

Pillwort *Pilularia globulifera*

The UK's only native aquatic fern

Species Profile

The presence of pillwort tells an important story about the space it occupies. Unlike many other landscapes across England, the New Forest boasts vast tracts of land which benefit from traditional grazing practices and winter wet habitats. This combination creates bare mud, providing opportunities for non competitive, early successional plant species, pillwort being one of them, to thrive in areas of clean unpolluted seasonally saturated ground. The intricate mix of water, grazing and the depressions left by ungulate animals prevent the growth of competitive grasses and rushes creating the perfect home for some of our rarest plant species, laying the foundation for a complex ecosystem long lost to the wider British Isles.

Pillwort, if you're willing to get down to its level, is a very distinctive little plant. Superficially grass-like, it is in fact an aquatic fern with thin, thread like leaves which unfurl from tight coils as it grows. It has hard spore cases 'the pills' at the base of the stems. In the right conditions it forms a creeping mat over bare mud at the margins of ponds, headwater streams and lakes which make it look like a miniature bright green lawn.



Pillwort requires bare mud, and clean unpolluted seasonally saturated ground - this and the intricate mix of grazing offers a perfect home for this early successional species.

Unfortunately pillwort is declining rapidly throughout its north-west European range and the UK now holds a substantial proportion of the global population. Historically it occurred in about 250 10km squares in the UK, but is now restricted to just a handful of scattered locations. Across the UK this species is principally threatened by 1) habitat loss; through land use change, intensification of farming practices, infilling of ponds, 2) loss of grazing, 3) nutrient enrichment. Now officially classified as an endangered species, it is protected by law in the UK, under schedule 8 of the Wildlife and Countryside Act 1981.

You can see why the New Forest is a stronghold for this plant and many other early successional species. A landscape highly protected by nature conservation designations, maintained traditional grazing practices spanning centuries, and areas of clean unpolluted freshwaters makes the New Forest the perfect home for this little aquatic fern.

Although this species appears to be doing well in the New Forest, it will only occur where seasonally fluctuating water levels exist. This raises two important questions - under future climate change scenarios, are we in danger of losing this type of niche habitat in the New Forest; and should we me maximising any opportunities to maintain and expand winter wet hollows where possible. This would help to safeguard and increase patches of pillwort across the Forest, but also benefit its plant allies and a suite of rare insect fauna that favour similar conditions.

Over the past twenty years, the New Forest has seen a programme of work to restore artificially straightened and deepened water courses, with an aim to re-wet floodplains in times of high flow. A river is the channel and its floodplain, and for many species it's the area that is sometimes wet and sometimes dry that is the most critical. Allowing rivers to connect with their floodplain, recreates the seasonally inundated areas so sought after by many wonderful rare semi-aquatic species, and helps to buffer habitats against scorching hot summers.

One restoration in particular in the Beaulieu catchment, restored only two years ago, has gone from a fast flowing deep straight channel with no floodplain features; to now a slow, shallow meander which is winter wet, and vegetation rich in summer. In turn, this attracts the grazing animals, and this combination of winter wet and grazed, has resulted in an ecosystem full of species, including several new colonies of pillwort.

The answer to our questions is therefore 'yes'! Not only can we be proud of the fact that the New Forest is a safe haven for so many delightful rare species but we can think bigger than this; restoring and recreating the conditions for these rare wonders to thrive. Now is the time more than ever to create spaces for species, remove barriers which restrict species expansion, and ensure the future resilience of these biodiverse waterscapes.



Pillwort growing amongst other rare species in a habitat with a micro topography created by large grazing herbivores. The grazer in the background is a Highland cow calf, a hardy, ancient breed of cattle turned out by New Forest commoners.

Click [here](#) to see this young habitat engineer in action.

By Gemma Stride and Dr Naomi Ewald, Freshwater Habitats Trust - August 2020