Marsh Clubmoss (Lycopodiella inundata)

Conservation and Status in the New Forest; 2008-2016

the species recovery trust

Summary

A full census of all known Marsh Clubmoss populations in the New Forest was carried out from 2015-2016, building on baseline data gathered in a similar survey in 2008.

Overall there has been a decline in Marsh Clubmoss in this period, although some of this may be due to natural fluctuations.

Of the 66 sites recorded in 2008, 20 were not re-found in 2015/16, representing a 30% loss of sites (although with the addition of 7 new sites this overall loss goes down to 20%).

The estimated overall population of plants has fallen from 15,500 to 9,300, representing a 40% decline.

The two largest populations found in 2008, North Hollow, Hyde Common and Matley Heath Track have both dramatically declined (2500 to 332 and 3000 to 1740 respectively)

Decline in the populations on tracks and paths is slightly higher than the decline in undisturbed habitats.

The overall geographical range of populations has increased with new finds in the northern heaths.

Populations over 100 plants have all survived since the 2008 survey. And all the populations lost had fewer than 100 plants. Loss of populations is not markedly higher for populations of fewer than ten plants, so sites can regenerate from a very small number of plants in the right conditions.

At least one site has been lost to track re-surfacing.

We are indebted to The Halpin Trust for generously funding the ongoing fieldwork (2017-2022) for the species and Natural England for funding the data analysis and production of this report.

Introduction

The Species

Marsh Clubmoss (*Lycopodiella inundata)* is a short-lived perennial of mires and wet heaths, and belongs to an ancient group of plants most closely related to the ferns. Its growth form comprises short prostrate shoots, which divide, typically into two apices. In the summer most plants bear single upright cone-like shoots (strobili) which produce spores. Despite prolific production of spores in some years vegetative propagation appears to be the main way that populations persist, meaning it is a poor coloniser of new sites.

Marsh Clubmoss is classified as Endangered on the UK Red List, and therefore considered to be a facing a high risk of extinction in the wild. It currently occupies 24% of its known historical range, and has suffered severe declines outside it stronghold area, especially in the Thames Basin and Cornwall. Its current English stronghold is the New Forest and to a lesser extent the Dorset Heaths.

As with other ferns it has a life cycle consisting of a gametophyte and sporophyte generation. The gametophytes are thought to develop underground, but have seldom been observed in this species. The gametophyte also has complex mycorrhizal associations, which needs more research as it may have a significant impact on the ability of the plants o colonise new sites.

During severe winter the plants die back to their terminal bud, however surveys in recent years have found plants surviving intact throughout milder winters. Where the plants occur on top of spongy vegetation such as Sphagnum mires large sections of the plants appear to run underground, emerging sporadically to form new plants.

Marsh Clubmoss typically grows on the transition between mires and wet heaths, where the thick cover of Sphagnum is reduced, but the soils are still more or less permanently wet. Despite its name it does not require inundation of water, but will survive this for short periods of time.

The general perception is that is requites bare peat, however several of the undisturbed mire sites in the Forest show that the species can also occur in totally undisturbed wet habitats with no bare soil present at all, which possibly points towards its survival in periods of time and habitats where this disturbance was not present.

The greatest requirement of March Clubmoss is relatively open, but not too compacted conditions, where it can colonise either bare ground of low growing Sphagna beds, but is not too heavily disturbed by trampling. The availability of this habitat in the new Forest explain why this area is such a stronghold for the species, but it is till vulnerable to localised extinction should these conditions change at any of its sites. From observation it appears that the plants have never recolonised a site once it has gone extinct.

In the New Forest it is found in four types of habitat, outlined later in the report.

The Project

As part of our national work monitoring all known site across England and Wales for Marsh Clubmoss The Species Recovery Trust has been carrying out regular monitoring in the New Forest. The purpose of this is to ensure that populations remain robust in this area, as well as gaining better understanding of the species' ecology, population dynamics and response to environmental stress.

In 2008 a full census of all known New Forest populations was commissioned by Dominic Price, then at Plantlife, with survey work funded by SITA Trust Ltd, with the intention of establishing a baseline of population sizes across the Forest. This survey revealed the presence of 53 populations.

All of these populations were re-surveyed between 2015 & 2016, and during this time five new populations were discovered. At most sites there was a decrease of plants from 2008, and several populations could not be relocated, however some sites showed dramatic increases and some previously unrecorded sites were found.

The survey was particularly focussed on looking at any populations that had changed dramatically in size or vanished since 2008, and attempted to analyse the factors that may have driven this change.

Sites were then analysed according to habitat, size and temporal variation to better understand changes in population.

All the site were photographed, and these are presented in Appendix 1 alongside descriptions of eahc site.

Results

Distribution in the New Forest

Marsh Clubmoss is well distributed across the Forest, present on most areas except for the afforested areas surrounding Lyndhurst and Fritham.

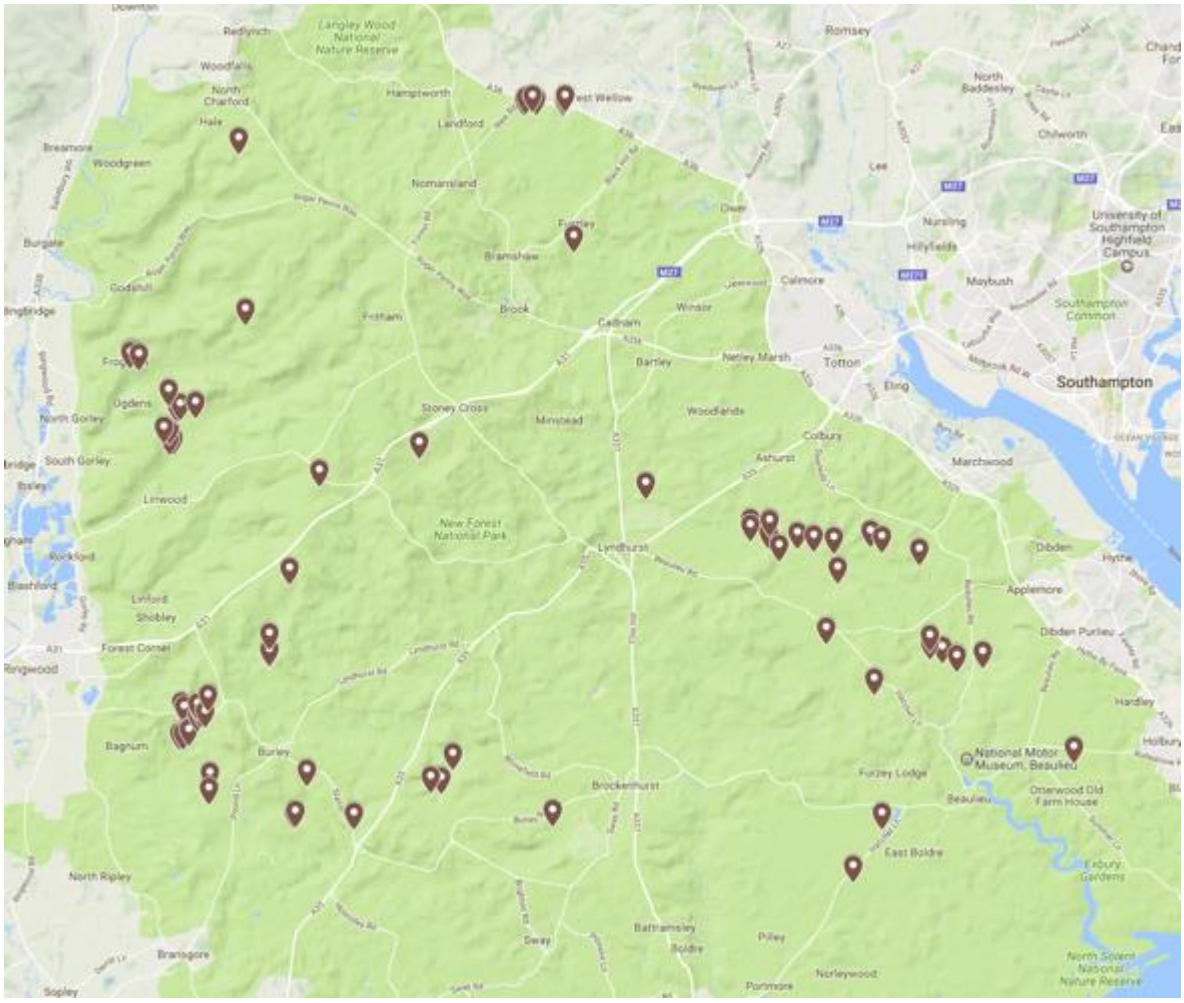
There are four areas where metapopulations exist

- Ogden Purlieu
- Plaitford/West Wellow
- Strodgemoor Bottom/Vales Moor
- Matley Heath to Longdown

These areas consist of several populations that are near enough to have the possibility to be interlinked, and can recolonise any sites that become locally extinct. Strodgemoor Bottom now appears to offer the strongest meta-population, with the discovery of several new sites now making this the Marsh Clubmoss stronghold of the New Forest

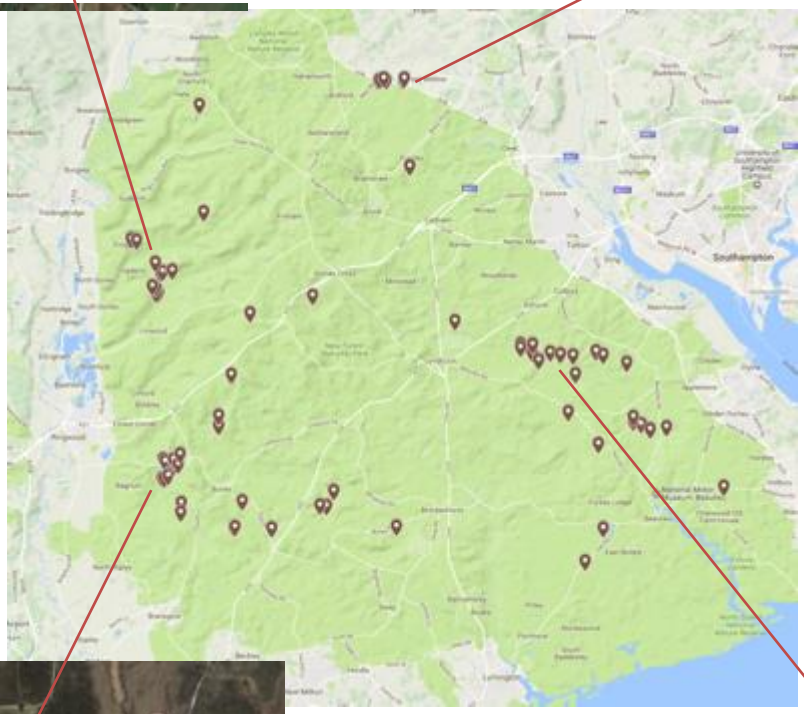
Outside these four areas most populations are relatively isolated, however their occurrence on trackways, means there is still the potential for movement of material and spores in these areas.

Map of Marsh Clubmoss in the New Forest (with national context below)



Ogdens Purlieu

Plaitford/West Wellow



Metapopulations in the New Forest

Strodgemoor Bottom

Matley Heath to Longdown

Habitat types

Marsh Clubmoss typically occurs in five habitat types in the New Forest.

Tracks and paths

Bare peat kept open by trampling across wet heath (typically NVC M16 *Erica tetralix-Sphagnum compactum* wet heath) and more rarely, mire, support the majority of the populations, and most of the largest ones. Plants are typically associated with consolidated bare wet peat at track edges, or on receding peat faces within the track where it crossed a slope. There does not seem to be a direct correlation between population size and severity of trampling and poaching in these tracks though it is noticeable that fewer strobili were carried by plants in severely trampled areas. Although most populations found in tracks and paths are associated with human access, a smaller number are associated with pony tracks.

Short wet heath

A small number of populations occur in open peaty ground in wet heath away from any pony or human-used tracks. These are typically smaller than many of the track populations and are usually associated with a shallow depression feature in the wet heath, such as a shallow flood channel or old ruts from vehicles. A small number of isolated populations are simply found where wet heath is sparsely vegetated, typically at the wet heath/mire interface and growing amongst sparse cover of White beak-sedge *Rhynchospora alba*, Carnation sedge *Carex panicea*, Bog asphodel *Narthecium ossifragum* and sundews *Drosera* species.

Disused sand/gravel pits

This is a rarer habitat in the Forest, and the two sites where plants are found in this habitat have both declined in recent years.

Valley mire

In a few locations open mire (NVC: M21a *Narthecium ossifragum-Sphagnum papillosum* valley mire; *Rhynchospora alba-Sphagnum denticulatum* sub-community) was a favoured microhabitat type for *L. inundata*. In particular, the extensive valley mire complex known as Cranes Moor and Vales Moor south-west of Burley supported a strong metapopulations growing amongst *Sphagnum denticulatum*, *S. papillosum*, *S. tenellum*, *Narthecium ossifragum* and other true mire plants. Some of the sub-populations recorded at Plaitford Common and Ogdens were also growing directly in similar vegetation.

These populations initially seem unusual when one is used to encountering the plants in bare soil, but closer examination often reveals that the plants are effectively using mats of Sphagnum (usually cuspidatum) essentially as a wet matrix type soil, rather as one would growing plants hydroponically. The growth form of this type of Sphagnum in the wetter mires ensure consistent low-growing mats which means the Clubmoss so not outcompeted, whereas it is rare to observe it on the more dome-forming Sphagnum such as papillosum and palustre.

Seepage lines/flushes

Seepage lines and flushes in wet heath and at the upper edges of valley mires are a relatively frequent microhabitat and, possibly because these areas tend to be un-trampled by humans and livestock, the individual plants are larger and bear good numbers of strobili. In some locations e.g. Hyde Common neighbouring populations seemed to be linked by a single seepage line.

Summary of sites and population counts

			2008		2015/16			
Site	Grid ref.	Location	Est. no. of plants	Area (m)	Est. no. of plants	Area (m)	Area (sq m)	Type of habitat
3a	SU1743812619	Hyde Common	23	0.5 x 0.5	20	0.5 x 0.5	0.25	WH
3b	SU1744512627	Hyde Common	50	1 x 3	11	1 x 3	3	P
4a	SU1758712579	Hyde Common	225	6 x 6	74	10x10	100	M
4b	SU1762112578	Hyde Common	6	0.3 x 0.3	150	0.3 x 0.3	0.09	M
6a	SU1873903809	Strodgemoor Bottom	2	N/A	5	N/A		WH
6b	SU1881903711	Strodgemoor Bottom	80	5 x 2	91	10 x 3	30	WH
6	SU1884703661	Strodgemoor Bottom			30	2 x 2	4	M
7	SU1891703605	Strodgemoor Bottom	10	2 x 1	112	8 x 1	8	P
8	SU1829410730	North Hollow, Ibsley Common	300	5 x 30	125	5 x 30	150	M
9a	SU1843310692	North Hollow, Hyde	2500	300 x 5	332	300 x 5	1500	T
9b	SU1853210420	North Hollow, Hyde	See 9a	See 9a		See 9a		T
10	SU1843010436	North Hollow. Hyde	15	1 x 3	21	1 x 3	3	T
11	SU1839511663	Ogdens	17	1 x 1	10	1 x 1	1	M
12a	SU1861211236	Ogdens Purlieu	17	1 x 1	16	1 x 1	1	P
12b	SU1860511286	Ogdens Purlieu	10	1 x 1	17	1 x 1	1	P
12c	SU1869711296	Ogdens Bog			46	1 x 1	1	M
12d	SU1908711338	Ogdens Pine Copse Mire			1000	10 x 10	100	M
14	SU1946701683	Dur Hill Down	300	20 x 4	63	20 x 4	80	WH
15a	SU1922703591	Cranes Moor	500	200 x 10	70	200 x 10	2000	M
15b	SU1898803196	Cranes Moor	See 15a	See 15a	170	8 x 4	32	M
15c	SU192038	Cranes Moor	No info	No info	58	2 x 1	2	M
19	SU1943804016	Vales Moor	225	10 x 4	157	6 x 1	6	M
15d	SU1935803611	Cranes Moor	145	5 x 3	80	2.5 x 1	2.5	M
25a	SU1879103028	Cranes Moor	22	3 x 2	40	30 x 2	60	M
25b	SU1871103026	Cranes Moor	3	0.5 x 0.5	40	0.5 x 0.5	0.25	WH
26	SU1897603189	Cranes Moor	100	4 x 3	230	12 x 3	36	M
27a	SU2097805147	White Moor Bottom	50	2 x 1	15	3 x 1	3	P
27b	SU2093205126	White Moor Bottom	40	4 x 1	207	20 x 4	80	P
30	SU2097205551	Harvest Slade Bottom	40	2 x 1	0	0	0	T
33	SU2147207197	Backley Plain	15	0.5 x 0.5	0	0	0	P
39a	SU2162401080	Holmsley Ridge	250	20 x 3	3	1 x 1	1	POND
39b	SU2158301074	Holmsley Ridge	10	2 x 1	10	0	0	POND
40	SU2191502122	Pigsty Hill, Burley	11	3 x 1	20	1 x 1	1	P
44	SU2310201047	Station Road, Holmsley	51	10 x 10	9	10 x 10	100	P
46	SU25680259	Duckhole Bog	11	1 x 1	121	1 x 1	1	T
47	SU2531001955	Duckhole Bog	650	50 x 5	420	25 x 4	100	T
56	SU2471310365	SW of Lucas Castle	100	4 x 2	0	0	0	T
57	SU2221509656	Slufters Pond, Bratley Plain	180	10 x 3	60	10 x 3	30	M
58a	SU2736719023	Plaitford Common	60	3 x 4		0	0	M
58b	SU2735319020	Plaitford Common	320	5 x 7	0	0	0	M
58c	SU2730318960	Plaitford Common	25	3 x 1	0	0	0	M
59a	SU2762118999	Plaitford Common	250	5 x 5	1000	45 x 5	225	M
59b	SU2761719011	Plaitford Common	200	3 x 3	0	0	0	M
59c	SU2762419031	Plaitford Common	60	2 x 2	0	0	0	M
59d	SU2751819060	Plaitford Common	430	10 x 5	0	0	0	M
62a	SU2831118971	West Wellow Common	45	5 x 2	16	2 X 2	4	M
62b	SU2831118994	West Wellow Common	75		0	0	0	M
62c	SU2834419073	West Wellow Common	9	20 x 20	0	0	0	WH
66	SU3041409380	Fair Cross, Lyndhurst	2	0.1 x 0.1	9	0.1 x 0.1	0.01	P

Site	Grid ref.	Location	Est. no. of plants	Area (m)	Est. no. of plants	Area (m)	Area (sq m)	Type of habitat
70	SU3304808485	Matley Heath	225	25 x 2	150	25 x 2	50	P
71	SU3306308335	Matley Heath	1200	35 x 5	129	35 x 5	175	P
73a	SU3354408466	Matley Heath	3000	300 x 4	1740	300 x 4	1200	P
73b	SU3350708169	Matley Heath	See 73a	See 73a		See 73a		P
74	SU3378307832	Matley Heath	90	15 x 2	39	17 X 2	34	P
75	SU3424208157	Fulliford Bog	450	12 x 10	68	12 x 10	230	T
76	SU3498305780	Shatterford, Denny Lodge	45	1 x 1	6	1 x 1	1	T
77	SU3515208024	Longdown Inclosure, nr	30	1 x 0.5	0	0	0	P
78	SU3526007286	Black Down	325	20 x 3	201	15 x 1	15	P
79	SU3465808084	North of Fulliford Passage			230	12 x 8	96	T
80	SU3608708202	Peel Hill	200	2 x 2	230	5 x 4	20	P
82	SU3636008067	Longdown Inclosure, nr	8	1 x 1	50	2 x 1	2	P
83a	SU3636008067	Ipley Inclosure	135	160 x 5	72	6 x 1	6	P
83b	SU3719607696	Ipley Inclosure	See 83a	See 83a		See 83a		P
90	SU376054	Buck Hill	22	10 x 2	0	0	0	T
92	SU3791605313	Gurnetfields Furzebrake	80	5 x 5	23	5 x 5	25	T
93	SU3824105091	Starpole Pond, W of	1	N/A	7	1 x 1	1	T
97a	SU3617604448	Pig Bush	120	30 x 5	15	1x1	1	T
97b	SU3620004490	Pig Bush	40	1 x 1	0	0	0	T
98	SU2812301137	Trenley Lawn, Brockenhurst	10	0.2 x 0.2	0	0	0	T
102	SZ357998	Bagshot Moor	5	0.3 x 0.3	0	0	0	P
104	SU3642601113	Hatchet Pond, S of	18	0.3 x 0.3	0	0	0	POND
107	SU3892805185	N of Foxhunting Inclosure	1	N/A	0	0	0	T
116	SU41240285	Beaulieu Heath East	9	0.3 x 0.1	9	0.3 x 0.1	0.03	T
118	SU1947902074	Brown Loaf	10	No info	15	1 x 1	1	M
120	SU25040198	Duckhole Bog	No info	No info	0	0	0	M
121	SU2032813696	Gaze Hill			400	30 x 4	120	P
122	SU2013917977	Hale Purlieu			220	3 x 3	9	M
123	SU2858015568	Furzley Common New			920	10 x 5	50	M

Categories:
WH - Wet Heath
P - Path (<1m)
T - Track (>1m)
M - Mire
Pond

Population trends

Many populations have changed dramatically in the seven years from 2008-2016, and some trends are examined below. It must be stressed that these populations will fluctuate from year to year, so only having two data points reduces the accuracy of any analysis.

Overall picture

53 extant populations were found in 2008, down from 66 sites found in 2008. There has been no contraction in geographical range, but many of the smaller sites have disappeared in this time.

Of the 66 sites found in 2008, 20 were not re-recorded in 2016, representing a 30% loss, although with the addition of the 7 new sites this overall loss goes down to 20%.

Local extinctions

In 2008 twelve populations were highlighted that were considered to be threatened by either low numbers and/or specific threats and it is interesting to re-visit these in 2016.

Site	No of plants (2008)	Main threat	No of plants (2016)
11	17	Population may be too small to sustain itself.	10
33	15	Population may be too small to sustain itself.	0
46	11	Population is very small and is in heavily poached ground.	1 (but an additional 120 plants in neighbouring mire)
62c (sub-population)	9	Severe poaching is churning local mire habitat.	0
66	2	Population may be too small to sustain itself.	9
76	45	All plants confined to a single eroding peat face.	6
82	8	Population may be too small to sustain itself.	50
93	1	Single vegetative shoot on isolated peat 'island' in heavily eroded track.	7
98	10	Wet peat habitat by track is heavily trampled and is being lost to erosion.	0
102	5	Population may be too small to sustain itself.	0
104	18	Population has probably been here for at least 52 years. However, this area is heavily used by people and dogs and the habitat is severely trampled. Gorse scrub is also encroaching.	0
107	1	Wet peat habitat by track is heavily trampled and is being lost to erosion.	0

Of these 12 populations 7 have now become locally extinct, predominantly due to trampling pressure, with a further 3 recording steep reductions. Encouragingly the remainder showed good increases, which was particularly notable in site 93 (W. of Starpole Pond) which went from a single plant to 7 individuals, showing that critically low numbers do not inherently spell the end for sites.

The 2008 report also named two good-sized populations that were considered vulnerable to excessive trampling, including one at Duckhole Bog (LiNF 47) and another at Gurnetfields Furzebrake (LiNF 92). Duckhole Bog has indeed seen a large decline with only 420 plants now present (down from 650), and there is a similar trend at Gurnetfields Furzebrake with a reduction from 80 to 23 plants. In both these cases trampling (from both humans and livestock appears to be the main cause of this, a can be seen from the pictures

Duckhole bog

Gurnetfields Furzebrake

Loss due to population size

To analyse this we divided the populations into four cohorts (tiny, small, medium, large) and looked at the comparative loss of sites in these groups, which was as follows

	2008	2016	Loss
< 10 plants	10	7	30%
10 - 49 plants	22	14	36%
50 - 99 plants	9	6	30%
> 100 plants	20	20	0%

NB The Plaitford Common population were excluded from this analysis as it is believed they were not relocated rather than suffering from local extinction

Surprisingly this reveals that when you ignore habitat threats and purely look at population numbers, The sites below ten plants are not inherently more vulnerable to local extinction than the medium sites (and in fact three of these sites are now in double figures).

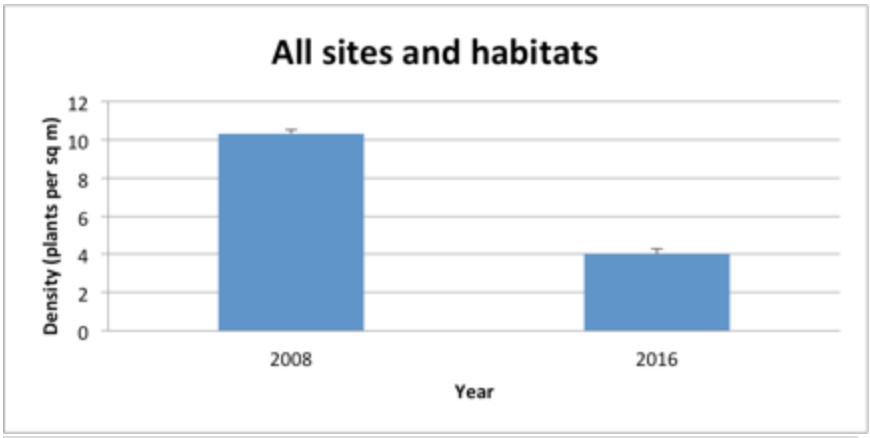
What this table does starkly reveal is the robustness of population over 100 plants to survive.

Changes in populations across habitat types

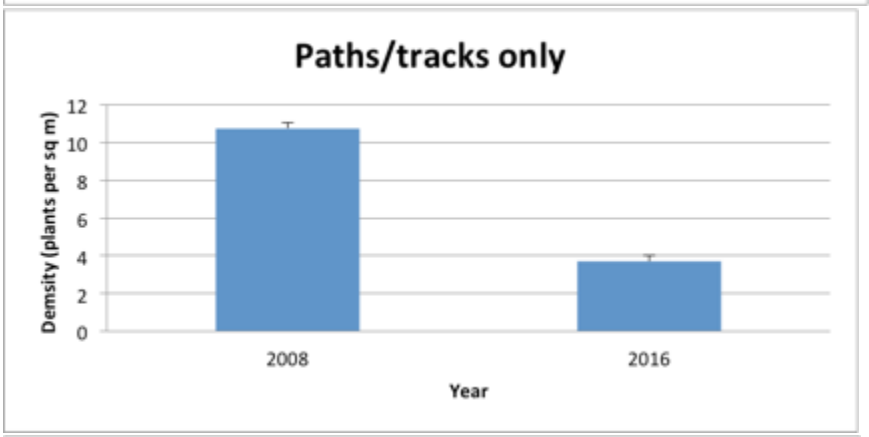
Further analysis was carried out to look at whether the loss in plant numbers was more severe on the populations that occur on tracks and paths compared with undisturbed habitats

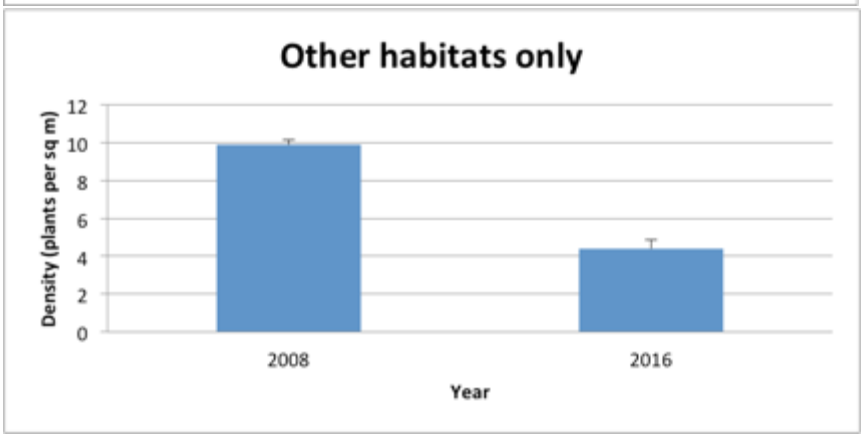
Count data were converted to densities (No plants per sq. m) to correct for different survey areas. Data were log-transformed and T-tests were performed (paired T-tests for between-year data and T-tests for other groups).

For all populations, the 2008 densities were significantly higher than the 2016 ones (10.3 compared to 4.0 plants per sq. m, T = 3.29 P = 0.002)

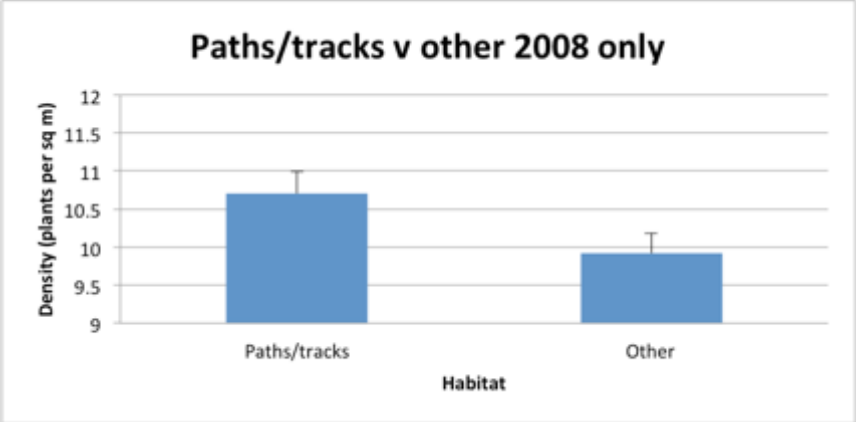


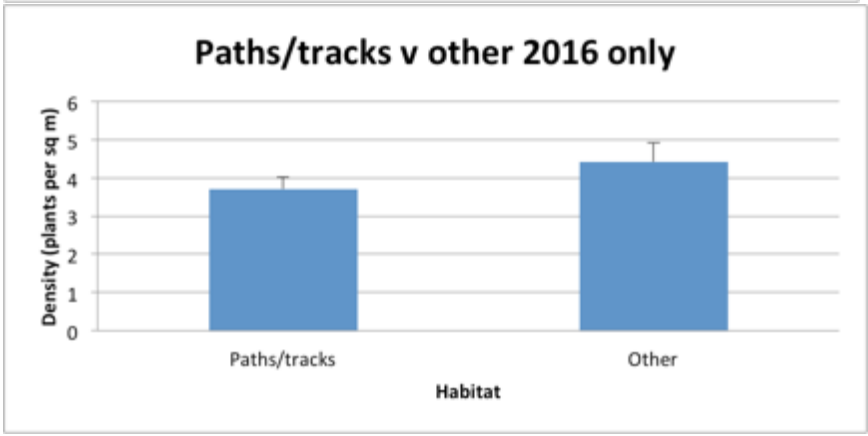
Paths/tracks showed a greater decline than other habitats between the years (T = 2.49 P = 0.019 and T = 2.12 P = 0.043 respectively)





Within years, densities were comparable between paths/tracks and other habitats (both T-tests non significant), indicating a consistent decline across all populations and habitats between the two survey periods.





From this analysis the following hypotheses can be postulated:

- Analysing sites which are under threat due to small size and habitat damaged tends to fairly accurately predict future extinction
- Populations below 10 plants are not inherently more vulnerable than populations lower than 100 plants
- Populations larger than 100 plants are much more robust and none have been lost form the forest in the last 8 years.

Threats

The following factors are considered to be the greatest threats to Marsh Clubmoss in the New Forest.

- Changes in the use of tracks and pathways, from either increased use or cessation of use.
- Resurfacing of trackways, especially where the fill spills onto the site of the track. It is believed that one site, (LiNF 30 Harvest Lane Bottom) has become locally extinct as a result of this.
- Changes in grazing patterns, either increasing or decreasing
- Changes in site hydrology

On the whole scrub encroachment and under-grazing appears to be less of an issue in the Forest with current grazing regimes keeping these two in check.

Next steps

The following steps are recommended to take this project forward:

1. Setting up permanent plots on a selection of sites to look in details at change in vegetation structure and population size
2. Soil analysis at a sample sits to see if soil chemistry has an affect o the change in populations size
3. A repeat survey in another 6 years to et a third datapoint
4. An expanded survey to look for new populations in areas of suitable habitat
5. A data trawl to get hold of records that others ma have submitted in the Forest

The following actions are already being pursued by The Species Recovery Trust

1. An open day to train volunteers to take on the monitoring of sites
2. Fixed point photography of plants to observe their growth patterns through a growing season

Appendix – Site accounts

LiNF 3&4 Hyde Common

Description

3a 18+2 scuffed bare peat below track c. 10m from other population. Other plants Erica tetralix, Cal vulgaris, Molinia, Rhynchospora alba. Appears drier than optimal

3b 10+1 plants on scuffed bare peat below track. Possibly new location from last survey. Growing with Sphagnum, Erica tetralix and Eriophorum. Pretty dry and sub-optimal

4a Obvious very wet seepage line at top edge of mire, most plants growing amongst Sphagnum and Narthecium. Poached but population looks healthy. 74 plants, 15 fruiting in relatively discreet patches over 10x10m area.

4b In wet, poached open wet heath on slope above mire, 4m below path. Good habitat. Only c. 30m from population 4a and in same seepage line.
150/20 in wet sphagnum dominated flush running down slope. Other plants include Erica text, Carex pan, Nar ossifragum, Rhynchospora alba.

Habitat
Wet Heath

Population
155 in four sub-

Population trend
Decreasing

Threat status
None at present

LiNF 6,7 Strodgemoor Bottom

Description
6a Excellent wet heath habitat at edge of mire. Probable outlier of 6a population.

6b Between M16 Wet heath and M21 mire. 10x3m patch curling round south of small heathery tussock. 320 plants, good level of fruiting Another patch of 25 plants in seepage line 30m to west

6c New site in mire with Sphagnum denticulatum, Erica tetralix, Molinia and Rhynchospora. Plants typically on Sphagnum away from tussocks.

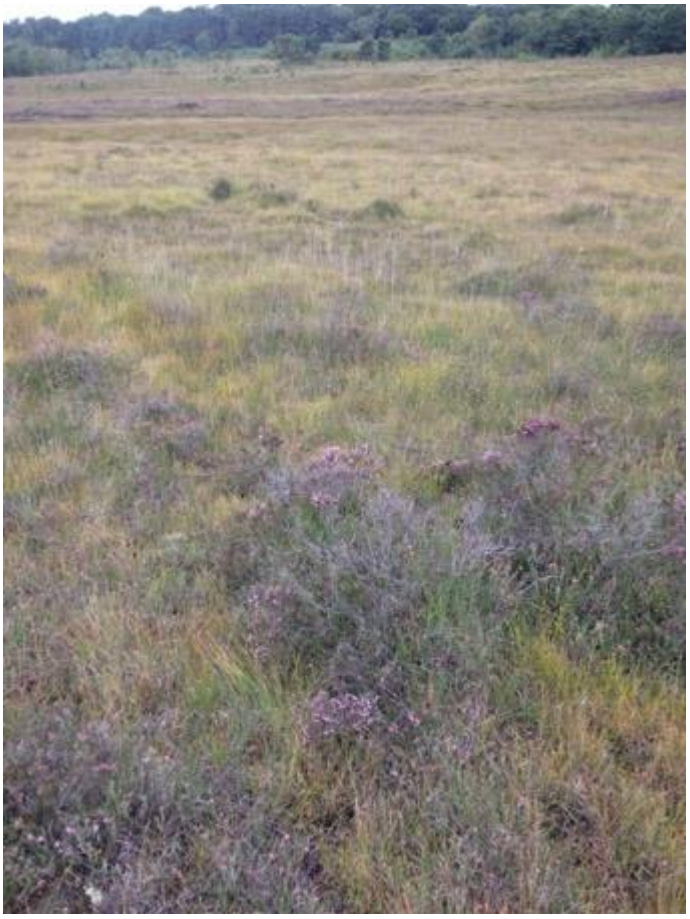
7 At edge of main foot track where it crosses wet heath, on eastern side.
112 plants 28 fruiting along 8m stretch on eastern margin of track

Habitat
Wet heath/mire interface and one track

Population
238 in four sub-

Population trend
Increasing (from 92)

Threat status
None at present



LiNF 8 Ibsley Common

Habitat
Mire

Population
125

Population trend
Decreasing (was 300)

Threat status
None at present

Description
Obvious flush channel emerging on hillside - plants scattered in the channel both on bare peat as well as amongst Narthecium, Rhynchospora alba, Sphagnum and Drosera intermedia. Habitat in excellent condition.
125 plants on banks of path in wet flush emanating from hillside

LiNF 9,10 North Hollow, Hyde

Description
9sites - 332 plants scattered up track on bare peat faces. Plenty of suitable habitat no good reason for decline except possible reduction in vehicle use

10 -sites Small colony beside a foot track in wet heath. More than 100m from the track population to the east.

Habitat
Tracks through wet heath

Population
353

Population trend
Dramatic decrease (was 2500+)

Threat status
Path closing up due to change in use

LiNF 11,12 Ogdens

Description

11 Good wet-heath habitat well away from main tracks but in livestock-poached ground. plants (plus 2, 9m to west) on lightly poached flush on hillside with abundant Molinia, plus Erica tetralix and Rhynchospora alba.

12a In wet heath at edge of a pony track, close to heath/mire interface. Good quality habitat. 16 plants on edge of rut on track at edge of mire

12b In wet heath by a pony track in vehicle-rutted peat. 17 plants in small rut by path on edge of M16 mire.

12 c46 plants. Not near track, growing on S. pap and cuspidatum with Narthecium, Molinia, Eriophorum, Calluna, Rhynchospora. New site in 2015.

12d 1000+ plants in pools in and around edges of M21a mire. S subsecundum, cusp, inundatum, subnitens, pap, Molinia, Erica, Drosera intermedia, Rhynchospora, Narthecium

Habitat

Wet Heath and Mire

Population

1089

Population trend

Dramatic increase (all populations up and discovery of 2 new) Up from 44 plants

Threat status

None

LiNF 14 Dur Hill Down

Description

Good-sized population in seepage line below a sandy bank. Habitat quality seems good although quite heavily poached. Away from main human track.

Area where plants are appears to be drier than sub optimal which may explain the decrease in numbers since 2008

Habitat
Wet heath seepage line

Population
63

Population trend
Decrease (was 300)

Threat status
Potential drying up

LiNF 15 Cranes Moor

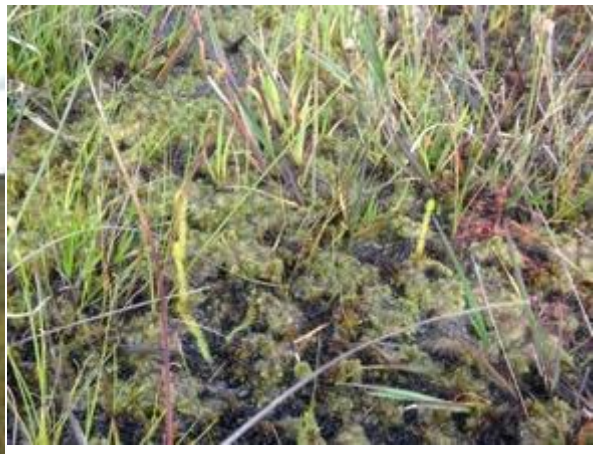
Description
15asites - 70 plants, in M21 and wet pools
15b - Scattered in M21 with some large patches. 8x4 patch 170 plants, medium fruiting SU1898803196 Cranes Moor
15csites - 58 plants Population straddling hummock, in zone between Sphagnum mire and dry Heath. Limited bare ground, population spread out in 5 clumps. Molinia, Erica tetralix, Narthecium, Rhynchospora, Cladonia.
15d - 80 plants in 2.5x1 patch it wet seepage leading down into mire. Many plants inundated at time of survey. Population not on trackway but associated with slightly open patches in amongst Molinia. Eriophorum, Sphagnum cuspidatum, Rhynchospora SU1935803611 Cranes Moor

Habitat
Mire

Population
339

Population trend
Decrease (was 500)

Threat status
None



LiNF 19 Vales Moor

Description

157 plants in 6x1 patch on mire edge. Plants mainly on top of Sphagnum cuspidatum with Molinia, Narthecium, Eriophorum and Sphagnum papillosum

Further 10 plants 55m south in similar habitat at SU 19428 03963 SU1943804016 Vales Moor

Habitat
Mire/wet heath edge

Population
157

Population trend
Decrease (was 225)

Threat status
None

LiNF 25,26 Cranes Moor

Habitat
Mire

Population
310

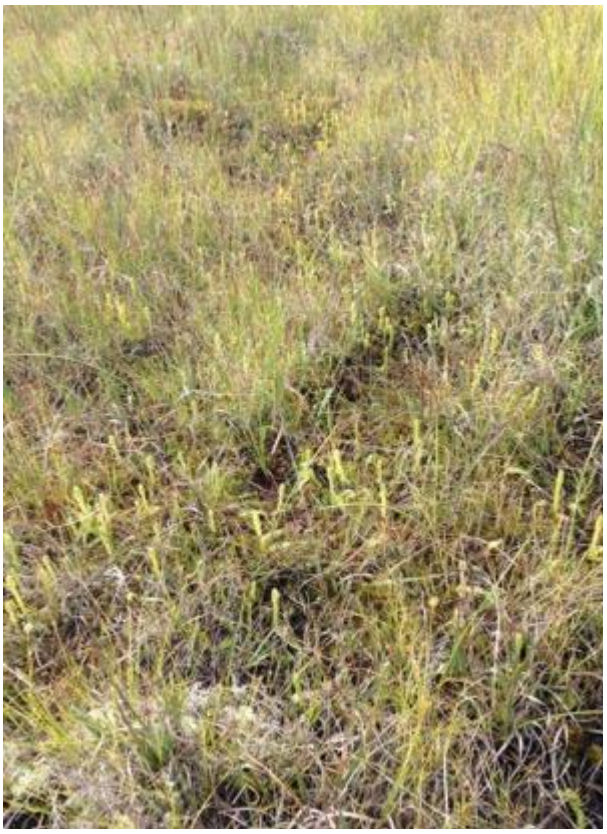
Population trend
Increase (was 125)

Threat status
None

Description
25a In nice quality M16 wet heath away from track. 40 plants scattered across system of shallow pools and depressions. 30x2m

25b In wet heath kept open by heavy trampling of livestock. Plants are big and healthy-looking. Plenty of uncolonised bare peat in this area. 40 plants 19 fruiting, some trampled habitat. Some on drier ground

26a&b Growing in M21 mire amongst Sphagnum denticulatum and Rhynchospora alba. Habitat good, no poaching or trampling. Scattered individual plants also present in mire further south. 230 plants good amount of fruiting in 120x50 patch. Growing in amongst M21 with plants typically growing on mat forming Sphagna.



LiNF 27 White Moor Bottom

Description
27a In wet peaty ground in well-used foot track. Good habitat. Lightly poached path through damp mire. Lack of available habitat. Rhynchospora alba, Molinia, Erica tetralix, Eriophorum ang, Sphagnum cuspidatum.

27b In wet peaty ground in well-used foot track. Good habitat. Some growing in amongst Molinia, others on eroded peat faces

Habitat
Track through wet heath

Population
222

Population trend
Increase (was 90)

Threat status
None

LiNF 30 Harvest Lane Bottom

Habitat
Trackway

Population
0
Population trend
Local extinction (was 40)

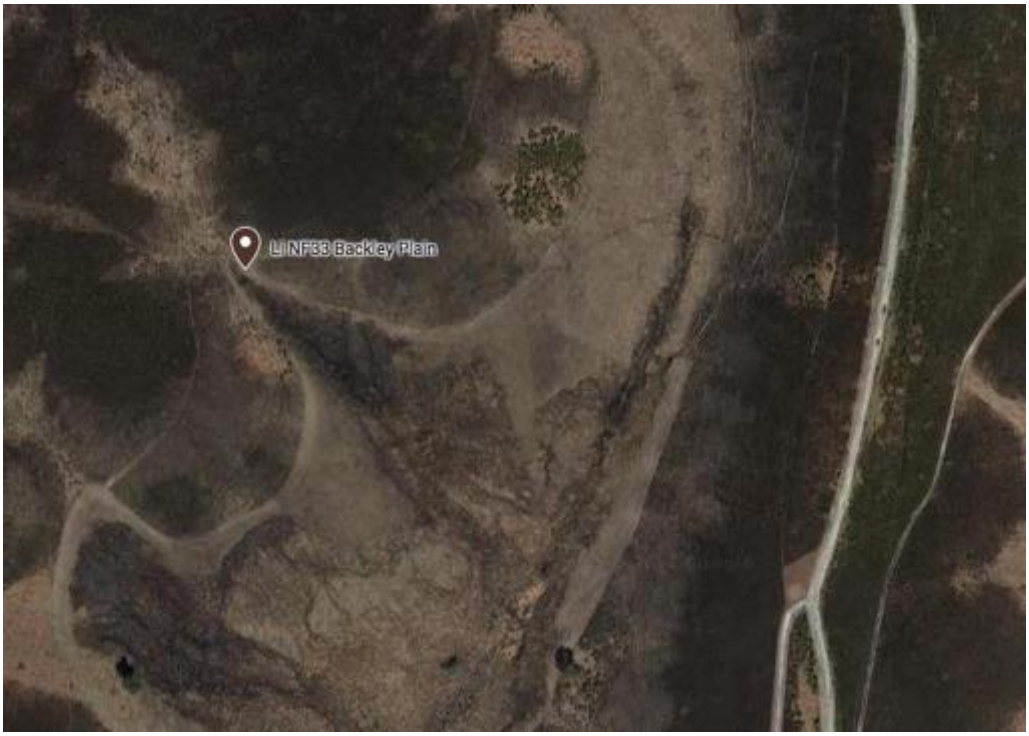
Threat status
Track upgrades

Description
In 2008 this comprised a population on bare peat on side of a ditch on the northern edge of a foot track. Some plants growing through Sphagnum. There is potentially good habitat nearby (downslope) that could be colonised. In 2016 the track had been upgraded with imported gravel, which may have impacted on side ditch.

Site – LiNF 33 Backley Plain

Description

Very small population on barish peat at edge of a pony wallow at the head of a small valley. Area is quite poached. Very little bare peat habitat nearby.



Habitat
Valley head with seepage line

Population
0

Population trend
Local extinction (was 15)

Threat status
Hard to elucidate what has happened at this site

LiNF 39 Holmesley Ridge

Description
In 2008 this was a good population growing over thin peat at northern edge of most easterly pool in the bottom of a large disused gravel pit. Limited to a thin strip 2-3m wide close to water's edge. In 2016 just 3 minute vegetative plants found. No obvious reason for decline

Habitat
Gravel and peat pond margin

Population
0

Population trend
Local extinction (was 260)

Threat status
Habitat loss

LiNF 40 Pigsty Hill, Burley

Habitat
Track beside wet heath

Population
20

Population trend
Increase (was 11)

Threat status
None

Description
Small population on eroded peat face at western edge of foot track. Good habitat; also good potential wet heath habitat just east of track, not colonised. Plants occur below clump of Erica tetralix and Calluna, behind clump of Molinia and Rhynchospora

LiNF 44 Station Road, Holmsley

Description
2008 Thinly scattered in bare patches of wet heath close to base of slope close to road. 5m from heavily used foot track. Heath is quite compacted by e.g. vehicles and stroboli are very rare. Otherwise habitat looks good.

2016 9 rather trampled plants on edge of path 6m north of track growing amongst Molinia, Rhynchospora, Carex panicea, Erica tetralix. Plenty of bare ground but too compacted.

Habitat
Track through wet heath

Population
9

Population trend
Decrease (was 51)

Threat status
Lack of fruiting caused by disturbance and compaction of surrounding habitat

LiNF 46,47,120 Duckhole Bog

Description
46 Very close to west side of main foot track on S side of stream in wet poached peat at edge of mire beside a small pool, Plenty of uncolonised good habitat nearby. 1 vegetative plant by small pond to west of track, then c. 120 plants up mire system with Narthecium, Sphagnum denticulatum, Rhynchospora, Drosera rotundifolia.

47 Large population on eroded peat faces beside a severely eroded track. Majority of plants are on 6 isolated peat 'islands' in path; others on receding face of wet heath. Some plants very trampled but others in more sheltered situations have abundant stroboli. Virtually none fruiting but very vigorous vegetative spread

120 No plants found here in 2016.

Habitat
Mire and track through mire

Population
167

Population trend
Decrease (was 650)

Threat status
Unclear why decline has occurred, but possibly over trampling by livestock

LiNF 56 SW of Lucas Castle

Description
In seepage line at top of slope above stream, just east of the main track. Population occurred in two main patches. Good habitat, slightly poached by livestock but not heavily trampled by track-users.
2016 Not refound. Some suitable habitat and bare ground although quite overgrown in places. Possibly drier than it used to be?

Habitat
Track through wet heath seepage line

Population
0

Population trend
Local extinction (was 100)

Threat status
Reduction in suitable habitat

LiNF 57 SW of Slufters Pond

Description
60 plants in thin peat over gravel by gulley between two ponds with further 4 plant 8m north in amongst Sphagnum denticulatum. Habitat good, slightly poached by livestock.

Habitat
Pond edge

Population
68

Population trend
Decrease (was 180)

Threat status
Uncertain

LiNF 58,59 Plaitford Common

Habitat
Mire

Population
1000

Population trend
Decrease (was 1345)

Threat status
Possible drying out of mire habitat

Description
Formerly seven sub-sites in sparse peat amongst Sphagnum, Narthecium good quality Mire.
In 2016 surveys plants were only found at one site – 59a, but here the population had risen from 250 to 1000 plants. Some of the other areas appeared much drier and more grass dominated than ideal for Clubmoss plants so there may be a change in habitat which has led to the disappearance.
The survey was carried out in failing light so this area needs to be re-visited to ascertain the fate of the other sub-sites.

LiNF 62 West Wellow Common

Description
Interface between wet heath and mire with plentiful Sphagnum papillosum and denticulatum.
Plants were found in three locations in 2008, but in 2015 were only found at the northern end, in reduced numbers. The plants that were found were unusually large with extremely tall strobili, so appeared to be very healthy. Further survey required to get exact numbers.

Habitat
Mire/Wet heath interface

Population
16

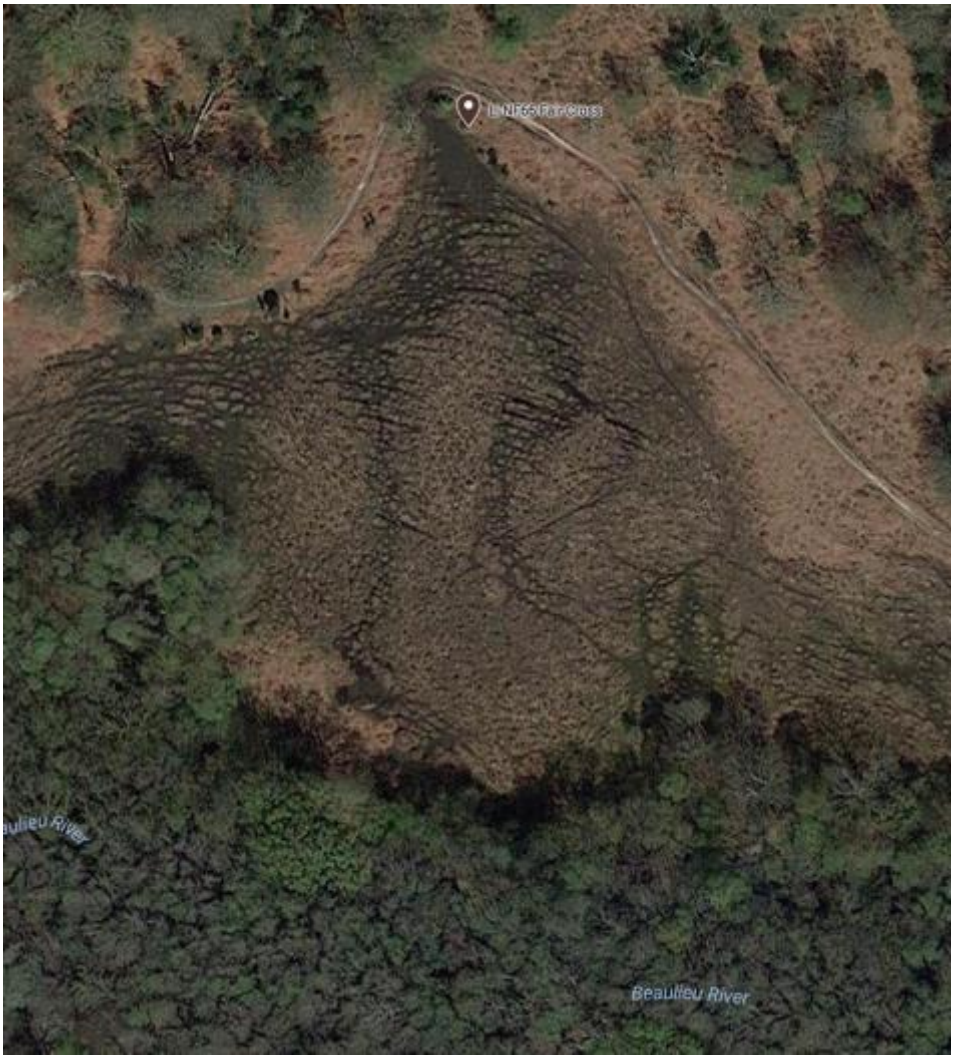
Population trend
Decrease (was 129)

Threat status
Habitat appears to be too poached in places

LiNF 66 Fair Cross

Description

In 2016 9 plants found in amongst with Molinia, Juncus bulbosus, Sphagnum cuspidatum beneath track. Not huge amounts of bare ground, but well grazed and trampled and despite small size doing well



Habitat
Mire/Wet heath mosaic

Population
16

Population trend
Increase (was 2)

Threat status
Local extinction due to small population size.

LiNF 70,71 Matley Heath

Habitat
Paths on Wet heath

Population
279

Population trend
Increase (was 1425)

Threat status
Trampling

Description

70 –
2008 225 plants extending north along main foot-track, mostly on eastern side of track, in bare eroded and trampled wet peaty ground. Good population though many shoots are semi-trampled.
2016 150 plants in damp exposed peat on eastern edge of the track. Some plants in the middle suffering from trampling where additional small footpath has formed. Habitat otherwise good with plenty of damp open ground

71 -
2008 1200 plants, in wet heath at edges of main foot-track and spreading into adjacent wet heath to the east. Good quality habitat. Growing with some Rhynchospora fusca.

2015 129 plants in 6 patches, over 30m. mostly in shallow rut 3 m east and parallel to main track. Additional small population on western bank of main track.

There appears to be nothing particularly wrong with the habitat condition on this track to explain the massive drop in numbers. The track is trampled and compressed in places, and surround by fairly dense heather, so the plants may have been squeezed out of available habitat.

70

71

LiNF 73 Matley Heath Track

Habitat
Track through Wet heath

Population
1745

Population trend
Decrease (was 3000)

Threat status
Trampling

Description
2008 A huge, very vigorous population associated with secondary foot/pony track across wet heath on the eastern side of the valley mire. Is broken down into a number of sub-populations occurring more or less contiguously. Many shoots are trampled into peat but population appears to be very healthy. Extends 300 to the south (73b).

2015 1740 plants in scattered and some dense patches along track. Habitat good but large reduction in numbers

LiNF 74 Matley Heath

Description
5 clusters of plants on lightly trodden pony track through mire. Plentiful bare ground, Eleocharis multicaulis, Sphagnum cuspidatum, Molinia caerulea, Erica tetralix. 17x2m.

Habitat
Track through Wet heath

Population
39

Population trend
Decrease (was 90)

Threat status
Trampling

LiNF 75 Fulliford Bog

Description
Good population occurring as several distinct sub-populations in bare peaty ground on the NW side of a heavily used gravel track. Habitat seems good and extensive and peat is kept open by trampling. Plants are mostly on eroded peat faces near track. Plants scattered in patches of damp eroded peak NW of track with Erica tetralix, Molinia caerulea, Calluna, Carex demissa, Sphagnum compactum and subsecundum.

Habitat
Track through Wet heath

Population
68

Population trend
Sharp Decrease (was 450)

Threat status
Uncertain, possibly trampling

LiNF 76 Shatterford, Denny Lodge

Description
North of ford, 5m east of track. All plants on bare eroding peat faces on sides of track. Good habitat with uncolonised bare peat nearby; area is heavily poached.

Habitat
Track through Wet heath

Population
6

Population trend
Sharp decrease (was 45)

Threat status
Uncertain, possibly trampling

LiNF 77 Longdown, 78 Blackdown, 79 North of Fulliford, 80 Peel Hill, 82 Longdown Inclosure

Habitat
Tracks through Wet heath

Population
711

Population trend
Increase (was 563)

Threat status
None

Description
Several populations where tracks cross wet heath and mire communities. Population numbers fluctuate site by site but as a whole the meta-population does seem stable

77- 2008 Growing in M21 mire just off an indistinct path. Good-sized colony of Rhynchospora fusca is a few metres away. 2015 No plants found, slight lack of bare ground
78 - Large population of 201 plants running along 15 m of minor track across heathland. Plants occurring in combination of dents patches with some outliers. Good habitat with light to trampling and moist bare peat.
79 - 230 plants in 12x8 scattered patches on heavily poached wet track and side ruts. Very large fertile plants. New find in 2016
80 - 2016 5x4 230 plants, some large. On eroded peat faces around bog pool west of mud pool, west of track
82 - 50 plants in 2x1 patch on secondary track below main one. In eroded peat with Rhynchospora alba, Calluna, Erica tetralix, Molinia

77

78

79

80

82

LiNF 83 Ipley Inclosure

Description
72 plants in 6m strip along east of track, now in cleared plantation. Slight change in location from 2008

Habitat
Track through plantation.

Population
72

Population trend
Decrease (was 135)

Threat status
Change to env. Conditions following felling of compartment

LiNF 90 Buck Hill, 92 Gurnetfields Furzebrake, 93 Starpole Pond, 107 North of Foxhunting Enclosure

Habitat
Tracks through Wet heath

Population
31

Population trend
Decrease (was 105)

Threat status
Change of use of tracks

Description

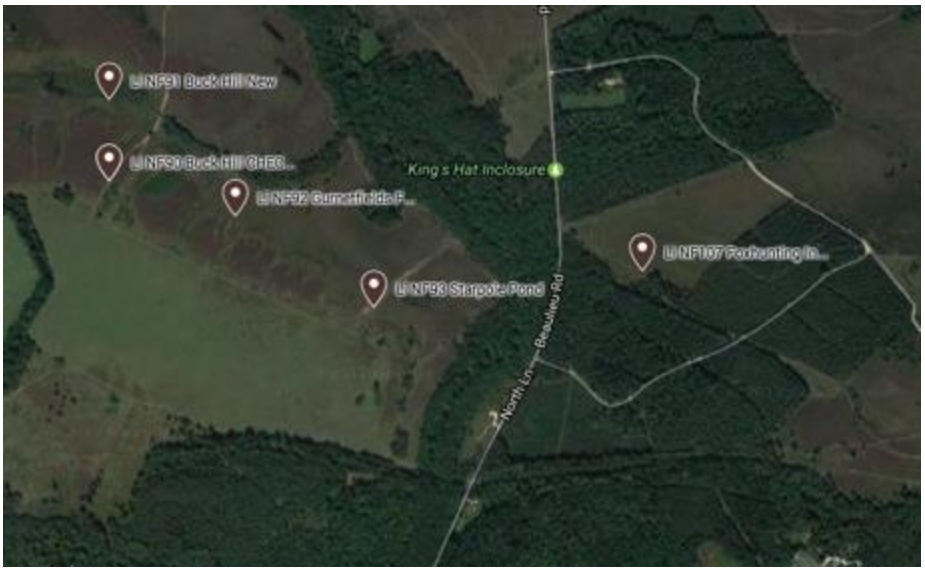
Network of tracks running through wet heath. The tracks are extremely eroded in places, which is often where the Marsh Clubmoss population have become established.

90/91 2008sites 22 plants in well-used foot track on S side of stream, S of a small enclosure. Scattered plants on eroding peat faces in heavily poached ground. 2015 site not re-found

92 2008 Two main groups a few metres apart, in a well-trodden foot track. One group (29, 10 with stroboli) is on eroding peat faces. The other is in the track on bare peat. Plenty of uncolonised habitat nearby. 2016 23 plants on eroded peat wall, other group gone Gurnetfields Furzebrake

93 2008 One tiny vegetative shoot on top of an eroded peat 'island' on slope in the middle of a heavily-used foot track. Nearest suitable alternative habitat is other eroding bare peat faces 4m uphill in same track.
2015 7 plants. habitat good, on edge of peat island on centre of track at base of slope

107 2008 1 plant in bare peat at eroding edge of wet heath on NE side of main foot track. Plenty of uncolonised suitable bare peat nearby. 2016 Condition good but no plants found



92

93

107

LiNF 97 Pig Bush

Description
2008 2 sub-populations in shallow channels 10-20m east of main foot track. Scattered plants also present.
2015 Northern sub-site not refound, southern site comprised 15 plants at edge of track

Habitat
Track through Wet heath

Population
15

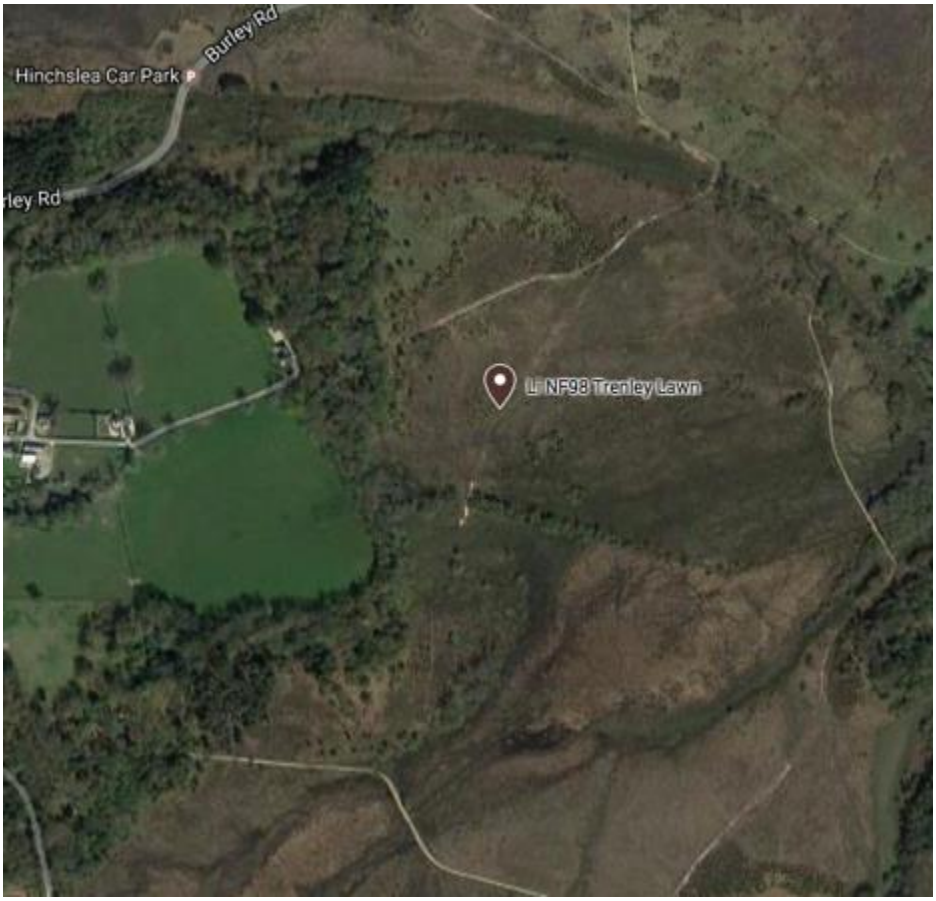
Population trend
Decline (was 160)

Threat status
Uncertain, possibly trampling

LiNF 98 Trenley Lawn

Description

2008 At edge of heavily used foot track. Severely trampled and vulnerable to loss through further erosion. Plenty of suitable open wet heath habitat nearby though. 2015 Not refound. Habitat suitable, plenty of damp bare ground at side of track including vertical banks. Good associate species including Molinia, Carex panicea, Erica tetralix, Eriophorum ang, Calluna vulgaris



Habitat
Track through Wet heath

Population
0

Population trend
Local extinction (was 15)

Threat status
Uncertain, possibly trampling

LiNF 102 Bagshot Moor

Description
2008 - In Rhynchospora alba dominated wet heath close to a pony track. Good habitat but little bare peat nearby for further colonisation.

2016 - Not refound, lack of suitable habitat

Habitat
Track through Wet heath

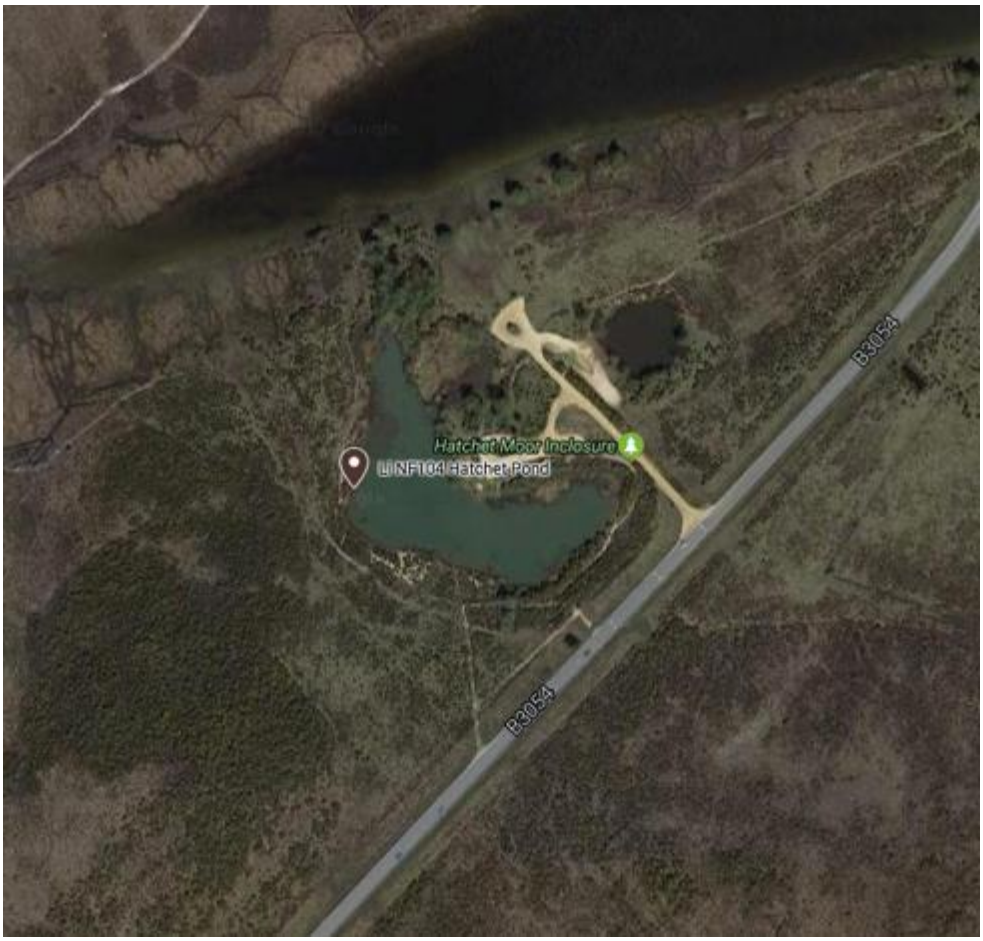
Population
0

Population trend
Local extinction (was 5)

Threat status
Uncertain, possibly trampling

LiNF 104 Hatchet Pond

Description
In trampled bare peat at SW edge of large pond near car park.
Habitat is good although with high degree of trampling, unable to re-find the plants from 2008.



Habitat
Pond edge

Population
0

Population trend
Local extinction (was 18)

Threat status
Uncertain, possibly trampling or eutrophication

LiNF 116 Beaulieu Heath

Description
Plants between tracks north of river crossing. Just west of eastern gravel track. Growing with Sphagnum denticulatum, Erica tetralix, Molinia, Calluna, Agrostis stolonifera. Plenty of bare ground

Habitat
Track through Wet heath

Population
9

Population trend
Stable (was 9)

Threat status
Any changes to track makeup

LiNF 118 Brown Loaf

Description
On bare wet peat with Drosera spp. and Eleocharis multicaulis. 10 plants plus 5 outliers. 4 fertile fronds. Habitat good, although slight lack of exposed bare ground.

Habitat
Wet heath

Population
10

Population trend
Declining (was 15)

Threat status
Habitat closing over


13m west of Pine tree

LiNF 121 Gaze Hill

Habitat
Track through Wet heath

Population
400

Population trend
New site

Threat status
None

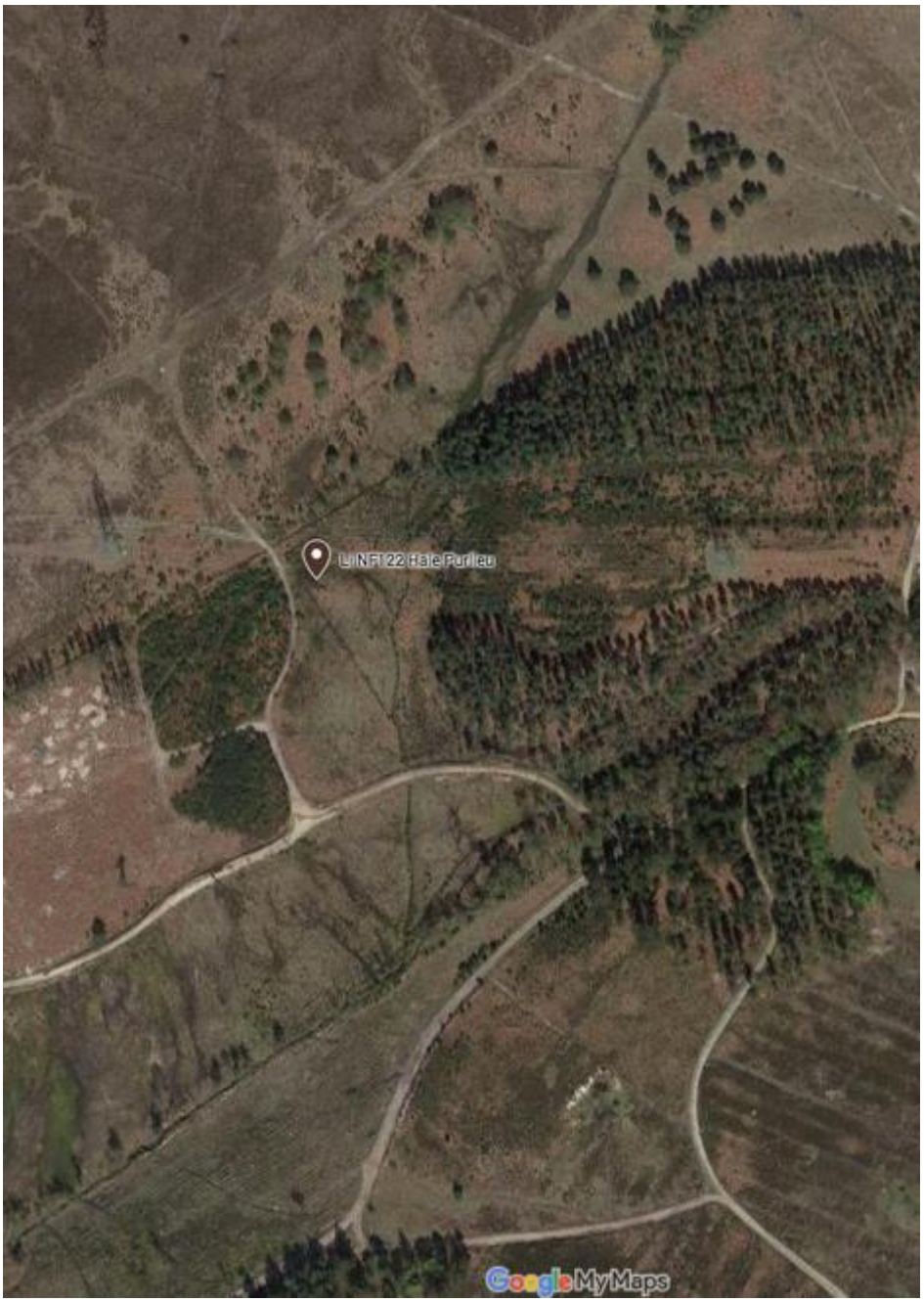
Description
400 plants on damp peaty track with Eleocharis multicaulis and Carex panicea. Additional 30 plants on north of track. New site in 2016

LiNF 122 Hale Purlieu

Description

Small patch of mire on seepage line under pylons with good range of mire vegetation including Narthecium, Sphagnum denticulatum, Molinia, Carex panicea, Drosera intermedia.

220 plants with190 stroboli in 3x3m, 20% bare earth. Good surrounding habitat, no current threats. New site in 2016



Habitat
Mire

Population
220

Population trend
New site

Threat status
Redevelopment of pylons underground

LiNF 123 Furzley Common

Habitat
Mire

Population
920

Population trend
New site

Threat status
None

Description

920 plants in 10x5m patch in valley more with Rhynchospora alba, Molinia, Sphagnum cuspidatum, good levels of bare ground. New site in 2016

Next Steps

About Us

The Species Recovery Trust is a charity set up to tackle the loss of some of the rarest species in the UK.

There are over nine hundred native species in the UK that are classed as under threat, with several hundreds more currently widespread but known to be in significant decline. The countryside is now bereft of many species that were a familiar sight a mere generation ago.

A small number of these species are on the absolute brink of existence, poised to become extinct in our lifetimes; our goal is to stop them vanishing.

Our aim is to remove 50 species from the edge of extinction in the UK by the year 2050. In addition we are reconnecting people with wildlife and the natural world through training programmes and awareness raising.

the species recovery trust

The Species Recovery Trust
37 Albany Road
Salisbury
SP1sites 3YQ
01722 322539
enquiries@speciesrecoverytrust.org.uk
www.speciesrecoverytrust.org.uk