lost		
	Feb	Apr	Jul	Feb	Apr	Jul	Feb	Apr	Jul
LARCH									
1	11.7	112.9		10.8	10.5		7.7	12.1	
2	11.8	13.9		10.7	12.2		9.3	12.2	
3	11.8	12.8		10.9	11.5		7.7	10.1	
4	12.0	12.8		10.8	11.7		10.0	8.5	
5	12.4	13.8		10.8	12.8		12.9	7.3	
6	12.0	13.6		10.7	11.9		10.8	12.5	
7	12.0	13.7		10.6	11.4		11.6	16.7	
8	12.4	13.4		11.0	12.0		11.3	10.4	
9	11.7	14.0		10.3	11.8		12.0	15.7	
10	12.1	14.0		10.8	12.2		10.8	12.8	

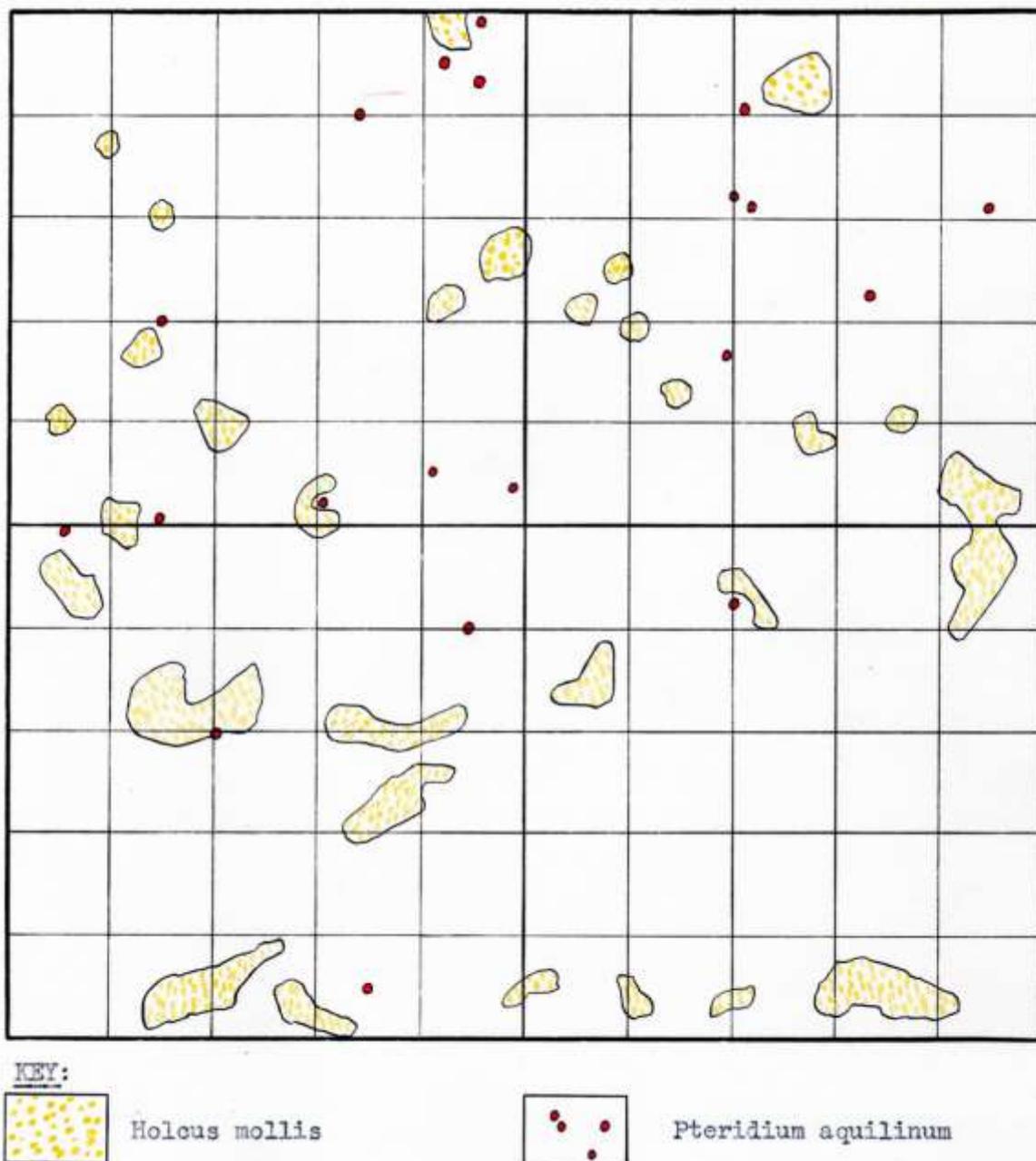
The average loss of light over the readings was...

Oak	February	3.6%
	April	3.2%
	July	
Birch	February	5.2%
	April	4.5%
	July	
Larch	February	10.5%
	April	12.3%
	July	

Some fluctuations occur in these figures which seem to indicate that there was a greater light loss in February than in April. This can, I believe, be explained by the fact that the sun is brighter in the spring months than in winter, and consequently more light is reflected off the foliage around the site of the reading. It is noticeable, however, that whereas the average light loss for the Oak and Birch copses dropped between February and April, the figure for Larch rose by 1.8%. This is explained by the leaves of the latter tree breaking out from the buds at this time, and also the emergence in the ground layer of the Bluebell (*Endymion non-scriptus* [*Hyacinthoides non-scripta*]), which has in a few places become completely dominant, especially in conditions of moderate to heavy shade.



NUMBER AND TYPE OF SAMPLE
GRAPH SHOWING RELATIONSHIP BETWEEN TREE TYPE AND SHADE - GILLFIELD WOOD 1975

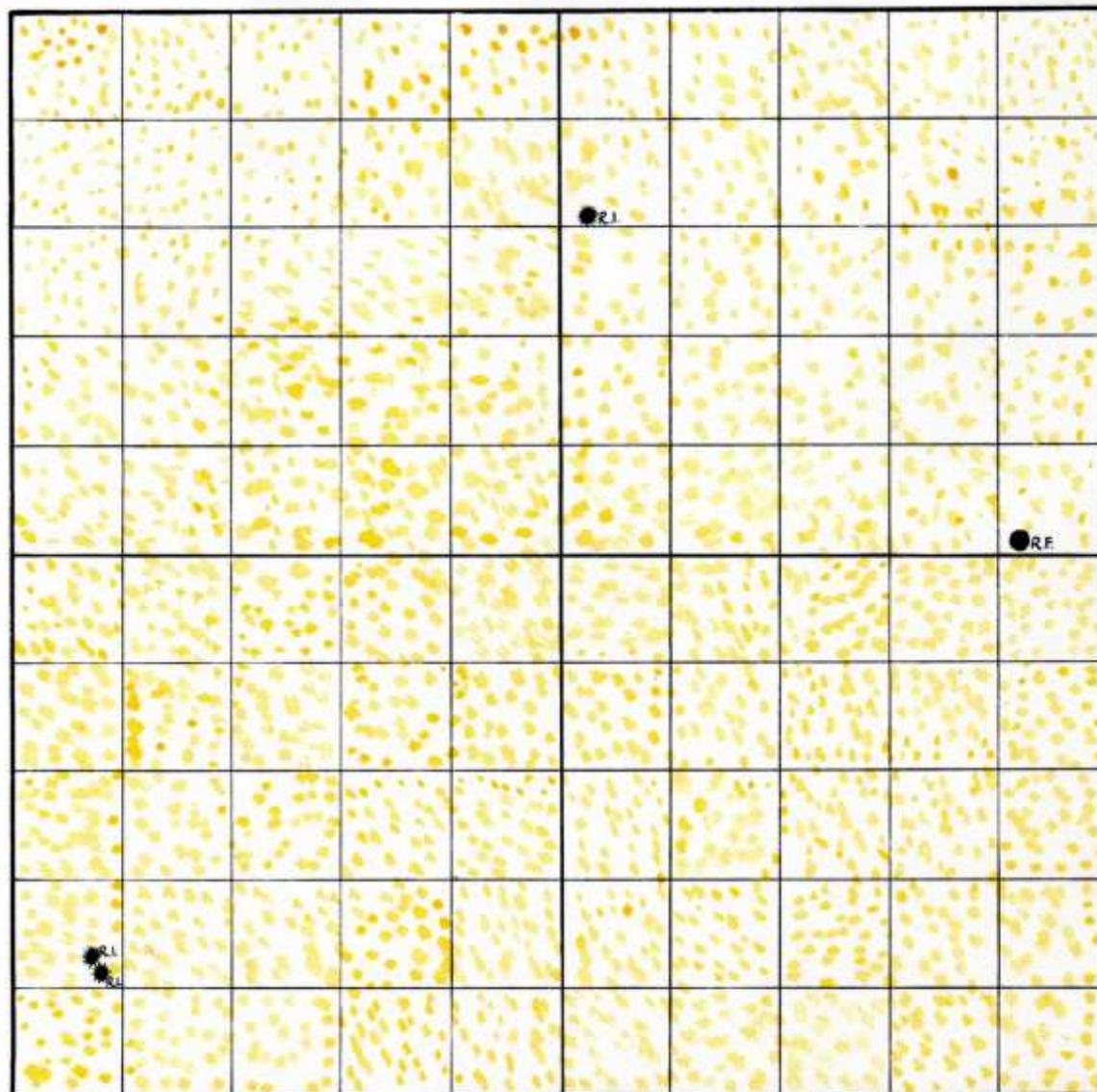


L3-1: METRE QUADRAT UNDER LARCH (*Larix decidua*) - Dec. 30th, 1974

Total vertical overhang of Larch branches, the lowest of which were about 30 cm from the ground. The floor cover was Larch needles and dead Bracken fronds. The ground sloped to the SW and there was an open area and path about 1 metre to the NE.

pH reading: 5.7

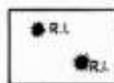
The Stream in Gillfield Wood



KEY:



Hocus mollis



Rubus idaeus

L4 1 METRE QUADRAT UNDER LARCH (*Larix decidua*) - Dec. 30th, 1974

Total vertical overhang of Larch branches, but an open pathway to the SE. Floor cover was Larch needles, and the lowest branches were 75cm from the ground. The grass *Hocus mollis* was not so dominant as the quadrat may indicate, although it did cover the whole area, it was never luxuriant enough to carpet the ground. The specimens of *Rubus fruticosus* and *R. idaeus* were very stunted and weakly in appearance.

pH reading: 5.5

See also Plate 26 below

PLATE 26: Photograph of the area of Quadrat L4 above

This was taken in April and shows the vegetation, which consists of *Holcus mollis* and Bluebell (*Endymion non-scriptus* [*Hyacinthoides non-scripta*]) in approximately equal proportions.



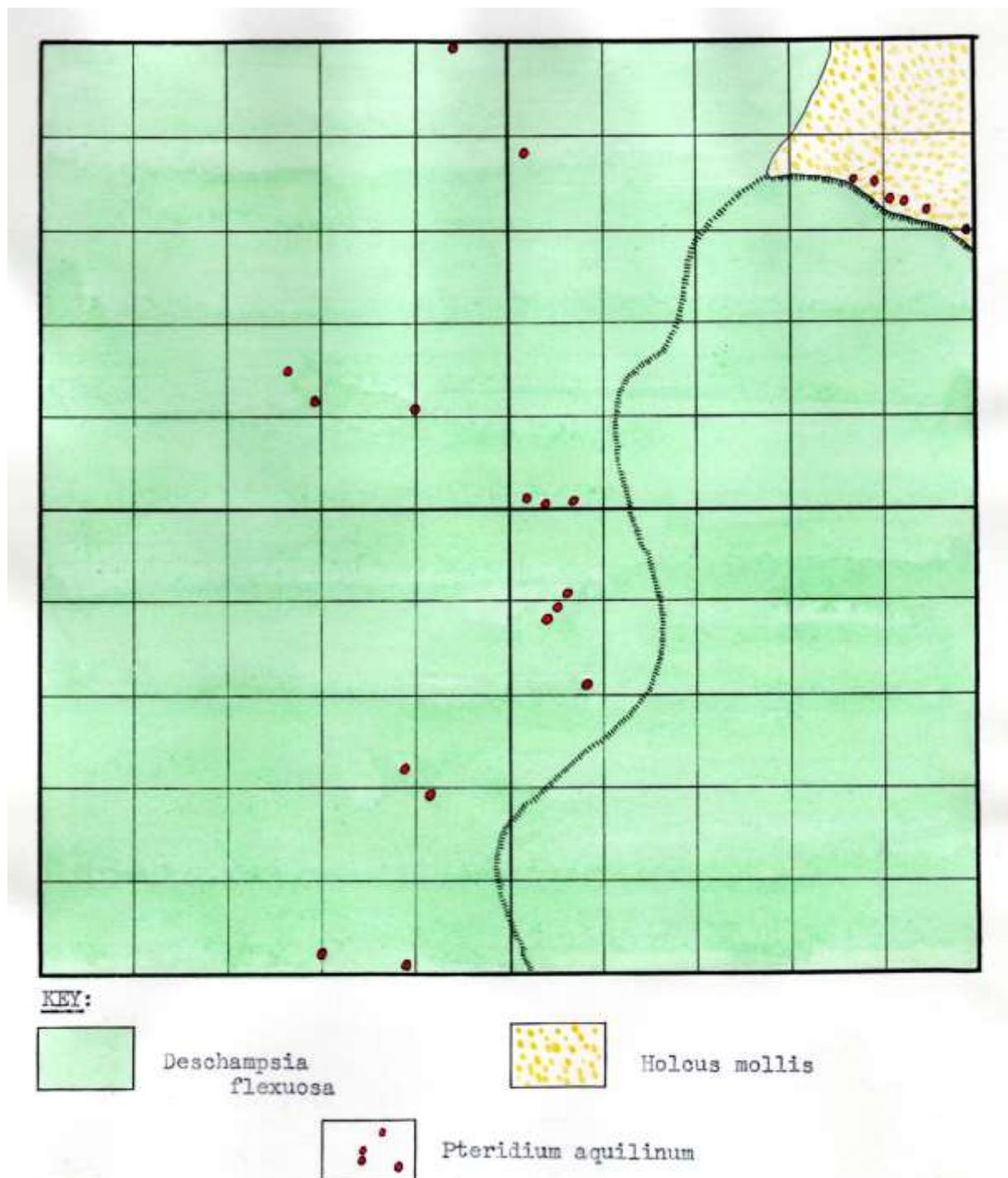
This typifies many of the sites in the wood at this time of year. The third element in this succession, Bracken (*Pteridium aquilinum*), has not yet appeared, but will become more dominant as the summer wears on.

PLATE 27: Photograph of the area of Quadrat B3 (next page).



This shows quite clearly the raised feature (right centre) mentioned in the text of quadrat B3 below. Also, the Bracken arising from the base of the old tree stump, and the very heavy growth of *Deschampsia flexuosa*.

The Stream in Gillfield Wood

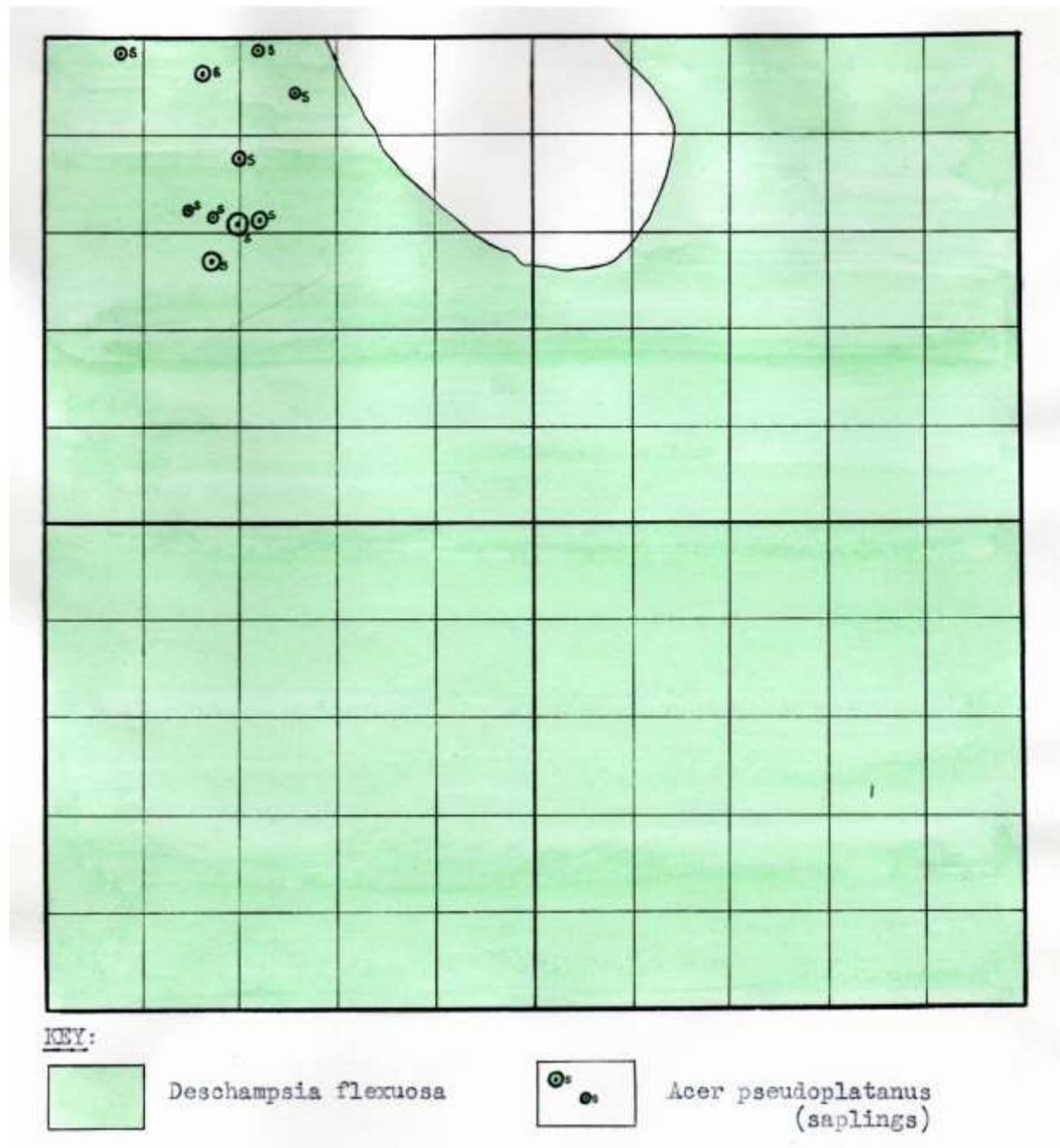


B3: 1 METRE QUADRAT UNDER BIRCH (*Betula pendula*) - Dec. 30th, 1974

Total vertical overhang by Birch branches, lowest of these about 2 metres. Slope to south about 10° but overshadowed by large mature trees, mainly Alder (*Alnus glutinosa*). Area on right of quadrat bounded by hatching is raised above the rest of the site by about 30cm. The grass was found to be growing on a very old and completely concealed tree stump.

Note *Holcus mollis* growing in the shade afforded by this feature,

pH reading: 5.5

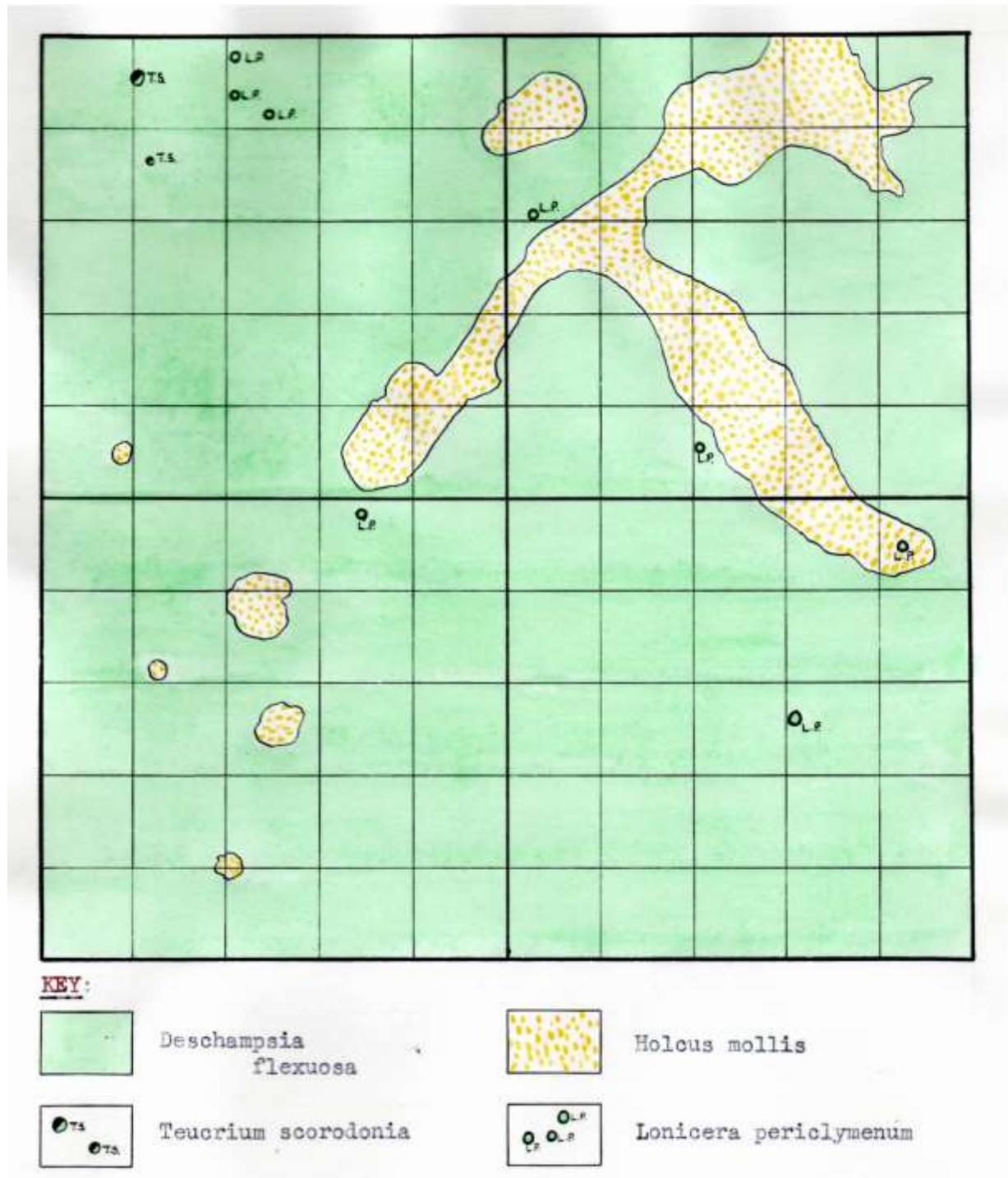


B1: 1 METRE QUADRAT UNDER BIRCH (*Betula pendula*) - Dec. 30th, 1974

Almost total vertical overhang of Birch branches, the lowest of which were about 2 metres from the ground. The site was open to the SW where the main path was situated and had a slight slope to the path of about 5°.

pH reading: **5.7**

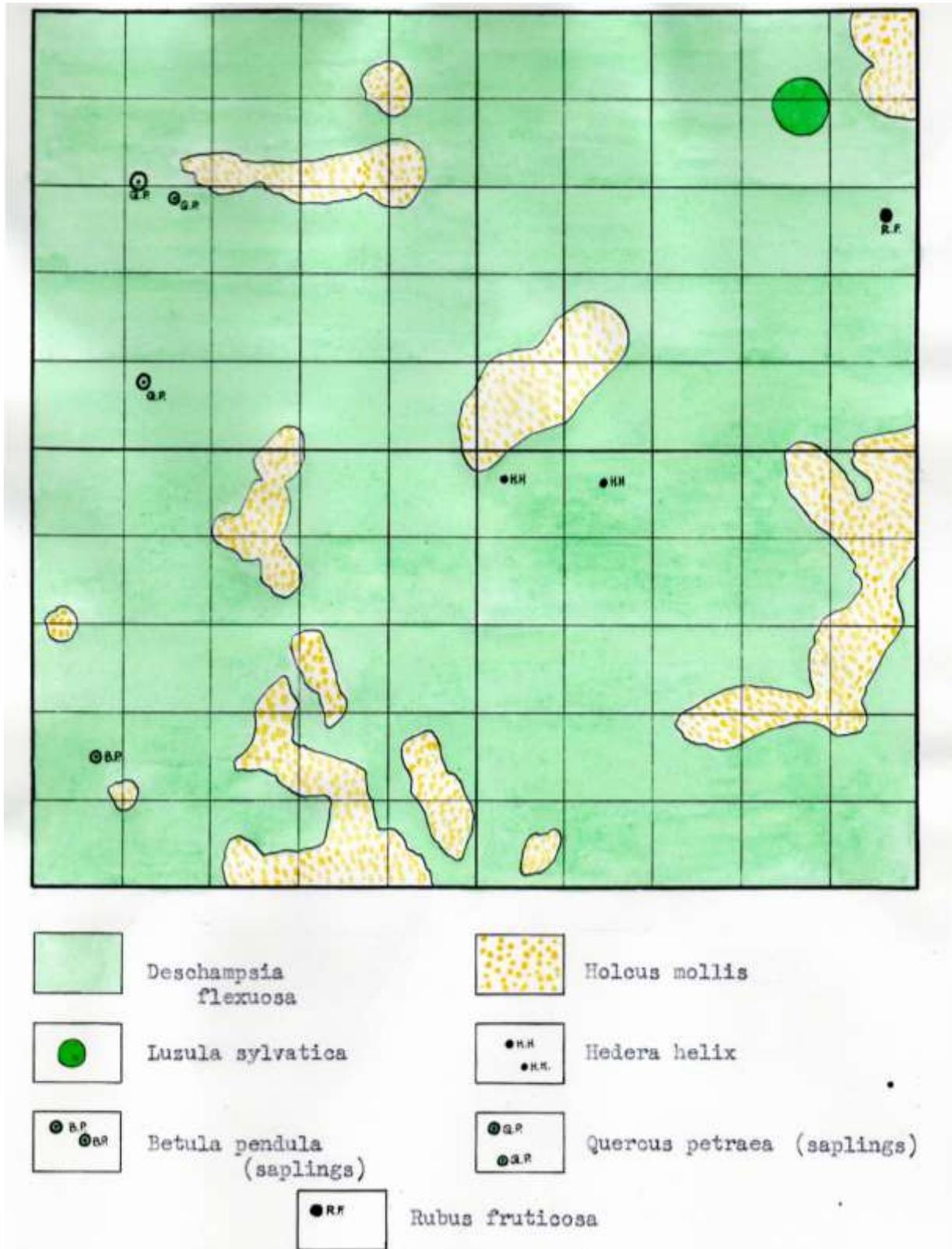
The Stream in Gillfield Wood



B10: 1 METRE QUADRAT UNDER BIRCH (*Betula pendula*) - Dec. 30th, 1974

Incomplete vertical overhang by Birch branches, the lowest of which were some 2 metres from the ground. The site was near the crest of a bank which faced SE and had a slope of about 35°. *D. flexuosa* was really dominant in this situation, covering the ground very thickly.

pH reading: 6.0



O1: 1 METRE QUADRAT UNDER OAK (*Quercus petraea*) - Dec. 30th, 1974
 Incomplete vertical overhang of Oak branches, with the lowest limbs about 2.7m high. Open aspect to the S. overlooking the main path, and a slight slope in this direction. *D. flexuosa* was most luxuriant.

pH reading: 5.5

The Stream in Gillfield Wood

AN INVESTIGATION INTO THE MATURE TREES FOUND IN GILLFIELD WOOD (AUTUMN 1974)

A survey was made of all the trees in the wood, with special reference to mature trees over 4.0 feet in height. This was undertaken to ascertain which trees had escaped felling during the last war, and then subsequent felling by Sheffield Corporation in 1945 (see page 2)

The height was measured using a protractor and plumb line: forty feet was measured from the base of the tree; the plumbline and protractor aligned at 45 degrees then sighting along the baseline of the protractor indicated whether the tree was over 40 feet in height or less than this figure. This technique proved easy to implement along the northern edge of the wood, but very much more difficult by the side of Totle Brook, where forty feet of level ground was much more difficult to find. However, a chart of mature trees, their species and numbers was compiled (see figure, p.59).

The trees which fell into this category are found only on the northern and southern boundaries of the wood, namely, the top of the ridge (northern), and the northern bank of the stream, which forms the southern boundary. The graph contains the full list of common species in the wood, and it can be seen that some species have no mature representatives at all. It will be noticed that this group of trees is made up of species planted since 1965. The two areas of distribution (north & south boundaries) and the numerical occurrence of species have also been noted on the graph. It will be seen that the greater majority of both species and numbers was to be found along the southern boundary (northern bank of Totle Brook) and that these made up approximately two thirds of the total.

Streamside

The composition of the tree population in this locality was widely varied, with eight species being present, some of which were found nowhere else in the wood. Alder (*Alnus glutinosa*) was the predominant species. Sixteen mature Alders were counted along the bank of Totle Brook, very close to the water, or in marshy areas closely adjoining the stream. This species is very selective in its habitat requirements and is able to survive water-logged conditions which would prove impossible for many other species of tree. It is able to survive by means of nitrogen-fixing bacteria in the root system. Its seeds are adapted to its particular ecological niche, since they are buoyant and will float for a limited period, then germinate only on bare damp earth or mud. These latter conditions are present by the banks of Totle Brook, so it is no surprise to find this tree dominant in this area. A further point in this respect is that the bankside in the wood is, in many places, very marshy, and the extraction of Alders, if felled, would be very difficult indeed.

Several clumps of Alders are present, but some, upon examination, are found to be suckers growing from the stumps of fallen or felled trees. This species is said to have a stabilising effect upon river banks, as its interlacing roots tend to prevent soil from being

washed away by the stream, and also may aid in the soil so retained being more fertile (presumable by preventing the loss of humus by the same process).

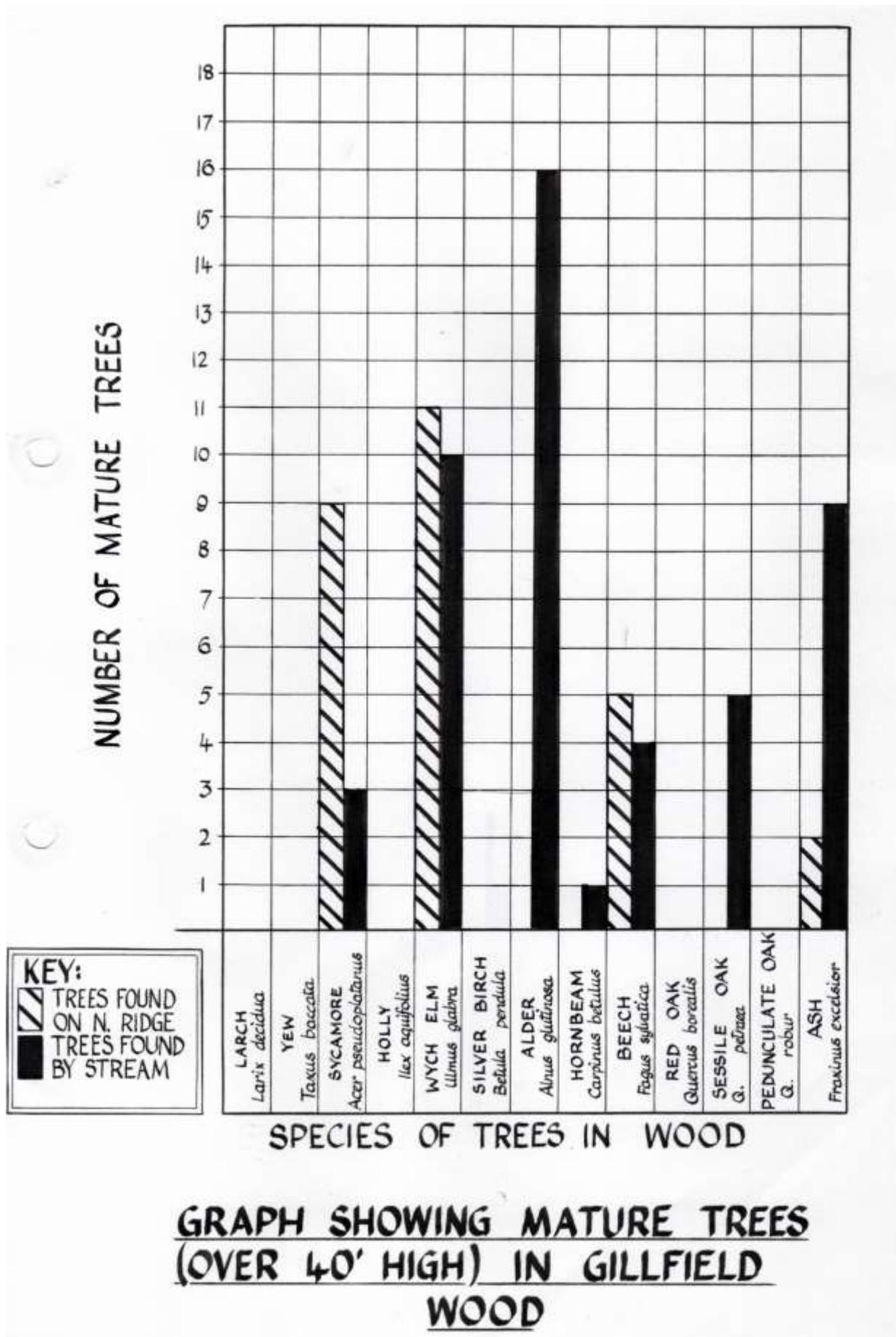
There is no evidence that Alders have been planted in the wood during recent times, so it may be possible that this species has been present in its habitat in Gillfield for a considerable number of years, possibly for several centuries.

Wych Elm (*Ulmus glabra*) was quite frequent (ten specimens) although these did not show the size and vigour of the Alders, or even the trees of the same species on the Ridge. This species was commonest in the latter locality, although a few smaller specimens were present in the interior of the wood. Wych Elm is predominantly a northern species, which is often planted because of its resistance to smoke pollution, although this could hardly have been a reason for its presence in Gillfield Wood. This species, like the Alder, has not been planted in the wood since 1945, so its presence as mature or younger trees would seem to indicate that the population here is a relic of some previous planting or of natural regeneration.

Ash specimens (*Fraxinus excelsior*) were the tallest of all the trees in this locality. This is a tree normally associated with limestone and basic soils, but these trees, growing as they were upon an acidic soil, showed a 'most healthy vigour, and although they were not growing on the actual bank of the stream, they were very near to it and were in a permanently damp and often water-logged soil. It may well be that essential minerals and humus may be found here, possibly trapped by the roots of the Alders. There are a small number of saplings scattered throughout the wood, and these would again seem to be the result of natural regeneration rather than planting.

Sessile Oak (*Quercus petraea*) was present on the streamside mainly towards the lower end of the wood, where some tall examples were noted growing in competition with Alder and Ash. This species of oak seemed to thrive in the more sheltered area of the stream rather than the exposed area of the Ridge, where no oaks of comparable size were to be found.

Sycamore (*Acer pseudoplatanus*) was represented by 3 trees in this locality, but these were not of a similar size and vigour as the Sycamores of the Ridge. This latter habitat appeared to suit them much better, probably because the nitrogen which this species find particularly essential, would be more freely available on the better-drained soils of the higher ground. There can be little conjecture about this tree being an original member of the flora of the wood since this species is not native to the British Isles and was introduced from the Continent about four hundred years ago. Its present widespread distribution is partly due to its prolific and fertile seeds, but more to its excellent qualities of quick growth, resistance to exposure and disease, and useful wood, thus making it a firm favourite with foresters. Its presence in the wood as young saplings, having been planted in great numbers in 1965-6-7, is also due to the same qualities.



The Stream in Gillfield Wood

Silver Birch (*Betula pendula*). There are many in the wood, but only one tree reached over 40ft in height, again it is a specimen near the stream. Birch is a difficult tree to plant as a sapling but is a pioneer coloniser of waste acidic ground. On these grounds, it may be assumed that the Birch present in the wood at the present time are descendants of the original woodland on this site. Birch wood is of little economic importance and it would seem very unlikely that the extra time and trouble necessary to ensure the growth of a relatively (commercially) unimportant tree would have been expended by a forester.

Hornbeam (*Carpinus betulus*) is a native tree found naturally mainly in the south-east of England. This would tend to suggest that the trees of this species have been planted here at some time in the past (none have been planted since 1945). Hornbeam is our hardest native wood, and is used to make wooden screws, pulley blocks etc. This would seem to be a most valid reason for having a stock of this tree in most districts before the advent of more easily worked metals and plastics. It is a difficult wood to work and has declined severely in popularity as new materials have become available. All specimens of Hornbeam are found towards the south-eastern corner of the wood.

PLATE 28 Mature Trees on Southern Bank of Totley Brook

This area is not included in the study but shows the variety and size of trees in this sector.



Species shown above (from left to right) are Ash (*Fraxinus excelsior*), Oak (*Quercus petraea*), Alder

(*Alnus glutinosa*), Hornbeam (*Carpinus betulus*) and Silver Birch (*Betula pendula*). The common undershrub here is Dog Rose (*Rosa canina*), which can be seen at the extreme left of the photograph. It is also common throughout the study area in exposed, sunny situations.

A clear photograph of this area from the other side of the stream was impossible due to the densely planted saplings which would have obscured the essential details of the trees. There is little difference in the size or species between the northern and southern banks of Totley Brook.

THE NORTHERN RIDGE

The trees in this area tend to be fewer in number and species. The Ridge tends to bear the full brunt of winds from most directions, and consequently the trees in this situation must be able to stand quite severe exposure.

Wych Elm (*Ulmus glabra*) was the commonest tree but was not spread along the length of the Ridge; the main concentration was to be found towards the eastern (and lowest and most sheltered) part of the sector. The trees here were quite robust and showed little wind distortion. This particular species of Elm is commonest in the north of England and reproduces by means of seeds, so there seems to be at least a possibility that some of these trees are natural in origin.

Sycamores (*Acer pseudoplatanus*) were generally very large and majestic, with broad crowns, showing little evidence of ever having grown in close proximity to other trees. This species again tended to favour the more sheltered eastern end of the Ridge.

Beech (*Fagus sylvatica*) has four very fine trees present on the Ridge. This is a species which grows best on well-drained or lime-rich soils, but the general appearance of these trees would suggest that they are in a quite favourable habitat here, on acidic soils. There were Beeches by the side of Totle Brook, but they were not so well-formed or vigorous as the specimens of the Ridge and did not qualify (by size) to be included in this investigation. It is interesting to note that Sheffield Corporation have planted several Beech saplings in various places throughout the wood, but mainly under the light shade of the Birch trees.

Two Ash (*Fraxinus excelsior*) trees were growing on the Ridge, towards the eastern end of the boundary. These were not nearly such good representatives of their species as those found on the lower ground by Totle Brook. This species is said to resist wind deflection and exposure, but the conditions found on the Ridge were obviously not so favourable as those of the lower ground.

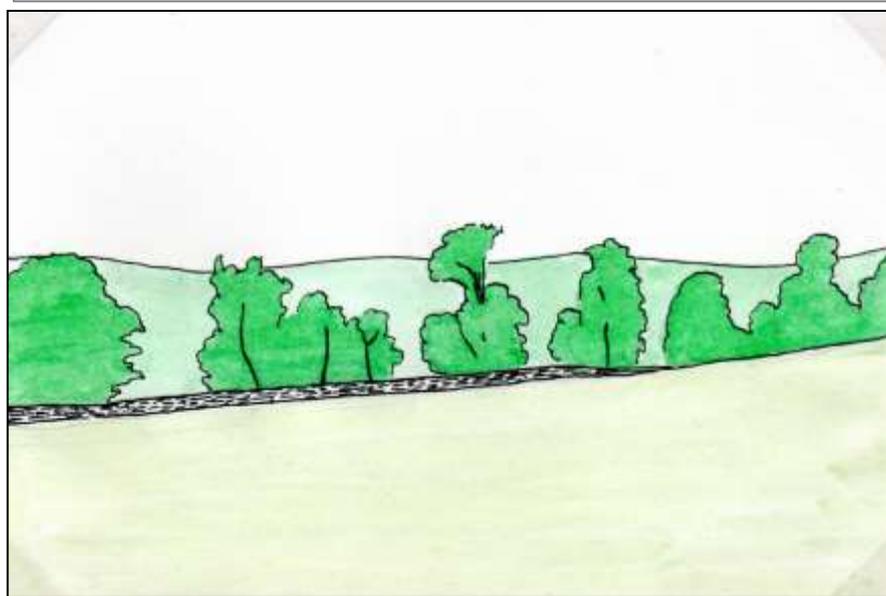
This survey confirms that the great majority of the trees in Gillfield Wood were completely felled by 1945 and that the only remaining trees are to be found on the wood's periphery. The two habitats where large trees do still survive contrast sharply, and the species of trees and their distribution contrast sharply too, as can be seen from the graph on page 61. The conditions on the Ridge tend to be very extreme, and it is noticeable that there are no really large trees towards the higher western end. It may be that the Oak trees (*Qercus petraea*) growing there now are able to withstand the exposure, but the fact is, that at present this part of the wood appears almost treeless from a distance.

The Stream in Gillfield Wood



PLATE 29: Gillfield Wood – Mature Trees on Ridge (October 1974)

Photograph taken looking south-west across pasture.



Note the dry-stone wall marking the wood's northern boundary.

Beech

Wych Elm

Wych Elm

Sycamore

The lack of large trees within the wood is not apparent at first sight of Gillfield, because it is such a narrow wood, and the large trees around its long sides give the impression that there are fully mature trees throughout. This illusion is dispelled at the western end, where there appears to be a large open space. This is, in fact, planted quite densely with Sycamores and Red Oak (see Plate 30 below), but at their present size, these trees do not show above the shrub layer from a distance.

Whatever the reason for the survival of the large trees mentioned in this account, there can be little doubt that the wood's appearance is greatly enhanced by their presence.

**PLATE 30: View
Showing Large Area
Planted with
Saplings**



**PLATE 31: Large
Trees on the Wood's
Periphery from
within the Wood**

"...there can be little doubt that the wood's appearance is greatly enhanced by their presence."

THE EFFECT OF DEAD WOOD UPON THE WOODLAND ECOLOGY

There is a most noticeable absence of dead wood in the form of stumps or fallen logs in Gillfield Wood. This is understandable in a commercial wood, but it does have quite noticeable effects upon the animals and plants which one might expect to find. There are only very few tree stumps left now, and most of them are covered with undergrowth and only about a foot in height.

The insect life is obviously less varied than that in an adjacent area (Area B, see page 4) where fallen and dead trees are relatively common. This section was used as a contrast to the main body of the wood and is mature woodland which appears to have had no management for many years. In this small area there are several insects, plants and birds which are completely absent within the main wood.

The Stream in Gillfield Wood

A careful look round in summer is sufficient to reveal the presence of saprophytic fungi on the fallen logs and stumps, and a great variety of invertebrate life under the bark of these.

Species include:

Fungi	Frequency	Present in Gillfield
<i>Hirneola</i> [=Auricularia] <i>auricula-judae</i> (Elder)	Occ.	No
<i>Lycoperdon pyriforme</i> - tree stumps	Occ.	Yes
<i>Piptoporus betulinus</i> (Birch)	Fre.	No
<i>Xylaria hypoxylon</i> - dead wood	Fre.	Yes
<i>Armillaria mellea</i> - on both dead and living trees	Occ.	No
Insecta		
<i>Sinodendron cylindricum</i> - rotten log	Rare	No
<i>Melanotus rufipes</i> [<i>M. villosus</i>] - under bark	Occ.	Yes
<i>Rhagium mordax</i> - larvae under bark	Fre.	Yes (one)
<i>Vespa</i> [=Vespula] <i>vulgaris</i> - hibernating under bark	Rare	?
<i>Strangalia</i> [=Rutpela] <i>maculata</i> - on flowers	Occ.	Yes
<i>Tipula spp.</i> larvae - under bark	Ab.	Yes (rare)
Aves		
Jay (<i>Garrulus glandarius</i>)	Fre.	No
Magpie (<i>Pica pica</i>)	Fre.	No
Greater Spotted Woodpecker (<i>Dendrocopus major</i>)	Occ.	No

These observations are merely visual, no count of populations has been carried out in respect of this, but my impression is quite strongly one of a reduced population of certain species within the main wood compared with this small area of undisturbed woodland. Of the fungi, it might well be said that the absence of *Piptoporus betulinus* and *Armillaria mellea* is not a bad thing for they are parasitic and usually cause the death of the tree which they are growing upon.

The status of the insect populations is very difficult to determine. The insects are very small, and the wood is quite extensive, so observations must be regarded with a certain amount of distrust. All that finding any insect really indicates is that the species is present, it gives little or no indication of the numbers present in an area with as much shrub cover as Gillfield. What is quite certain is that some habitats which are common in Area B are almost absent from the main wood, thus if there are no decaying logs in the wood, then those insects which require this habitat will, of necessity, be absent at least in their larval form.

Birds, too, suffer in this respect. There are no nests of Jay or Magpie in Gillfield although these birds are frequently seen and heard. Their nests are in the canopy of the

mature copses where the predations of would-be enemies are minimized. The Greater Spotted Woodpecker's absence is even more self-evident. These birds live on the larvae of wood-boring insects in already rotten wood.

The only plant which seems to live solely in the mature copses is the Opposite-leaved Golden Saxifrage (*Chrysosplenium oppositifolium*). This is a quite distinctive plant and I have searched through the whole wood in an attempt to find it on the northern bank of the stream without success.

Trying to look at the problem objectively, for I do regard it as a problem that the wood is not possessed of the full flora and fauna that a truly natural wood should possess, it seems obvious that clear-felling does not make a satisfactory substitute for the forces of nature. If we are to use woodlands as areas of conservation, then we should be willing to alter man's handiwork to approximate as closely as possible to that of nature. If Gillfield were to become a true conservation area, then, to my mind, it would be necessary to provide as many micro-habitats as possible within the framework of a wood. This would mean providing areas of canopy cover only, dense shade, shrub cover and open glade. The first two in that list are reasonable in that time alone will ensure that the trees reach maturity, and the Larches will certainly give a dense shade. The provision of a shrub layer will mean that thinning out of the trees will have to be carried out, and an area where trees have been deliberately felled would have to be provided before a glade could be produced in this wood, since it is now planted throughout. This latter measure would be unpopular with the residents of Topley, but would, in the long run prove most valuable from a conservation viewpoint, in that there would be many more organisms found in the wood, taking advantage of the increased number of habitats available.

Unless a scheme such as I have outlined does take place, then we may regard Gillfield Wood as being at a peak now, for the variety and number of animals and plants which have made it their home. It has a very dense undergrowth which is a haven for many small animals, but as the trees reach maturity, this shrub layer will die as the light is excluded, and then only the canopy and leaf litter will be capable of sustaining a population. If some felling were carried out, the wood would have a complete range of the possible habitats for such an area. A certain amount of management would be necessary, but this could be carried out quite easily by the members of a local naturalist society, on a voluntary basis.

The Stream in Gillfield Wood

CHECKLIST OF TREES AND BUSHES

* Scots Pine	<i>Pinus sylvestris</i>	1 established
* Western Hemlock	<i>Tsuga heterophylla</i>	about 40 planted recently
* Larch	<i>Larix spp.</i> **	several dense plantations
Yew	<i>Taxus baccata</i>	rare, west end only
* Sycamore	<i>Acer pseudoplatanus</i>	common throughout
Holly	<i>Ilex aquifolium</i>	frequent near stream
Gorse	<i>Ulex europaeus</i>	rare
Broom	<i>Sarothamus [=Cytisus] scoparius</i>	few on path and Ridge
Raspberry	<i>Rubus idaeus</i>	very local
Blackberry	<i>Rubus fruticosus sensu lato</i>	common throughout
Dog Rose	<i>Rosa canina</i>	common throughout
Hawthorn	<i>Crataegus monogyna</i>	rare within wood, common on edge
Rowan	<i>Sorbus aucuparia</i>	scattered thinly throughout
Crab Apple	<i>Malus sylvestris</i>	two trees only
Ivy	<i>Hedera helix</i>	common on ground
Wych Elm	<i>Ulmus glabra</i>	common on periphery
Birch	<i>Betula pendula</i>	widespread in groups
Alder	<i>Alnus glutinosa</i>	common near stream
Hornbeam	<i>Carpinus betulinus</i>	rare on stream banks
Hazel	<i>Corylus avellana</i>	occasional clumps
* Beech	<i>Fagus sylvatica</i>	few trees, many saplings
* Sweet Chestnut	<i>Castanea sativa</i>	rare (one only?)
* Red Oak	<i>Quercus borealis</i> [<i>Q. rubra</i>]	saplings very common
Pedunculate Oak	<i>Quercus robur</i>	infrequent
Sessile Oak	<i>Quercus petraea</i>	common throughout
Grey Willow	<i>Salix cinerea</i>	few clumps in wet areas
Ash	<i>Fraxinus excelsior</i>	edges of wood only
Elder	<i>Sambucus niger</i> [=nigra]	rare within wood
Honeysuckle	<i>Lonicera periclymenum</i>	common on ground

* - species not native to this country, and hence definitely introduced into the wood.

** - more than one species present, species somewhat indeterminate

LIST OF FUNGI

Ascomycetes

<i>Peziza</i> [=Scutellinia] <i>scutellata</i>	Marshy areas only
<i>Xylaria hypoxylon</i>	On dead wood
<i>Nectria cinnabarina</i>	On dead twigs or branches

Basidiomycetes

<i>Stereum</i> [=Chondrostereum] <i>purpureum</i>	Bracket fungus on wood
<i>Piptoporus betulinus</i>	Bracket fungus on Birch only
<i>Amanita muscaria</i>	Under Birches
<i>Lepiota rhacodes</i> [=Chlorophyllum <i>brunneum</i>]	In grass on open ground
<i>Pholiota squarrosa</i>	On old stumps
<i>Boletus elegans</i> [? <i>Suillus grevillei</i>]	Larch only
<i>Boletus testaceoscaber</i> [=Leccinum <i>versipelle</i>]	Birch copses
<i>Phallus impudicus</i>	In deep shade
<i>Lycoperdon pyriforme</i>	On dead wood
<i>Scleroderma aurantium</i>	On ground under trees

LIST OF PLANTS

Bryophyta (Mosses & Liverworts)

<i>Fissidens taxifolius</i> (Common Pocket-moss)
<i>Eurhynchium striatum</i> (Common Striated Feather-moss)
<i>Eurhynchium velutinum</i> – not verifiable?
<i>Plagiothecium denticulatum</i> (Dented Silk-moss)
<i>Rhytidiadelphus squarrosus</i> (Springy Turf-moss)
<i>Tetraphis pellucida</i> (Pellucid Four-tooth Moss)
<i>Pellia epiphylla</i> (Liverwort: Overleaf Pellia)

Pteridophyta

<i>Pteridium aquilinum</i> (Bracken)

The Stream in Gillfield Wood

Angiospermae

<i>Caltha palustris</i>	Marsh Marigold
<i>Anemone nemorosa</i>	Wood Anemone
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Ranunculus flammula</i>	Lesser Spearwort
<i>Ranunculus ficaria</i> [= <i>Ficaria verna</i>]	Lesser Celandine
<i>Cardamine pratensis</i>	Lady's Smock or Cuckooflower
<i>Cardamine amara</i>	Large Bitter-Cress
<i>Viola Riviana</i> [? <i>riviniana</i>]	Common Violet (Common Dog-violet?)
<i>Polygala vulgaris</i>	Common Milkwort
<i>Hypericum tetrapterum</i>	Square-stalked St. John's Wort
<i>Stellaria holostea</i>	Greater Stitchwort
<i>Stellaria alsine</i>	Bog Stitchwort
<i>Erodium cicutarium</i>	Common Stork's-bill
<i>Oxalis acetosella</i>	Wood-Sorrel
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Rubus idaeus</i>	Raspberry
<i>Rubus fruticosus</i>	Blackberry
<i>Potentilla reptans</i>	Creeping Cinquefoil
<i>Fragaria vesca</i>	Wild Strawberry
<i>Geum urbanum</i>	Herb Bennet or Wood Avens
<i>Alchemilla vulgaris</i> (agg.)	Lady's Mantle
<i>Sanguisorba officinalis</i>	Great Burnet
<i>Chrysosplenium oppositifolium</i>	Opposite-Leaved Golden Saxifrage
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Chamaenerion angustifolium</i>	Rosebay Willowherb
<i>Heracleum sphondylium</i>	Hogweed (Cow Parsnip)
<i>Mercurialis perennis</i>	Dog's Mercury
<i>Rumex obtusifolius</i>	Broad-Leaved Dock
<i>Urtica dioica</i>	Common (Stinging) Nettle
<i>Vaccinium myrtillus</i>	Bilberry
<i>Anagallis arvensis</i>	Scarlet Pimpernel
<i>Symphytum officinale</i>	Comfrey

<i>Solanum dulcamara</i>	Bittersweet
<i>Scrophularia nodosa</i>	Figwort
<i>Digitalis purpurea</i>	Foxglove
<i>Veronica officinalis</i>	Heath (Common) Speedwell
<i>Prunella vulgaris</i>	Selfheal
<i>Galeobdolon [=Lamiastrum] luteum</i>	Yellow Archangel
<i>Lamium purpureum</i>	Red Dead-Nettle
<i>Lamium album</i>	White Dead-Nettle
<i>Glechoma hederacea</i>	Ground Ivy
<i>Teucrium scorodonia</i>	Wood Sage
<i>Plantago major</i>	Greater (Rat-Tail) Plantain
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Campanula rotundifolia</i>	Harebell
<i>Galium cruciata</i>	Crosswort
<i>Galium aparine</i>	Goosegrass or Cleavers
<i>Adoxa moschatellina</i>	Moschatel
<i>Tussilago farfara</i>	Coltsfoot
<i>Bellis perennis</i>	Daisy
<i>Arctium lappa</i>	Great Burdock
<i>Cirsium vulgare</i>	Spear Thistle
<i>Cirsium palustre</i>	Marsh Thistle
<i>Centaurea nigra</i>	Lesser Knapweed
<i>Serratula tinctoria</i>	Saw-wort
<i>Hypochaeris radicata</i>	Cat's Ear
<i>Taraxacum officinale</i>	Common Dandelion
<i>Endymion non-scriptus</i> [<i>Hyacinthoides non-scripta</i>]	Bluebell
<i>Juncus effusus</i>	Soft Rush
<i>Glyceria fluitans</i>	Flote-Grass or Floating Sweet-grass
<i>Festuca gigantea</i>	Tall Brome or Giant Fescue
<i>Festuca pratensis</i>	Meadow Fescue
<i>Poa annua</i>	Annual Poa or Annual Meadow-grass
<i>Dactylis glomerata</i>	Cock's-Foot Grass
<i>Cynosurus cristatus</i>	Crested Dog's-tail Grass
<i>Melica uniflora</i>	Wood Mellick

The Stream in Gillfield Wood

<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Holcus mollis</i>	Creeping Soft-Grass
<i>Deschampsia cespitosa</i>	Tufted Hair-grass (Tussock Grass – name too frequently used)
<i>Deschampsia flexuosa</i>	Wavy Hair-grass
<i>Calamagrostis epigejos</i>	Bush-Grass or Wood Small-reed
<i>Agrostis tenuis</i>	Bent-Grass or Common Bent
<i>Phleum pratense</i>	Timothy Grass
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Agropyron [=Elytrigia] repens</i>	Couch Grass or Common Couch