

Gone: Betton Moss

Paul Bell



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Final thanks go to the various landowners who allowed my access and studies on the Moss.

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Fig. 1: Creeping willow and petty whin (far right) growing on a stump

Since the Second World War, agricultural intensification, encouraged by central government, has resulted in widespread destruction of wildlife habitats in Britain. My intention here is to convey a real sense of this loss by considering one particular site that has now irretrievably gone.

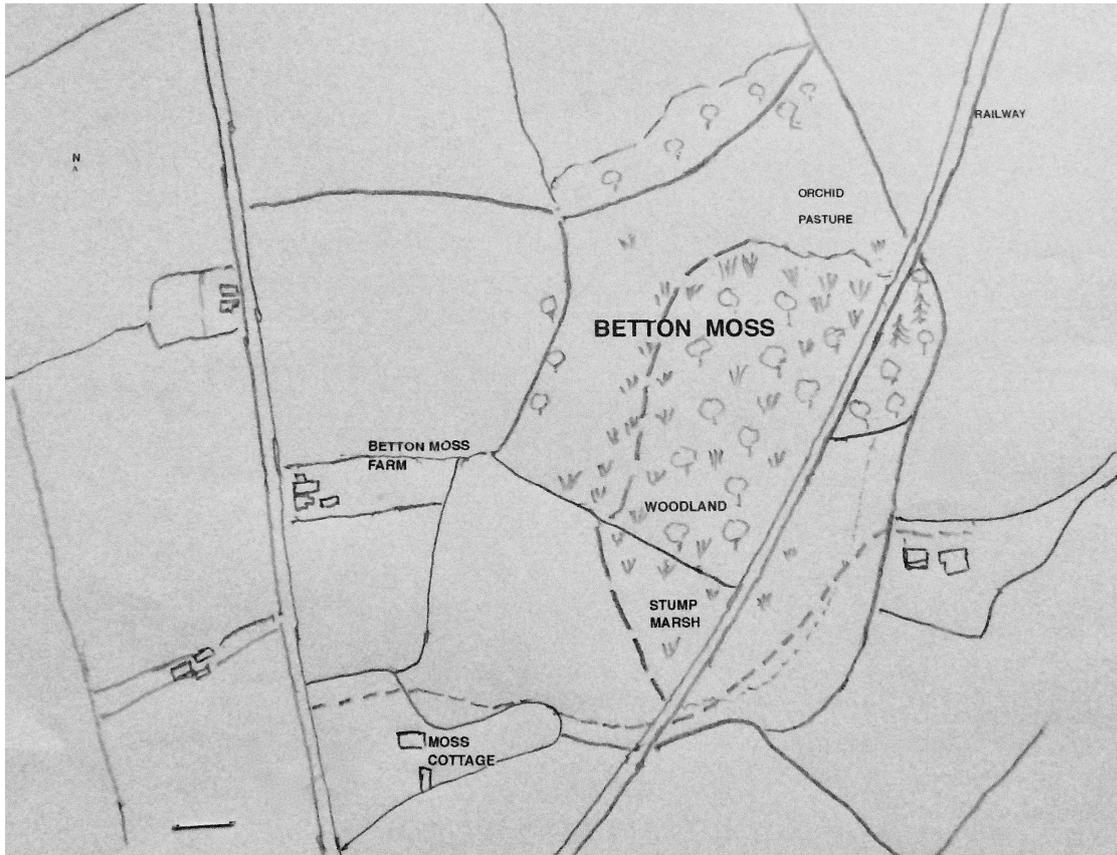


Fig. 2: Map of Betton Moss

I first found Betton Moss soon after Lord Beeching's Axe had opened up new countryside where trains once ran. It was a sunny spring day in 1969 and the railway track was open and sun baked. Many butterflies were present for in those days there was little scrub to block out the sun where the lines had recently rested. The railway embankment, I remember, was high and crossed one side of the Moss, a damp hollow of fields, wet woodland and open marsh. The Moss covered about ten hectares of which, to the right, a small wood covered about three hectares. It was not tall or mature but had birches and alders standing above a cover of smaller trees. As I climbed down from the embankment to explore its northern edge, the shaded wood seemed mysterious: primitive, unmanaged and slightly threatening. I tried to enter but was challenged by entangled branches. I forced a

way through to a less dense interior. Here the woodland floor was a mosaic of dark peaty pools, ferns and bright green mossy hummocks. The air was still. A sulphurous smell of swamp seeped from my footprints. Trees could not grow tall on this marshy ground. In parts, the woodland floated on a mat of vegetation.



Fig. 3: Swampy woodland

Both growth and decay were there as dead wood leaned on young trees. Nature had planted this wood and many saplings grew close together, racing each other sunwards to create thin gawky youths of trees that easily toppled. Grey patches of lichen covered the trunks; bracket fungi sprang out from dead trees in which woodpeckers and willow tits had excavated nest holes. I passed through glades to an open area of rushes where I bounced Bellamy-like on a floating mat of grass and rush before returning through the wood.

Approaching the old railway again, I realised that the pasture I was crossing was a patchwork of wild flowers: patterns of blue and yellow, white, pink and purple amongst the greens of various grasses. This was a distinctive and special place. I walked back with mosquito bites and hay fever but elated with the day's discovery.

In 1973 we bought our new home, already named after the adjacent Betton Moss.

I returned many times to study and enjoy the unique Moss. I was there after the winter snows had melted, flooding the area into a temporary lake that attracted scores of wildfowl and gulls and where coot and moorhen shouted their staccato calls. In the open marsh, snipe gathered in winter, flying out to feed as dusk descended. They were joined by a few of their migrant relatives, jack snipe. Some snipe stayed to breed and their chipper-chipper calls and drumming flight was part of the spring scene. So were the strange squawks and squeals of water rails.

On spring evenings an odd mechanical croaking announced the long-billed silhouette of a roding woodcock. Often a pale barn owl would silently flap and glide on broad wings to hunt voles and shrews over open rushland. Common frogs were plentiful and spawned at two extensive sites, food for the grass snakes that thrived in the open swamp.

On one memorable spring walk I counted fourteen grass snakes basking on the Moss and adjacent old railway. By May the place was made less hospitable as gnats and mosquitos swarmed from the swamp.



Fig. 4: Small pearl-bordered fritillary basking on a soft rush

This was an exciting time for me as a naturalist. On each visit it seemed that I had the potential to find something new. On the southern part, to the west of the old railway, was a most interesting, open area that I shall call the Stump Marsh. Many years before, a woodland, of oak I think, had been felled here leaving stumps that had subsequently vegetated over, developing a fascinating flora. During winter flooding, the tops of these stumps remained above the water level.



Fig. 5: Small pearl-bordered fritillary on ragged robin



Fig. 6: Marsh violet

The botany was wonderful. Some plants were Shropshire rarities: creeping willow and petty whin, heath dog violet and, on the adjacent Moss, golden dock and elongated sedge.

Amongst the variety of wild flowers were dyer's greenweed, adder's tongue fern, marsh violet and marsh valerian. I found that more than a thousand common spotted orchids graced the old pastures. Over the years, I counted twenty-five species of butterflies including the small pearl-bordered fritillary that fed from the flowers of the open Stump Marsh; its caterpillars ate the round leaves of the marsh violets growing there and in the adjacent woodland. Dingy skipper caterpillars fed on the trefoils on the old railway embankment and marsh.



Fig. 7: Glow-worm larva

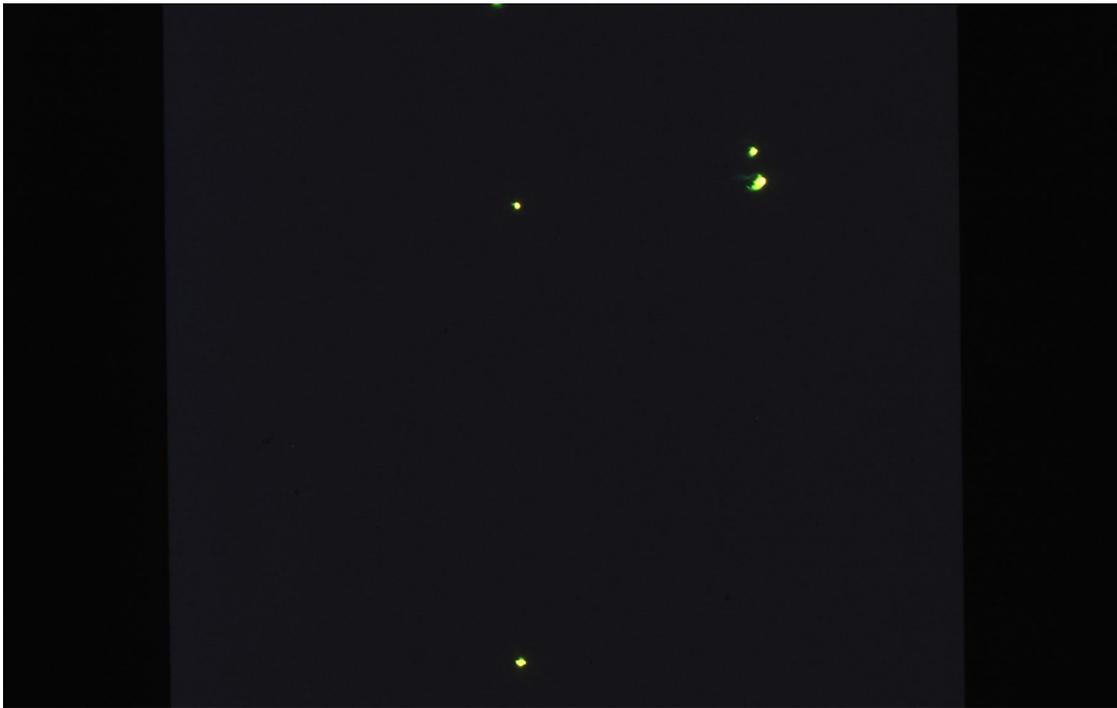


Fig. 8: Female glow-worms on Stump Marsh in early July

On warm July evenings glow-worms shone invitingly for their mates amidst a shower of small moths dancing over the old heathy grassland to the south. This was a surprise find.

I had associated glow-worms with dry, often calcareous grassland. Here it was marshy and more acidic and flooded in the winter; only the ancient tree stumps were above the flood water. I did not see glow-worms on the limestone railway embankment that might have seemed a more suitable habitat. They were confined to the centre of the Stump Marsh where I counted twenty-five glowing females on one night. The railway embankment had adder's tongue fern, twayblade orchids, dyers' greenweed and a single common buckthorn shrub that had possibly arrived there with the limestone chippings.

The Stump Marsh was sunny and a natural garden with a succession of flowers from spring to autumn. Each square metre had a variety of plant species that in turn supported a wealth of animal life. A summer walk disturbed many micro-moths, flies and numerous grasshoppers. This was biodiversity.



Fig. 9: Mute swans fly from the flooded Moss by the Stump Marsh with the railway beyond



Fig. 10: The Moss in full flood

The farm then changed ownership. It was that period in the early eighties when land prices boomed; so did habitat destruction. The Moss was to be ‘improved’ and changed to twenty-five acres of agricultured grass. There were pleas from conservationists but the owner was not persuaded. For just one week the threat was headline news in the local newspaper. The inevitable happened. What had long been safe as marginal land with a richness of wildlife could now become, with the aid of modern drainage technology, milk fodder.

Heavy machinery cut a deep trench through the border of the post-glacial depression that had given us the Moss, connecting the basin to a stream a quarter of a mile away. The water began to drain away. An excavator thrashed down the woodland in a couple of days. On a May evening, it was set on fire.



Fig. 11: Stump Marsh in winter flood



Fig. 12: The woodland burns on a May evening



Fig. 13: The pipe that drained Betton Moss

Today I lean on a fence overlooking the sterile expanse of rye grass and watch a pair of carrion crows walking on the grave of a thousand orchids and a million other creatures. There my grandchildren cannot see the fritillary butterflies as they glide to ragged robin flowers nor thrill to the sight of those orchids. There too the sound of the snipe has been silenced for ever. In a climate of over-production and set-aside, this destruction had removed a wildlife site that, arguably, was the best near Market Drayton.



Fig. 14: Petty whin, marsh marigold and marsh valerian on Stump Marsh



Fig. 15: Heath dog violet on stump

The demise of Betton Moss, a survivor from the last ice age eleven thousand years ago, is a sad event: a natural heritage now denied to future generations.

When I started to record for the new *Ecological Flora of the Shropshire Region*, published in 1985, Betton Moss was little known. It was not a Site of Special Scientific Interest (SSSI) nor recognised as a particularly important site. Perched on the far east of the county, close to the Staffordshire border, it did not seem to be well known. For example, Betton Moss was not listed in Charles Sinker's *The North Shropshire Meres and Mosses*, an extract from *Field Studies - Vol. 1, No. 4* (1962).

A 'grid square' card was used in recording for the Flora to pinpoint the location of rare plants. These 'C' cards showed that Betton Moss was significant: a notable wildlife site.

Five of the species I recorded there were scarce 'C' species: creeping willow, petty whin, heath dog violet, golden dock and elongated sedge. There was also a long list of other wetland plants that flowered from spring through to autumn. The fauna was interesting too: butterflies, glow-worms and grass snakes with many other creatures living in this scarce habitat.

The Moss was not in pristine condition. In the 1860s the railway linking Market Drayton to Newcastle-under-Lyme had cut through the eastern part as an embankment, splitting the Moss in two.

However, over a century, the Moss had recovered. The pastures had been traditionally managed, with summer grazing and application of farmyard manure where access was possible, with no sign of herbicide use. This allowed species-rich pastures to survive.

Maybe the tree remains on the Stump Marsh to the west were from felling at the time of the railway construction. The railway works also added drains that took flood water northwards, via the Duckow Brook and River Weaver, into the Mersey.

Molehills show the subsoil, with a line of sand indicating the margins of the original post-glacial pool on the eastern side of the railway embankment. They change from peat to sand to loam as one walks eastwards and slightly upwards, along a public footpath.

Local naturalists became aware of the Moss through the Market Drayton Branch of the Shropshire Trust for Nature Conservation, soon to be re-

named Shropshire Wildlife Trust, and through the government agency, the Nature Conservancy Council.

This was a time before the Countryside Stewardship Scheme (introduced in 1991) provided grants to benefit ecologically sensitive sites. In fact government was only just stirring in its concern for habitat loss. It took a national effort by the Royal Society for Nature Conservation, (RSNC), the County Trusts and others to waken up government to the ravages of widespread habitat losses.

When RSNC produced its national publication *Losing Ground*, the Shropshire Wildlife Trust produced its own outstanding publication *Losing Ground in Shropshire* in 1989.

Certainly, following these alerts, government woke up to the problem and the care of the environment was incorporated into farm grant schemes.

But this was too late for Betton Moss. It had already become one of those lost habitats, for it was drained c.1980. The Stump Marsh lasted longer but it too has now been demoted to grassland.

All that we have is the name on a map.

The Meres and Mosses project is an organisation of local interests established to protect and promote the Meres and Mosses of Shropshire and Cheshire. This mosaic of wetlands is important for some of the rarest wildlife in the UK. The project is based at Shropshire Wildlife Trust, Abbey Foregate, Shrewsbury. <http://www.themeressandmosses.co.uk>



Fig. 16: Original Moss



Fig. 17: Unidentified orchid

Betton Moss species lists

(based on records from 1969 - 1985)

FLORA

* not very common

** rare in Shropshire

Field horsetail ~ *Equisetum arvense*
Adder's tongue fern* ~ *Ophioglossum vulgatum*
Hart's tongue ~ *Phyllitis scolopendrium*
Male fern ~ *Dryopteris felix-mas*
Broad buckler fern ~ *Dryopteris dilatata*
Narrow buckler fern* ~ *Dryopteris carthusiana*
Hard fern ~ *Blechnum spicant*
Marsh marigold ~ *Caltha palustris*
Meadow buttercup ~ *Ranunculus acris*
Creeping buttercup ~ *Ranunculus repens*
Lesser celandine ~ *Ranunculus ficaria*
Lesser spearwort ~ *Ranunculus flammula*
Ivy-leaved crowfoot ~ *Ranunculus hederaceus*
Lady's-smock ~ *Cardamine pratensis*
Garlic mustard ~ *Alliaria petiolata*
Common dog-violet ~ *Viola riviniana*
Marsh violet* ~ *Viola palustris*
Heath dog-violet** ~ *Viola canina*
Perforate St John's Wort ~ *Hypericum perforatum*
Red campion ~ *Silene dioica*
Ragged robin ~ *Lychnis flos-cuculi*
Common chickweed ~ *Stellaria media*
Bog stitchwort ~ *Stellaria alsine*
Herb-Robert ~ *Geranium robertianum*
Dove's foot cranesbill ~ *Geranium molle*
Buckthorn* ~ *Rhamnus catharticus*
Dyers greenweed* ~ *Genista tinctoria*
Needle whin** ~ *Genista anglica*
Gorse ~ *Ulex europaeus*
Western gorse ~ *Ulex gallii*
Broom ~ *Cytisus scoparius*
White clover ~ *Trifolium repens*
Common bird's-foot-trefoil ~ *Lotus corniculatus*
Large bird's-foot-trfoil ~ *Lotus uliginosus*
Tufted vetch ~ *Vicia cracca*
Meadow vetchling ~ *Lathyrus pratensis*
Meadowsweet ~ *Filipendula ulmaria*
Raspberry ~ *Rubus idaeus*
Bramble agg. ~ *Rubus fruticosus*

Marsh cinquefoil* ~ *Potentilla palustris*
Silverweed ~ *Potentilla anserina*
Tormentil ~ *Potentilla erecta*
Water avens ~ *Geum rivale*
Dog rose ~ *Rosa canina*
Field rose ~ *Rosa arvensis*
Blackthorn ~ *Prunus spinosa*
Wild cherry ~ *Prunus avium*
Hawthorn ~ *Crataegus monogyna*
Rowan ~ *Sorbus aucuparia*
Black currant ~ *Ribes nigrum*
Marsh willowherb ~ *Epilobium palustre*
Common water-starwort ~ *Callitriche stagnalis*
Marsh pennywort ~ *Hydrocotyle vulgaris*
Cow parsley ~ *Anthriscus sylvestris*
Fool's water-cress ~ *Apium nodiflorum*
Wild angelica ~ *Angelica sylvestris*
Hogweed ~ *Heracleum sphondylium*
Amphibious bistort ~ *Polygonum amphibium*
Broad-leaved dock ~ *Rumex obtusifolius*
Golden dock** ~ *Rumex maritimus*
Common sorrel ~ *Rumex acetosa*
Common nettle ~ *Urtica dioica*
Wych elm ~ *Ulmus glabra*
Silver birch ~ *Betula pendula*
Downy birch ~ *Betula pubescens*
Alder ~ *Alnus glutinosa*
Hazel ~ *Corylus avellana*
Pedunculate oak ~ *Quercus robur*
Aspen ~ *Populus tremula*
Crack willow ~ *Salix fragilis*
Goat willow ~ *Salix caprea*
Grey willow ~ *Salix cinerea*
Creeping willow** ~ *Salix repens*
Heather ~ *Calluna vulgaris*
Cross-leaved heather ~ *Erica tetralix*
Primrose ~ *Primula vulgaris*
Scarlet pimpernel ~ *Anagallis arvensis*
Ash ~ *Fraxinus excelsior*
Common centaury ~ *Centaureum erythraea*
Bogbean ~ *Menyanthes trifoliata*
Water forget-me-not ~ *Myosotis scorpioides*
Bittersweet ~ *Solanum dulcamara*
Common figwort ~ *Scrophularia nodosa*
Foxglove ~ *Digitalis purpurea*
Brooklime ~ *Veronica anagallis-aquatica*
Germander speedwell ~ *Veronica chamaedrys*
Water mint ~ *Mentha aquatica*

Gipsywort ~ *Lycopus europaeus*
Selfheal ~ *Prunella vulgaris*
Marsh woundwort ~ *Stachys palustris*
Hedge woundwort ~ *Stachys sylvatica*
White dead-nettle ~ *Lamium album*
Ground-ivy ~ *Glechoma hederacea*
Bugle ~ *Ajuga reptans*
Greater plantain ~ *Plantago major*
Ribwort plantain ~ *Plantago lanceolata*
Marsh bedstraw ~ *Galium palustre*
Cleavers ~ *Galium aparine*
Elder ~ *Sambucus nigra*
Guelder rose ~ *Viburnum opulis*
Honeysuckle ~ *Lonicera periclymenum*
Common valerian ~ *Valerianella officinalis*
Marsh valerian* ~ *Valeriana dioica*
Devil's-bit scabious ~ *Succisa pratensis*
Common ragwort ~ *Senecio jacobaea*
Marsh ragwort ~ *Senecio aquaticus*
Common fleabane ~ *Pulicaria dysenterica*
Yarrow ~ *Achillea millefolium*
Spear thistle ~ *Cirsium vulgare*
Marsh thistle ~ *Cirsium palustre*
Creeping thistle ~ *Cirsium arvense*
Common knapweed ~ *Centaurea nigra*
Cat's-ear ~ *Hypochoeris glabra*
Goat's-beard ~ *Tragopogon pratensis*
Dandelion ~ *Taraxacum agg.*
Water-plantain ~ *Alisma plantago-aquatica*
Marsh arrowgrass* ~ *Triglochin palustris*
Broad-leaved pondweed ~ *Potamogeton natans*
Hard rush ~ *Juncus inflexus*
Soft rush ~ *Juncus effusus*
Sharp-flowered rush ~ *Juncus acutiflorus*
Jointed rush ~ *Juncus articulatus*
Yellow flag ~ *Iris pseudacorus*
Common twayblade* ~ *Listera ovata*
Common spotted orchid ~ *Dactylorhiza fuchsii*
Southern marsh orchid ~ *Dactylorhiza praetermissa* †
X ?hybrid x Southern marsh orchid
Ivy-leaved duckweed ~ *Lemna trisulca*
Common duckweed ~ *Lemna minor*
Branched bur-reed ~ *Sparganium erectum*
Bulrush ~ *Typha latifolia*
Common cottongrass ~ *Eriophorum angustifolium*
Wood club-rush* ~ *Scirpus sylvaticus*
Cyperus sedge ~ *Carex pseudocyperus*
Greater pond sedge ~ *Carex riparia*

Lesser pond sedge ~ *Carex acutiformis*
Carnation sedge ~ *Carex panicea*
Hairy sedge ~ *Carex hirta*
Elongated sedge** ~ *Carex elongata*

† recorded in 1985

BUTTERFLIES

Comma ~ *Polygonia c-album*
Small tortoiseshell ~ *Aglais urticae*
Peacock ~ *Inachis io*
Red admiral ~ *Vanessa atalanta*
Painted lady ~ *Vanessa cardui*
Small white ~ *Pieris rapae*
Green-veined white ~ *Pieris napi*
Large white ~ *Pieris brassicae*
Orange tip ~ *Anthocharis cardamines*
Brimstone ~ *Gonepteryx rhamni*
Clouded yellow ~ *Colias croceus*
Small pearl-bordered fritillary ~ *Boloria selene*
Silver-washed fritillary ~ *Argynnis paphia*
Common blue ~ *Polyommatus icarus*
Small copper ~ *Lycaena phlaeas*
White-letter hairstreak ~ *Strymonidia w-album*
Large skipper ~ *Ochlodes venata*
Small skipper ~ *Thymelicus sylvestris*
Dingy skipper ~ *Erynnis tages*
Wall ~ *Lasiommata megera*
Speckled wood ~ *Pararge aegeria*
Gatekeeper ~ *Pyronia tithonus*
Meadow brown ~ *Maniola jurtina*
Small heath ~ *Coenonympha pamphilus*
Ringlet ~ *Aphantopus hyperantus*

BEETLES

Glow worm ~ *Lampyris noctiluca*

AMPHIBIANS

Smooth newt ~ *Lissotriton vulgaris*
Crested newt ~ *Triturus cristatus*
Common frog ~ *Rana temporaria*
Common toad ~ *Bufo bufo*

REPTILES

Grass snake ~ *Natrix natrix*

MAMMALS

Long eared bat ~ *Plecotus auritus*
Pipistrelle bat ~ *Pipistrellus pipistrellus*
Noctule bat ~ *Nyctalus noctula*
Common shrew ~ *Sorex araneus*
Pygmy shrew ~ *Sorex minutus*
Water shrew ~ *Neomys fodiens*
Hedgehog ~ *Erinaceus europaeus*
Fox ~ *Vulpes vulpes*
Badger ~ *Meles meles*
Stoat ~ *Mustela erminea*
Weasel ~ *Mustela nivalis*
Rabbit ~ *Oryctolagus cuniculus*
Hare ~ *Lepus europaeus*
Brown rat ~ *Rattus norvegicus*
Wood mouse ~ *Apodemus sylvaticus*
Yellow-necked mouse ~ *Apodemus flavicollis*
House mouse ~ *Mus domesticus*
Bank vole ~ *Myodes glareolus*
Short tailed vole ~ *Microtus agrestis*
Water vole ~ *Arvicola amphibius*

BIRDS

B = Breeding *B?* = Present in breeding season

Little grebe B
Mallard B
Teal B?
Shoveler
Tufted duck
Red-breasted merganser Δ
Canada goose B
Greylag goose B
Mute swan
Grey heron
Sparrowhawk B?
Kestrel B
Grey partridge B
Quail B?
Red-legged partridge B?

Golden pheasant
Lady Amherst's pheasant
Pheasant B
Water rail B?
Moorhen B
Coot B
Lapwing B
Snipe B
Jack snipe
Woodcock B?
Curlew B?
Herring gull
Black-headed gull
Stock dove B
Collared dove B?
Turtle dove B
Wood pigeon B
Cuckoo B
Barn owl
Little owl B?
Tawny owl B
Swift
Kingfisher
Great spotted woodpecker B
Lesser spotted woodpecker B?
Skylark B
Swallow
House martin
Sand martin
Carrion crow B
Raven
Rook
Jackdaw B?
Jay B
Magpie B
Great tit B
Blue tit B
Coal tit B?
Marsh tit B
Willow tit B
Long-tailed tit B
Tree-creeper B
Wren B
Mistle thrush B
Fieldfare
Redwing
Song thrush B
Blackbird B

Wheatear
Whinchat B?
Redstart B?
Robin B
Grasshopper warbler B?
Sedge warbler B
Blackcap B
Garden warbler B
Whitethroat B
Lesser whitethroat B
Willow warbler B
Chiffchaff B?
Goldcrest B?
Dunnock B
Meadow pipit
Tree pipit B?
Pied wagtail B
Yellow wagtail
Starling B
Greenfinch B
Siskin
Linnet B
Redpoll B?
Bullfinch B
Chaffinch B
Brambling
Yellowhammer B
Reed bunting B
House sparrow B
Tree sparrow B
△Found dead, trapped in hawthorn hedge

Number of bird species - 88

Species breeding - 49

Possibly breeding - 17

All photographs are scanned from 35mm slides taken on Betton Moss



Fig. 18: Twayblade orchids



Fig. 19: Petty Whin



Fig. 20: Common spotted orchid

