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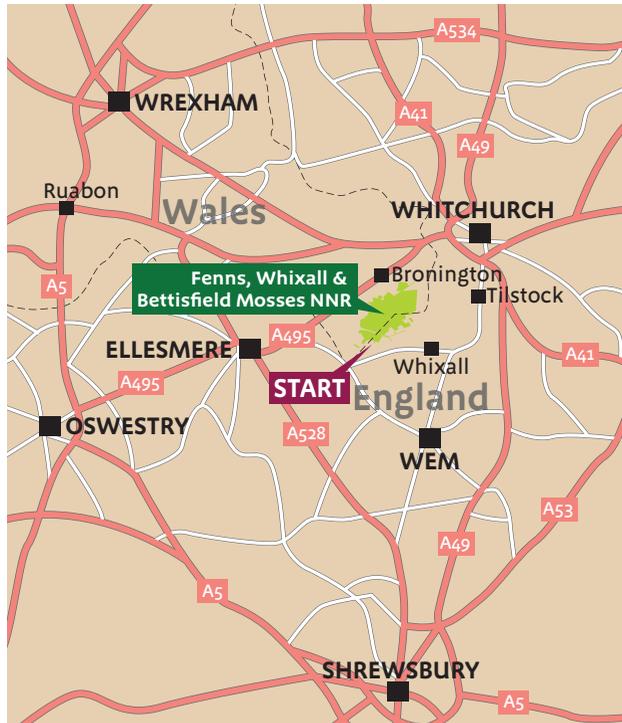
Bettisfield Moss Trail



The Bettisfield Moss Trail

To explore Bettisfield Moss follow the brown tourism signs from the Ellesmere to Whitchurch (A495), the Whitchurch to Wem (B5476) or Wem to Welshampton roads (B5063), to the World's End car park (SJ 48033482, SY13 2QE), situated at the end of the second road on the right, coming west from Dobson's Bridge, Whixall. The trail can also be accessed from Moss Lane off Cadney Lane, Bettisfield, and from the east along the Shropshire Way loop no 23.

The trail is 2 km (1½ miles) long and takes about hour to walk. The route is marked by a series of arrowed posts, and is level and easy to walk, but often wet so wear wellingtons or stout footwear.



Bettisfield Moss covered by forest in 1994

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The Bettisfield Moss Trail

Bettisfield Moss, straddling the English/ Welsh Border, at 60 ha (149 acres), is part of the 948 ha Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses Site of Special Scientific Interest, Britain's 3rd largest raised bog. It has the oldest deepest peats and largest uncut area on Fenn's, Whixall & Bettisfield Mosses National Nature Reserve (NNR), but by 2000 was covered by dense smothering pine forest. Raised bogs are internationally rare, so in 2001 the forest was cleared and the drains, which had been cut into the Moss to allow farming and peat cutting, were dammed. Now the irreplaceable record of the past stored in the peat has been preserved, rare boggy bio-diversity is thriving once more and the vast store of peat carbon has been re-pickled to safeguard against future climate change.

A brief history of the Moss

Melting glaciers blocked the sandy depression between the two Whixall and Bronington moraines which flank the NNR, and a large melt-water lake formed. From ca 9,000 years ago, plants filled this wetland in, to the point where Sphagnum bog moss could invade.

This acidified the groundwater and rain water, stopping the decay of plant remains, which then built up to form a large dome of peat, a lowland raised bog.

The bog collapsed when drains were installed during the building of the canal in 1807, and to mark out the English/ Welsh border and the different land allocations of the 1823 Whixall Enclosure Award. Outer areas were then converted into farmland. The westernmost Welsh end and both halves of the English Moss were hand-cut commercially for peat, but the bulk of the Welsh side remained uncut.

The Lords of the Manor, the Welsh Hanmer family and the English Wardle family owned the Moss, but in 1956 and 1960, L S Beckett Ltd, the company cutting peat on Fenn's & Whixall Mosses, bought the western English half and the Welsh side of Moss. In 1990

Bogmoss and cranberry



Hand peat cutting tools

Natural England and Natural Resources Wales acquired this land to restore it back to bog.

The Darlington family bought the eastern English half of the Moss in the late 1800s and rented it out for peat cutting to Humus Products Ltd. Mr Wilcox acquired it in 1978 and Natural England in 1998.

In the 1960's L S Beckett Ltd started to cut the west of the Welsh Moss as local residents had kept it clear by burning and domestic peat cutting, whereas the English side had become overgrown. However transporting the peat to their Whixall base was inconvenient, so cutting soon stopped.

Local families gathered bog-moss here for holly wreath making and L S Beckett's and its licensees used to shoot the wildfowl.



Hare's-tail
cottonsedge

Until the 1960s, apart from a margin of forest and old pine trees scattered across it, the Moss was kept open by regular burning. However, once this practise stopped, a rash of pine seedlings grew up, cropped as Xmas trees in the mid 1960's by L S Beckett's. Once abandoned a dense pine forest colonised. In 2001 the forest was cleared and water levels restored to reinstate this very rare and internationally important raised bog.



Crowberry

Clearing the forest using a high-lead skyline



The trail

1 Purchase of the car park, on glacial clay right at the very edge of the Moss, allowed the pine forest to be cleared off the bog, as timber could be stacked here and transported away. Spot meadow brown and orange-tip butterflies in the damp rank grassland. *Walk up the track* This birch wood has grown up over the last 25 years since domestic peat cutting by Mr Wilcox finished. Speckled wood butterflies thrive in the dappled shade.



Acquiring hard access was the key to clearing the forest

2 When the pine forest was cleared, this fringe of oak and birch woodland was retained, at the request of local people, to maintain the external appearance of the Moss.

Turn left along the mown track. Here, ringlet butterflies dance in summer, yellow-tinged common earthball fungi thrive in autumn and rowan berries provide winter fodder for birds.



Bettisfield Moss before clearance



The adjacent fields were once part of the bog. Mineral-rich water flowing off the higher clay moraine joined acidic water running

off the bog dome, and would naturally have run round the boundary of the bog in a “lagg” stream. In 1826, to drain the bog edge for farming and peat cutting, the stream was channelled through the peat in this ditch. The enriched water encourages willows, rushes, floating sweet-grass and creatures such as **common toad**.

3 The private oak woodland on the left was planted as an 1823 Enclosure Award shelter belt. Before that time the whole bog was an uncut treeless domed quagmire. Old oaks, birch and rowan here host all three British woodpecker species, and jays are often seen. Look out for bats at dusk. *Continue along the track.* Spot badger footprints in the wet peat.

4 Ahead lies a wet fen meadow, Chesters’ field, converted from the bog, and part of a neck of peat that connects down to Wem and Cadney

Mosses. The ditch immediately behind this post marks the English/Welsh border.

Take a short detour across the field veering left to posts c and b.

c. The pines on neighbouring land are a relic of the species-poor self-sown forest that covered the whole Moss in 2000. In the field, lines of birch and oak mark drains leading down to the canalised “lagg” ditch. These ditches have now been dammed to encourage wetland fen plants that once would have thrived around the edge of the bog – spot purple marsh thistle, yellow great bird’s-foot trefoil, meadowsweet and soft rush. Orange tip butterflies nectar in spring on cuckoo flowers. Low-intensity grazing and mowing stops woodland from encroaching, but brambles are left for ringlets, meadow brown and small skipper butterflies. *Keep on around the field edge.*



Look out for acrobatic **hobby** catching dragonflies.

Damming Chester's field



The natural environment can be hazardous.

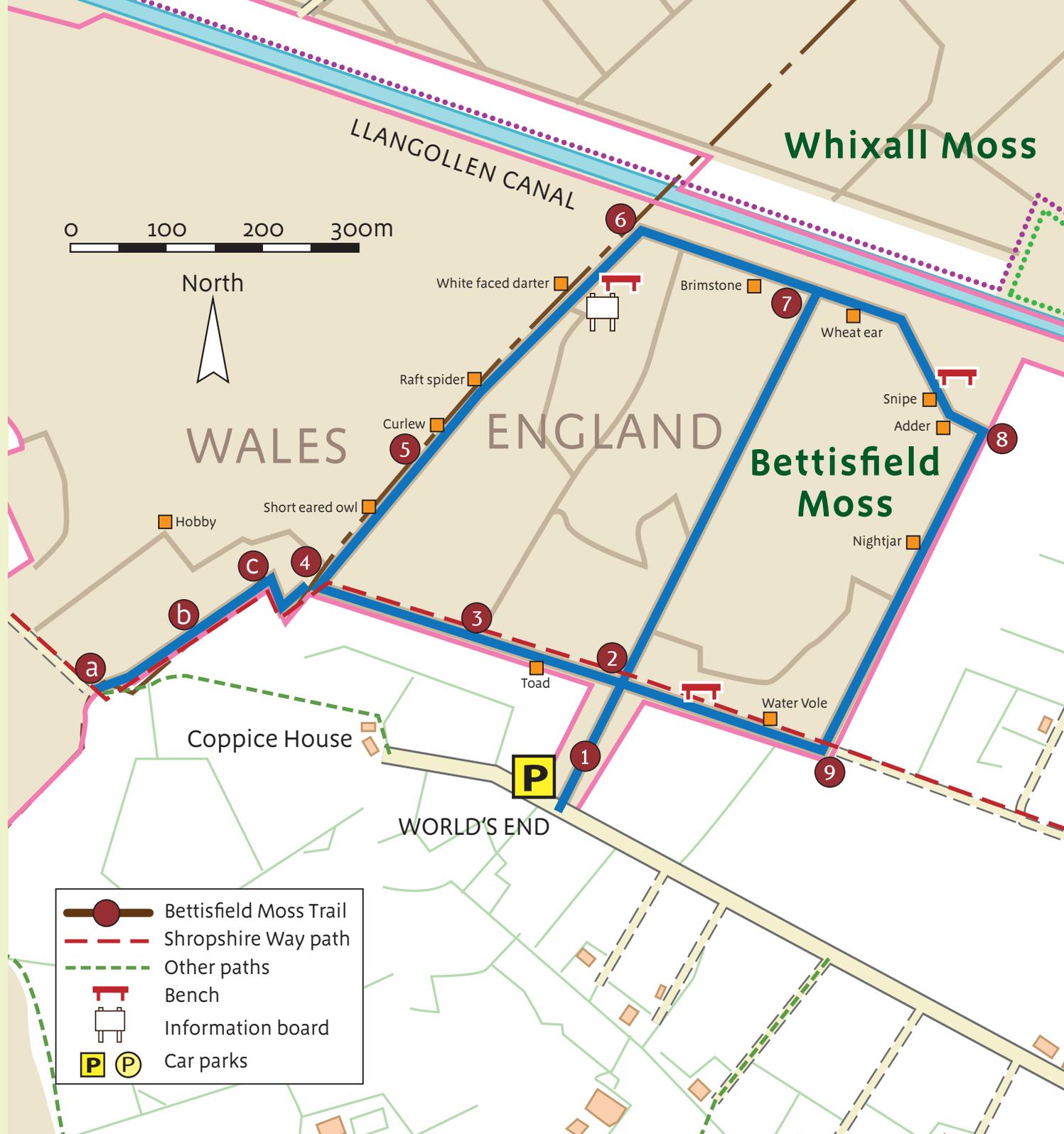
Please:

- Keep to the way-marked routes. The Mosses are riddled with deep, flooded and partly-vegetated ditches.
- Do not smoke on the Mosses at any time of the year. Even small fires can cause extensive damage.
- Watch out for adders. If bitten keep calm and seek medical attention.
- Do not collect plants or animals.
- Keep dogs on a lead from March to July, and otherwise at heel.
- Watch out for metalwork, projecting roots and branches, tree stumps, holes and tussocks.
- Horse riding and cycling are not safe on the peaty tracks.

For more information on the other trails, our events programme, volunteering opportunities or to find out how to obtain a long term permit to explore deeper into the Reserve, contact us on 01948 880362 or visit www.naturalengland.org.uk.



Alder leaves and cones





Felling the remaining marginal pines in 2010

b. Hawthorn, aspen, damson, holly and a pile of bricks mark the site of the small cottage on the edge of the Moss, occupied until the 1960s by the Becketts. Later, until 2000, the Chesters family rented the field, milking cattle here. In 2010, the pine fringe, left round the bog in 2001, was removed to reduce pine re-colonisation, and open the field through to the Moss.

Return to post 4, and turn left towards the canal. Notice the big stumps of pines. These grew rapidly because of the drainage provided by the 1826 English/ Welsh border drain on the left of the track. In 1912 the only areas of pine woodland on the whole Moss lay on the right and just around Chesters' field. By 2000 little apart from bramble and ferns survived under its old dense canopy, but now bog-moss and cotton sedge are even returning here.



To the left of the track the heather-clad expanse is the largest uncut area in the whole NNR, providing hunting ground for overwintering **short-eared owl**. The land to the right is lower because it was cut for peat some 100 years ago. This has allowed purple moor-grass and wavy hair grass to invade.



Magellanic bogmoss

5 Look right across the Welsh uncut Moss. Now twelve species of coloured *Sphagnum* bogmoss including rare Magellanic and golden bog-moss and bog plants such as cranberry, crowberry and bog asphodel are thriving again after forest clearance and damming.

Continue along the track. Spot furry bog-moss and hare's-tail cotton sedge in the ditch to the left and cross-leaved heath and crowberry on its banks. On the right furry bog-moss and needle-leaved hare's-tail cotton sedge have re-colonised restored peat-cuttings. Purple moor-grass dominates drier areas.



Downy heads of cotton sedge turn this area white in spring, when the bubbling call of nesting **curlew** fills the air. On the right of the track, 25 m away, the heathery area marks peat cuttings blown up in the 1950s by Blaster Bates' brother to try to make a duckpool. The explosion blocked the ditches and a wet floating bog-moss carpet with bog pools and the rare white-beaked sedge developed. In 2000 this was the only open area in the pine forest.

Continue along the track.

The NNR hosts 807 species of moths and butterflies including 143 nationally significant species. Being sheltered, Bettisfield Moss hosts 42 of the 47 mire-specialist species found on the whole NNR, including the cranberry-feeding Manchester treble bar, cotton-sedge-dependent Haworth's Minor, the large heath butterfly and the pretty little purple-bordered gold. Birch bushes are retained along the track for insects, getting totally moth-eaten in summer – spot breeding black and white argent and sable moths.



Curlew



In summer look for large stripy **raft spiders** on the surface of water in the dammed Border drain. The area behind the post was very badly dried out and shaded by tall pines and is now dominated by wavy hair grass, heath mosses and cross-leaved heath. Birch has been managed to stop it taking over. Continue along the track.



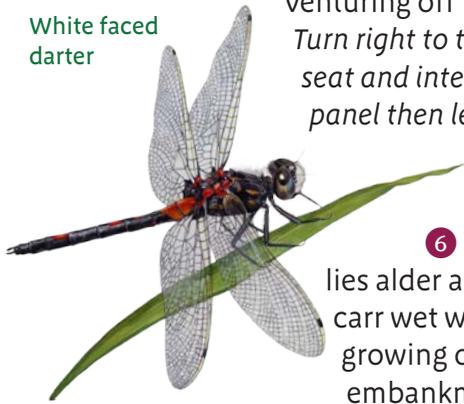
Raft spider



The high area on the right is uncut. Recently an open water pool has been created here for dragonflies. Bettisfield Moss has very

little open water as, unlike the restored Fenn's & Whixall Mosses, it was not cut in the linear Dutch manner, which left high peat ridges (baulks) which are dammed against tracks to create open pools for bogmoss regeneration. Look out for the Mosses specialist dragonfly, the **white-faced darter**, which lays its eggs in bog-moss and white-legged damselflies

White faced darter



venturing off the canal. Turn right to the Viewpoint seat and interpretation panel then left towards the canal to post 6.

6 Ahead lies alder and willow carr wet woodland, growing on the clay embankment of the

canal cut in 1807 through 8m of deep peat between Fenn's/Whixall Mosses and Bettisfield Moss. Carr would have naturally surrounded the un-drained Mosses. Angelica, bittersweet, greater spearwort, gypsywort, iris and marsh valerian survive here.

The bramble-rich band on the left is part of a long circular brashtrack created during the forest clearance. A 'tightrope' stretched between an excavator on the deep peat in the centre of the Moss and a winch on this brashtrack. Suspended from the "rope", bunches of whole felled pine trees were winched to the brash track for processing, and the timber was carried off the Moss. The brash and tree tops were sunk into the peat in front of the 42 tonnes of forestry machinery, creating progressively more brashtrack, to stop it sinking into the jelly-like peat.



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Skyline drag lines and brashtracks are visible on the cleared Moss

Turn right alongside the canal. On the right look out over 100 year-old "2 yard-deep" peat cuttings, now restored to cross-leaved heath, furry bog-moss and hare's-tail cotton sedge. Since forest removal in 2001, birch bushes and pine seedlings have been continually removed until an unbroken carpet of bogmoss covers the Moss. Spot the spotty *davus* subspecies of the large heath butterfly laying eggs on hare's-tail cotton sedge and nectaring on the cross-leaved heath.



Large heath butterfly on cross-leaved heath



Alder buckthorn bushes in the carr host caterpillars of the eye-catching **brimstone butterfly**. Gaps have been cut to encourage free

movement of birds and insects across the canal, to speed up the Moss's recovery. Bracken and brambles carpet dry parts of this carr woodland but rich water leaking from the canal has allowed the survival of sedges such as greater tussock and remote sedge and the rare *Carex elongata*, which would naturally have occurred in the "lagg".

Brimstone on alder buckthorn



7 To the left of the track are Wilcox's old hand-cuttings, cut to a lower level than the L.S. Beckett land on the right. *The track straight ahead is a short cut back to the car park, otherwise turn left into the woodland.* On your right pass a spur of willow, alder buckthorn and rushes with large patches of blunt-leaved bog-moss near the track, where mineral-rich water from the canal is leaking into the bog. Royal fern, which occurs on the uncut Welsh part of Bettisfield Moss, was found here at its first English location in the NNR.



Wilcox's land was covered by patches of dense very tall pines, tall birch trees and thick birch scrub, with lots of bracken, and its restoration to bog was doubted. However bog-moss is rapidly re-establishing and **snipe** are now often seen here.



Watch in spring for shy **adders** sunning themselves on the sides of the tracks. Keep dogs on leads to minimise disturbance to this very threatened species.



Adder – Britain's only poisonous snake



Large swathes of wavy hair grass on higher tracks reflect long enrichment from fallen leaf litter, pigeons roosting in the forest and high levels of aerial nitrogen pollution from nearby chicken farms and dairy units. **Stonechat and wheatear** thrive in this acid grass-heath. However, in restored lower areas within it, bog-moss and cotton sedge are forming bog once more.

8 The private woodland here has sprung up after peat cuttings were abandoned. The trees have shaded and dried out almost all of the rare

bog plants and pines and bracken continually colonise onto the restored NNR. *Follow the track to the right.*



This narrow fringe of birch, alder buckthorn and willow intercepts pine seeds from adjoining land and gives shelter for wet woodland

moths. **Nightjar**, which cruise scrub and woodland edges at dusk, hunting for moths and calling their haunting two-toned “chirr”, may re-colonise this site in future.



Fenn's Volunteer Group pulling birch and pine seedlings

Continue along the track. The fields on the left were originally part of the bog. On the right, uncommon insects and fungi are harboured in this wet willow carr woodland that would naturally have occurred round the edge of the bog. Spot the birch brackets and turkey tail fungi on birch dying in the raised water levels.

9 The line of trees two fields away marks the original edge of the bog. This ditch, the 1826 World's End Drain, was deepened in the 1970s to lead to a new pumping station, installed when it was not appreciated how rare raised bogs were. This continues to draw water out of the NNR. Now, as in the East Anglian Fenlands, the drained peaty farmland has shrunk to form a depression, progressively ever harder to drain.

Turn right. A loop has been formed from the Shropshire Way to visit the Mosses.



Look in the ditch bank for the holes of **water vole**, a species nationally decimated by mink. It lives in ditches round the Moss edges where water flow brings sufficient nutrients for lush plant growth. *Continue to post 2.*

Water vole

An old lady lived in a tin shack on this high area on the left until the late 1950s. Listen for cuckoo in spring in the birch woodland screen



on the right – they lay their eggs in meadow pipit nests on the open Moss.

2 *Turn left back to the car park.*

Please send any records of wildlife you have seen today to Natural England so we can build up a picture of how the Moss is recovering back from the brink of extinction.

Natural England is here to secure a healthy natural environment for people to enjoy, where wildlife is protected and England's traditional landscapes are safeguarded for future generations.

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