

Small but Beautiful - Fungi and Bryophytes at Flitwick

Introduction

Tucked away, off the beaten track, Flitwick Moor is not the first place that many people would think to visit for a wildlife spectacle. However, this site is incredibly important for a wide variety of species and is nationally, if not internationally important for its fungi, invertebrates and bryophytes. Carpets of Sphagnum mosses flourish in the acidic mire, whilst mosses and liverworts coat the trees and woodland floor alongside a wealth of fungi. All of these support important invertebrate populations.

Flitwick is home to a wide variety of special habitats including this bottle-sedge mire.
Photo © Gwen Hitchcock

Flitwick Moor

Flitwick Moor, located in Bedfordshire, is a remnant of a nutrient-rich valley mire and is a very special place to many naturalists. This type of habitat is vanishingly uncommon, especially in South East England. This 31-hectare site is designated as a Site of Special Scientific Interest, due to the wealth of important species and habitats that it contains. This includes acid mire, fen, open water, acidic and neutral grasslands, alder carr and oak/ birch woodland. This makes it a really unique site and one of the most important sites in South East England for fungi, bryophytes and a range of invertebrate groups. Due to the site's location, many local people walk through the site, but not everyone stops here to appreciate the wealth of habitats and the hidden wildlife around them.



Flitwick's bryophytes

Flitwick Moor is incredibly important for its bryophytes, the group that contains mosses, liverworts and hornworts. This often-overlooked group of plants is incredibly important. They are significant primary colonists in pioneer communities, allowing other species such as vascular plants to colonise. They can thrive in the harshest environments where other groups cannot, such as seemingly dry bare rock surfaces and areas of high acidity with waterlogging, as we see at Flitwick Moor. There are also large numbers of microfungi and invertebrates that are completely reliant on bryophytes for them to survive. Bryophytes are also incredibly beautiful and fascinating in their own right.

The site was first recognised as being particularly important for bryophytes in the 1880s when James Saunders collected samples there. By the 1950s, the number of species recorded on the site had significantly increased through the work of Tom

Laflin and Peter Taylor. Alan Outen started recording bryophytes on the site in the 1970s and has kept a checklist of species on the site ever since. To date, over 140 species of bryophyte have been recorded on the site and it is often said to be the best site in South East England for bryophytes (A. Outen, 2020, pers. comm.). Many of these species are found very rarely in the three counties and a significant number are rare in the southeast.

Flitwick Moor has a variety of microhabitats on the site, many of which are transient, and only suitable for the bryophytes for a short period before they become colonised by other species. This is the reason why Flitwick is home to such a variety of bryophytes. For example, areas of bare peat allow certain bryophytes to colonise, which in turn provides a niche for other species (e.g. flowering plants) to establish. Our management must ensure that new areas of bare peat are created and that scrub does not encroach on the boggy mire.



Sphagnum palustre. This beautiful moss carpets some areas of the open birch woodland at Flitwick. As it grows, the moss decomposes from the bottom, laying down peat and creating habitats for a vast variety of species. Photo © Brian Eversham

For many bryologists, the boggy mire is the real star of the show at Flitwick. Located away from the footpath, it is an area that members of the general public probably don't realise exists. This area is comprised of sphagnum mosses, which break down over time to lay down peat.

Over ten species of *Sphagnum* mosses have been recorded on the site, most of which are found nowhere else in Bedfordshire. Some *Sphagnum* species are found in other areas of the county but never in the quantities that are present at Flitwick. Flitwick is the only site in South East England for Girgensohn's Bog-moss *Sphagnum girgensohnii* which is present in small areas at the edge of the mire, under the shade of trees.

Another fascinating species present on the site is Ghostwort *Cryptothallus mirabilis*. This liverwort species is a parasite on birch roots and lives deep below the sphagnum tussocks. It is often thought that its fruiting bodies look like ghostly hands reaching up from below.



Sphagnum girgensohnii.
Flitwick Moor is the only place in South-East England where this species is found.
Photo © Brian Eversham



Ghostwort *Cryptothallus mirabilis* is a strange species. It is parasitic on birch roots and is hardly seen as it lives below the *Sphagnum* tussocks.
Photo © Brian Eversham

A selection of just some of the species of mosses and liverworts which Flitwick is especially important for. The rare species on the site have very particular habitat requirements

Group	Species	Comments
Liverwort	<i>Cephaloziella rubella</i>	Found on peaty ground. 2 Bedfordshire sites and uncommon in the UK
Liverwort	<i>Chiloscyphus pallescens</i>	4 Bedfordshire sites
Liverwort	<i>Cololejeunea minutissima</i>	This species is rare in South East England
Liverwort	<i>Cryptothallus mirabilis</i>	Only Bedfordshire site for this strange and mysterious liverwort
Liverwort	<i>Gymnocolea inflata</i>	Found at Flitwick on water-soaked bare peat. Only Bedfordshire site
Liverwort	<i>Ptilidium ciliare</i>	At Flitwick, this species is found on upturned wet tree roots. It is only found on two sites in Bedfordshire and is rare in South East England
Liverwort	<i>Riccia fluitans</i>	In pools from former peat diggings. Only three Bedfordshire sites
Moss	<i>Calliergon stramineum</i>	Flitwick is the only Bedfordshire site for this species which is rare in South East England
Moss	<i>Climacium dendroides</i>	An increasing scarce species in South East England
Moss	<i>Dicranella cerviculata</i>	Only one other Bedfordshire site for this species which is rare in South East England
Moss	<i>Dicranum polysetum</i>	Only one other Bedfordshire site for this species which is scarce in Britain
Moss	<i>Eurhynchium speciosum</i>	Flitwick is the only Bedfordshire site for this species which is uncommon in Britain
Moss	<i>Philonotis fontana</i>	Only one other Bedfordshire site for this species which is scarce in South East England
Moss	<i>Sphagnum girgensohnii</i>	Only Bedfordshire site and the only site in South East England. Flitwick holds over 10 species of Sphagnum, all of which are uncommon in Bedfordshire

Wildlife Trust BCN

We manage a wide variety of nature reserves which are special for bryophytes. Some of our woodlands are rich in bryophytes, such as Brampton Wood in Cambridgeshire and High Wood in Northamptonshire. At these sites, the trees and woodland floor are coated in a vast array of different bryophyte species.

Bare chalk is another important microhabitat for bryophytes in our area, supporting specialist species. Our Cherry Hinton Chalk Pits reserve in Cambridgeshire has large expanses of bare chalk on the ground and cliff faces. Alongside the boulders left in the quarry, these provide perfect habitats for a wide variety of uncommon bryophytes such as *Seligeria calycina* and *Seligeria calcarea*. In total, the site supports around 90 bryophyte species.

During 2010 we carried out clearance work at Cherry Hinton, removing large patches of buddleia scrub. This has allowed calcicolous species (specialists of base-rich microhabitats) to flourish. This includes species such as the golden feather-moss *Campyliadelphus chrysophyllus*, and top notchwort *Leiocolea turbinata* which have become more abundant onsite now they are no longer shaded by scrub and rank grassland. This site has been visited by botanists since the 17th century for both its bryophytes and vascular plants, and the scrapes in the eastern pit have benefited the calcicole species dramatically.



Growing up to 2mm tall, the English Rock-bristle moss *Seligeria calycina* is tiny. This species is a specialist of bare chalk. Areas of bare chalk must be maintained to retain the bryophyte interest of the Cherry Hinton Chalk Pits reserve. Photo © Brian Eversham



The fungus *Laccaria purpureobadia*, a type of deceiver fungus, was described new to science in 1966 from Flitwick Moor. This species is still found regularly there today. Photo © Lukas Large

Flitwick's fungi

Flitwick Moor is home to a wealth of fungi with over 500 species recorded on the site. It was described by eminent British mycologist Peter Orton as “potentially the most important site for fungi in the South-East” (Evans, Marren and Harper, 2004). Fungi are essential for a variety of reasons but are often overlooked due to the complexity of their identification. Fungi are vitally important agents of organic decay, breaking down organic matter. They also form complex relationships with higher plants such as orchids. These associations are of enormous benefit to the higher plant as well as to the fungus. Fungi are also important sources of food, medication and antibiotics.

Flitwick Moor is recognised by the 2004 Important Fungus Areas report as being at least of national importance for several reasons (Evans, Marren and Harper, 2004). Firstly, the site holds over 500 species of fungi, a testament to the wide variety of habitats found on the site. Secondly, the site holds outstanding examples of some of these habitats which have known mycological importance. These include alder and willow carr, oak and birch woodland, pasture, and acid bog. The alder and willow carr are particularly important, with many scarce alder-associated species present on the site. Lastly, the site is recognised as an important fungus area due to the array of rare species that it supports. These include a brittlegill fungus *Russula raoultii* and a roundhead fungus *Naucoria scolecina*, which are all red-listed species. It is also the type location for a deceiver fungus *Laccaria purpureobadia* which is regularly found on the site (A. Outen, 2020, pers. comm.).

Some of the best Wildlife Trust nature reserves for fungi in our area:

Brampton Wood, Flitwick Moor, Gamlingay Wood, Hayley Wood, Kings Wood Heath and Reach, Old Sulehay, Sewell Cutting, Shepherds Close, Totternhoe Knolls, Woodwalton Fen



Explore more at
wildlifebcn.org/reserves

Management of Flitwick nature reserve

It takes a lot of effort to keep Flitwick in good condition, and there must be a perfect balance between the special habitats found on the site. The open areas of the site are annually cut and grazed (where appropriate), with the vegetation stacked on the site. This cutting of the vegetation replicates natural processes and allows the mire vegetation to thrive. To ensure that the scrub and woodland doesn't encroach on these open areas, cutting and pollarding occurs. Within the wet woodland, away from the footpaths, we have a minimum intervention approach allowing trees to grow and decay without management. This is important for the fungi, bryophytes and invertebrates to thrive at the site. This careful balance of sensitive management of some areas and minimum intervention in others is what makes Flitwick so special.



Summary

Flitwick Moor is an internationally important site for a wide variety of species; many of these are easily overlooked but are of vital importance. By working alongside local experts, we ensure that the needs of these species are taken into account in the management of our reserves and we can protect these special areas for future generations.

Acknowledgements

Our thanks go to Alan Outen who provided invaluable information for this case study and to Chris Preston for information about other bryophyte rich habitats in our area.

References

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