August

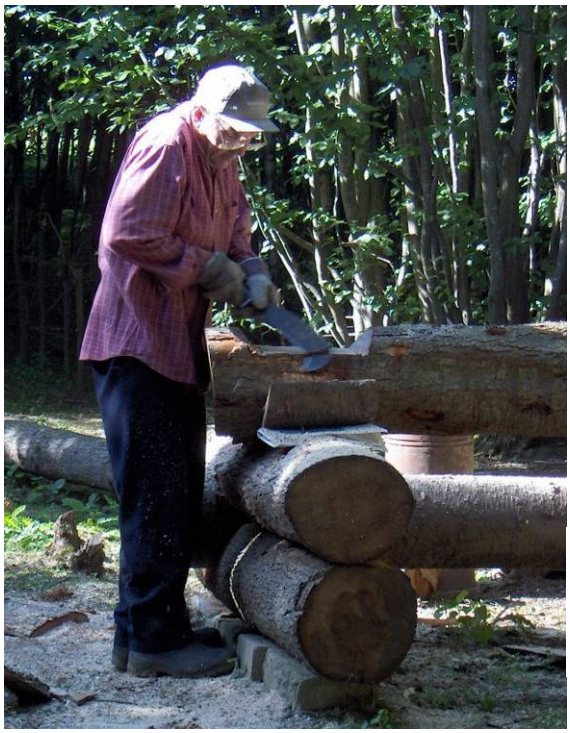
Weather Report

The first two weeks of the month were characterised by light south westerly winds and a mixture of sunny and cloudy conditions with daytime maximum temperatures ranging between 20-24 C. The 5th August was the exception – one sizzling summer day, a clear blue sky and a maximum of 31 C.

Apart from brief, heavy, very localised thundery showers on the 7th and some light rain early in the morning on the 13th, it was dry until the 14th when we experienced rain all day, heavy at times, accompanied by gale force south-westerly winds along the south coast.

The next ten days could be described as unsettled, showery and cool, with daytime temperatures struggling to rise above 18 C and on the 20th and 23rd August some locations in Sussex only managed to reach a maximum of 14 C! The month ended with an autumnal feel to it – a dry, sometimes sunny, sometimes cloudy week, maximum temperatures consistently between 20- 21 C and light, predominantly northerly breezes.

Extracts from Rodney's Diary



3rd August
Shelter progressed with one more side cut in, next back wall log lifted up into place and two more logs towed down ready to use.

Rodney has cut away a section at the end of the log for overlapping on the corner He is using the bill hook to tidy up the cut made by the chain saw.

One pair of hands, no fancy lifting gear – this takes planning and ingenuity!

17th August

Next gully along M25 fitted with drainpipe, filled with rubble and earthed over. Section of M25 from gully to picnic site cleared of dead tree stumps and bumps and dips levelled as required, now giving decent, tractor-friendly track from caravan to picnic clearing. Third level, back wall trunk of log shelter cut in and fitted. Trunks for same level at the front cut to length ready for fitting

20TH August

Took petrol strimmer for first time to test and cleared a swathe through the jungle at 'Hazel Corner'. Continued around path along stream, back to main ride, then down slope to gate before running out of fuel. Found it to work well but fiddly to feed more line out after snapping off on hard bits. Survey carried out and trees selected and marked for felling, for continuation of M25 east of the picnic site. One front wall and one side wall log trimmed, shaped and fitted to shelter structure.

The state of play at the end of August

Ferns

Amongst the profusion of delicate spring flowers and soft, almost translucent new leaf growth, a far more masculine energy lies coiled in the debris on the woodland floor preparing to thrust itself up into the dappled shade. The gingery brown, hairy scales that provide a protective, furry covering for these primeval looking plant forms, begin to part as the individual fronds slowly unfurl. Lime green leaflets unfold from the central spine to reach out like little fingers into the shadowy recesses. And here, undisturbed, they expand, stiffen and darken almost unnoticed, whilst other vegetation blooms, fades, seeds, shrivels and falls.

By late August the ferns have achieved their full potential, their imposing, majestic; feathery, elegant or stiff, shining fronds, primed to disperse their spores into the wind cannot fail to attract attention as the only lush foliage, when all other growth is in varying states of decay, and before the glorious, glowing colours of autumn leaves steal the limelight.

August is FERN MONTH.

The young unfurled fern fronds can either be called fiddleheads because they resemble the curled ornamentation at the end of a stringed instrument (a fiddle), or crosiers after the curved staff used by bishops and shepherds.

Fossils of ferns have been discovered that are over 350 million years old confirming their status as very ancient plants, which were thriving on earth for 200 million years before flowering plants evolved. Although vascular with a well developed internal vein structure, they do differ from more advanced plants in several ways. Up until the 18th century it was believed that they bore minute invisible flowers on Midsummer's Eve but study then revealed, instead of producing seeds, spores were being formed in capsules on the undersides of the fronds.

Spores on the underside of narrow buckler fern

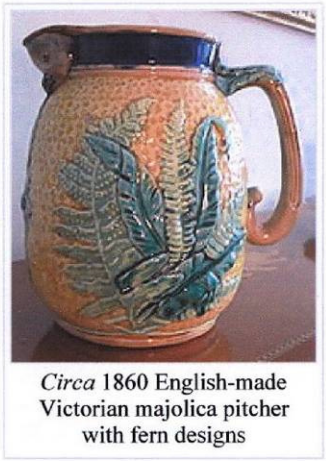
The ferns had a life cycle referred to as an alternation of generations – comprising a diploid (cells containing two sets of chromosomes, 2n) sporophytic generation and a haploid (cells containing one set of chromosomes, n) gametophytic generation.

As moisture is essential for fertilisation to succeed, ferns tend to be found only in habitats that are at least seasonally wet. They are unable to adapt and respond to their environment with a system of branches and buds, the structure of each frond being pre-determined and only capable of becoming a better or worse example according to conditions.

The fronds grow from rhizomes, which can be compared to the stem of a flowering plant; some are horizontal and underground like bracken (*Pteridium aquilinum)*, whereas others are vertical giving rise to shuttlecock formations such as the lady fern (*Athyrium filix-femina)*.

Modern classification assigned ferns and their allies (horsetails, quillworts, spikemosses and clubmosses) to their own phylum of *Pteridophyta* within the plant kingdom, since which much further

discussion and disagreement has taken place as how best to further group these spore bearing plants. Recent studies have produced evidence proving ferns and horsetails are more closely related than previously thought and ferns are more closely related to seed bearing plants than to their other allies, resulting in them currently being referred to as monilophytes.



Circa 1860 English-made Victorian majolica pitcher with fern designs

With so much obviously still to be discovered and decided about the lineage of these ancient plants, it is unsurprising that since early historical times in Britain, ferns have been credited with special magical powers. A person who carried fern spores supposedly possessed the ability to become invisible and if the roots of a male fern (*Dryopteris filix-mas)* were first carved into the shape of a hand then baked, a charm could be made to ward off evil spirits.

The popularity of ferns really gained momentum in the 19th century as they were collected, studied, grown, dried and pressed and a fern accidentally sprouting in a bottle led to a man named Nathaniel Bagshaw Ward inventing the terrarium or Wardian case, in 1829. The Victorians became so enthusiastic about the plants they designed motifs of fronds to decorate all manner of household items and fabrics.

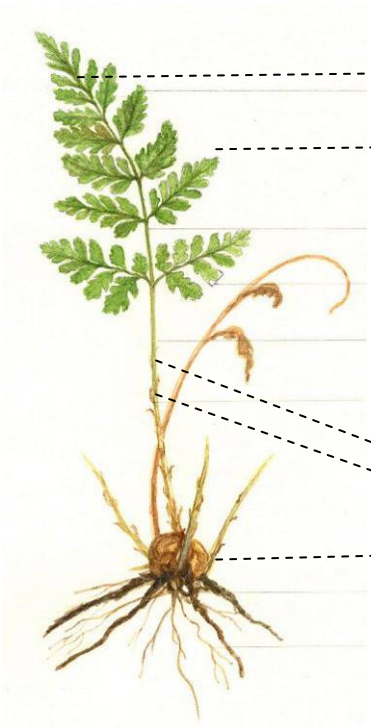
The Wardian case, a forerunner of the terrarium, helped protect Victorian fern collections from the air pollution of the era.

Before present-day scientists detected the existence of, and were able to analyse carcinogenic substances, many ferns were

considered to be edible, especially the fiddleheads of bracken. It is the consumption of these as a cooked vegetable in Japan that is believed to probably be responsible for the high incidence of stomach cancer in that country. However an oil containing filicin, extracted from the rhizomes of male ferns has been effectively used for centuries to kill and expel tapeworms from both humans and animals.

When I initially made the decision to catalogue the ferns growing in Long Wood I assumed the task would be straightforward, but very quickly began to realise that these plants do not readily conform to characteristics listed as key identification features. I can only conclude, left undisturbed in their own secluded patch, they have taken advantage of their ability to hybridise. Consequently on the Long Wood Fern pages I have featured the nine different ferns that I have been able to positively identify, but a collection of notes, photographs and pressed leaves awaits further research.

Ferns – A Simple Glossary



Frond: The leaf of a fern – stipe + blade
Rachis: The midrib of the blade of the frond

Blade: The part of the frond that has pinnae
Pinna (pl. pinnae): Primary division of a leaf
Pinnule: Pinnules are divisions of pinnae
Sporangium (pl. sporangia) Capsules containing spores on the under-side of the pinnule
Sorus (pl. sori) A cluster of sporangia
Indusium (pl. indusia) Protective membranous flap covering the sorus
Stipe: The stem of an individual frond below the blade
Scale: Small, brown, often semi-transparent appendage at least 2 cells wide
Rhizome: Creeping stem from which fronds and roots grow

Pinnate: Leaf divided once into leaflets
Bipinnate: The primary divisions of the leaf are themselves divided
Tripinnate: Frond divided three times

Long Wood Ferns

Scientific name :- ***Dryopteris affinis***

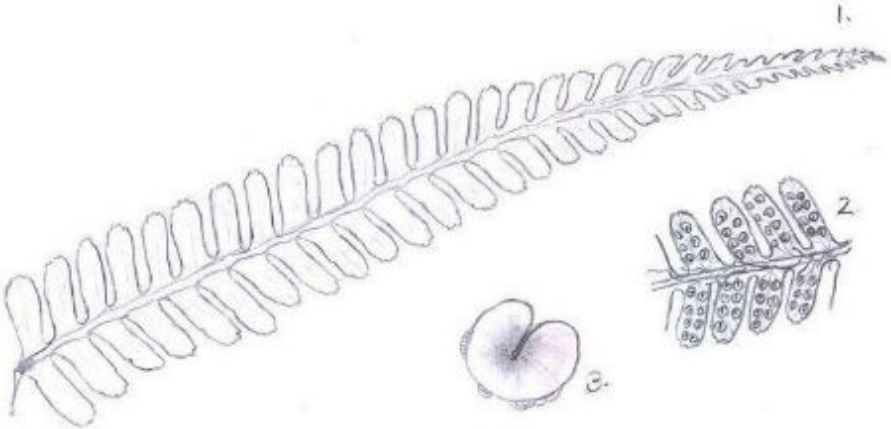
Common name :- **Scaly Male Fern**

Location :- Specimens scattered throughout Long wood. Plant photographed, drawn and measured, growing at western edge of entrance slope, about half way up.

Description :- Plant studied – Frond length 71cm. Longest pinna 13cm.

Dark green, robust, moderately stiff fronds. Stems densely covered in orange-brown scales, even half way up the rachis. Pinnules have a glossy surface, are almost rectangular in shape and only toothed at the tips. There is a dark spot at the base of the pinnae on the mid-rib, where they join the main stem. Kidney-shaped sori are covered by pale indusia, tucked under the sporangia. Some much older specimens close to the ghyll bank near the western boundary, have developed moss-covered almost tree fern like bases.

1. Life-size drawing of longest pinna.
2. Section of back of pinna showing placement of sori.
3. Enlarged detail of a sorus(width 1.2mm).



Long Wood Ferns

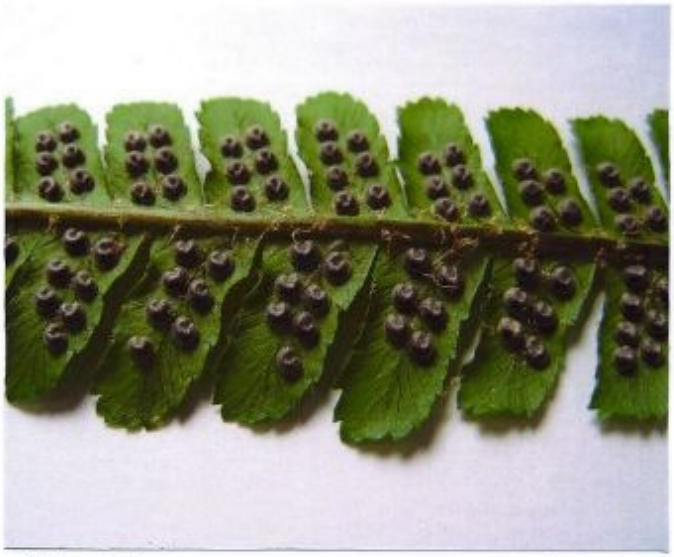
Scientific name :- ***Dryopteris borreri***

Common name :- **Borrer's Scaly Male Fern**

Location :- Just to the east of Picnic Site on rim overlooking pond area. There are many examples of this fern scattered throughout Long Wood.

Description :- Plant studied – Frond length 86 cm. Longest pinna (about half way up stem) 13.75 cm.

Robust, fairly stiff, dark green fronds, but unlike *Dryopteris affinis* the pinnules have a dull surface. They are parallel sided and slightly lobed, many with an almost square shaped tip. The pinna stalk is black-purple at its junction with the rachis. Numerous pale reddish-brown scales cover the stipe.



Mature sori

Long Wood Ferns

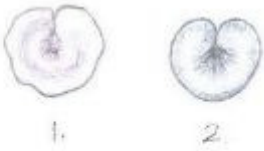
Scientific name :- ***Dryopteris felix-mas***

Common name :- **Common Male Fern**

Location :- Wolf End alongside path running parallel to ghyll stream.

Description :- Plant studied – Frond length 71cm. Longest pinna 15cm. Basal pinna 8cm.

At first it appeared there were many specimens of this fern scattered throughout Long Wood, but after extensive research and much turning over of fronds to examine sori, I discovered many to be hybrids. Very few plants exhibited the characteristic, large, circular, overlapping sori with flat indusia that shrivel as the spores mature. In all other male ferns the kidney shaped indusium is tucked under the sporangia.
Dull, mid to dark green fronds are not as robust looking as Scaly Male Fern and pinnules are toothed all the way round, not just at the tips. The middle pinnae are the broadest; almost double the length of the basal pinnae. The pinnae do not have dark spots at the base but are all green at the junction of the pinna stalk and rachis. There are some orange-brown scales at the base of the stems, but virtually none higher up.



1. Sorus of Common Male Fern with flat indusium.
2. Sorus of other male ferns with indusium tucked under sporangia.

Long Wood Ferns

Scientific name :- ***Athyrium filix-mas***

Common name :- **Lady Fern**

Location :- Lady ferns are not common in our wood. They appear to thrive only at the northern and western edges of the new 'wolf clearing'.

Description :- Plant studied – Frond length 74 cm. Longest pinna 11cm. Base pinna 4cm.
Base of stem to first pinna 14cm.

Reference books describe this fern as extremely variable. Long Wood specimens all have noticeably rhubarb-coloured pinkish-red stems with pale reddish brown, quite insignificant scales on the lower section. The delicate, graceful, feathery fronds are mid to yellowish green. They die back in winter. Pinnules are deeply toothed all the way round and have two rows of narrow comma-shaped sori on the underside.

Above: Life-size drawing of a pinna

Right: Enlarged detail of a pinnule showing placement of sori.

Long Wood Ferns

Scientific name :- ***Polystichum setiferum***

Common name :- **Soft Shield Fern**

Location :- A small group at the edge of a steep bank above the stream close to the entrance gate, others scattered sparsely throughout the wood.

Description :- Plant studied – Frond length 83 cm. Stipe length – 18 cm. Longest pinna – 10.5 cm.
A very handsome, soft, bright green fern. The long stipe is covered in large plain gingery brown scales also hairs and pale 'woolly' patches that extend up the rest of the stalk and appear to rub off easily. The pinnules of this fern are characterised by soft bristles at their tips and a prominent 'thumb' lobe at the base, which is either parallel to or slightly overlapping the pinna midrib. The pinnules all have a very short cylindrical stalk.

Above: Ripe spores starting to be shed.
Right: Close-up of pinnae showing prominent 'thumb' lobe at the base of each pinnule.

Long Wood Ferns

Scientific name :- ***Dryopteris carthusiana***

Common name :- **Narrow Buckler Fern**

Location :- Plants are scattered sparsely across the eastern section of Long Wood but none have been found in the drier western section.

Description :- Plant studied – Frond length 57 cm. Stipe length 24 cm. Longest pinna 11 cm.

The erect, pale to mid-green fronds do not grow from a crown but a semi-creeping rhizome so that they form an irregular group all pointing in different directions. The pinnae are narrower and more widely spaced than those of the Broad Buckler Fern and the proportionally longer stipe is dark reddish brown at the base. Scales are plain pale brown without any dark stripe or patch.

Close-up of the underside of pinnae showing placement of sori. The indusia are in the process of being shed.

Long Wood Ferns

Scientific name :- ***Dryopteris dilatata***

Common name :- **Broad Buckler Fern**

Location :- At the northern perimeter of the new Wolf Clearing.

Description :- Plant studied: Frond length – 64cm. Longest pinna fourth up from base – 14.4cm.
Basal pinna – 12.5cm long. Base of stalk to first pinna 21cm.

Attempting to identify the individual species of Buckler Ferns has given me many headaches as they appear to have been hybridising. This Broad Buckler Fern and the Narrow Buckler Fern on the opposite page are the only ones at present that I am able to confidently put a name to because the specimens possess features typical of the species.

Yellowish green fronds arch slightly backwards, with many convex pinnules. As is characteristic of all Buckler ferns the pinnule nearest the stem on the lower side of the basal pinna is much longer than the one on the upper side. The stems are very dark black-brown at their base and the scales on the stipe have a dark brown stripe down the centre.

The rather inexpertly pressed basal pinna and scales were sellotaped down to a sheet of paper on site to preserve them for future reference.

Top: Scales with dark central stripes.
Above: Basal pinna showing marked difference in length between lower and upper basal pinnules.

Above: Section of pinna showing placement of sori.

Long Wood Ferns

Scientific name :- ***Pteridium aquilinum***

Common name :- **Bracken**

Location :- Bracken grows in two areas in Long Wood – in the north western corner and also sparsely along the M25 between the caravan and the picnic site.

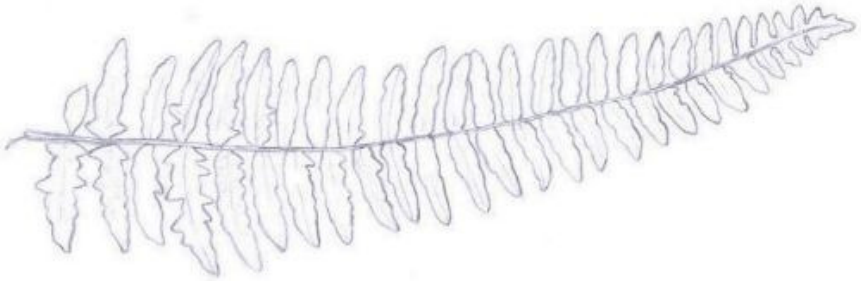
Description :- Height generally 1 – 1.5 metres

Large, branched, tripinnate fronds with a triangular outline, sent up singly from horizontally creeping rhizomes. These can spread rapidly to form dense thickets but this has only occurred in one small patch in the north western corner of the wood. Persistent bashing of the young fronds appears to have halted growth on and alongside pathways. Sori form a continuous line around the margin of the underside of the pinnules, covered by an indusium attached to the inrolled edge, but despite hunting high and low I was unable to find any spores on our bracken.

New growth mid-July, north-western corner.

Dense patches of bracken in August, north-western corner.

Tripinnate leaf shape.



Life-size drawing of a pinna.

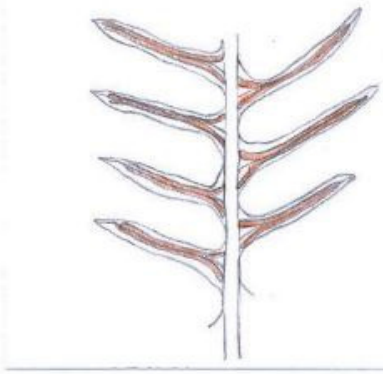
Long Wood Ferns

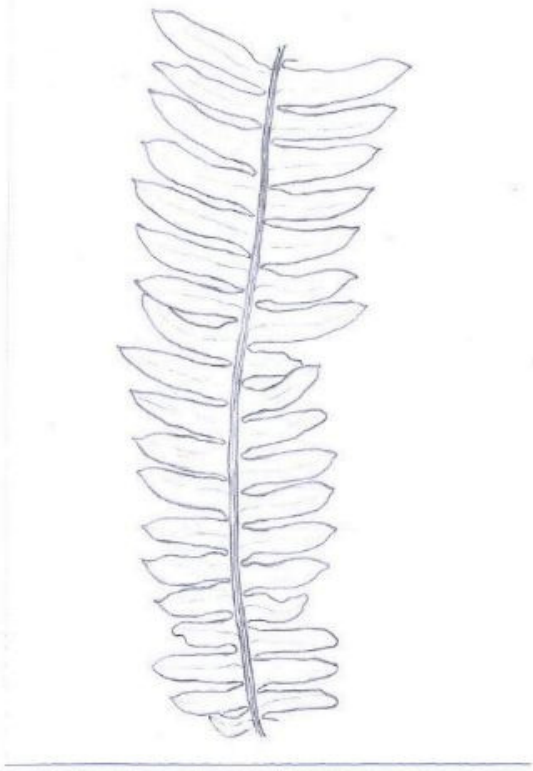
Scientific name :- ***Blechnum spicant***

Common name :- **Hard Fern**

Location :- Specimens of this fern occur scattered across the wood, mainly as single plants though very occasionally two together, usually fairly close to stream or ditch banks.

Description :- Plant studied – edge of ditch, north western corner. Sterile frond 36 cm. Fertile frond 48 cm. The deep green, glossy looking Hard Fern is slow growing and produces two different types of frond. A rosette of evergreen, sterile fronds lying flat, surrounds erect, fertile fronds in the centre. These have much narrower, more leathery pinnae with two rows of sori on the underside. The spores mature between June and August, then the fertile frond dies back.





Above: Photograph of a Hard Fern in August growing close to the ditch bank in the north-western corner.

Above right: Life-size drawing of a section of a fertile frond. The two rows of sori either side of the pinna's mid-rib have been coloured brown.

Right: Life-size drawing of a section of a sterile frond showing the broader pinnae.