

Habitat restoration monitoring update

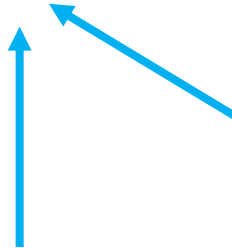




- Wetland restoration
- Clear fell restoration – to open heathland
- Open habitat restoration – removal of non-native conifers and regeneration on open heath
- Ancient and Ornamental (A&O) Woodland restoration – removal of non-natives, thinning.
- Rhododendron control
- Bracken control
- Holly coppicing/ pollarding. Holly inclosures.
- Verge restoration
- Species surveys

Millersford Bottom Mires (33):

"This is a large area mostly occupied by humid heath in an area of sloping ground with a watercourse in the lower parts. The watercourse has been modified in the past which has resulted in damage to the associated wetland habitats but plans are in place to address this. So the units fails to meet targets for habitat extent as there are indications that the modification of the watercourse has resulted in loss of associated mire and wet grassland."



The New Forest SSSI

Unit	Condition	Habitat
001	Favourable	NEUTRAL GRASSLAND - Lowland
002	Unfavourable - Declining	NEUTRAL GRASSLAND - Lowland
003	Unfavourable - Declining	NEUTRAL GRASSLAND - Lowland
004	Unfavourable - Recovering	NEUTRAL GRASSLAND - Lowland
005	Favourable	NEUTRAL GRASSLAND - Lowland
006	Unfavourable - Recovering	NEUTRAL GRASSLAND - Lowland
007	Unfavourable - Recovering	NEUTRAL GRASSLAND - Lowland
008	Not Recorded	NEUTRAL GRASSLAND - Lowland
009	Unfavourable - Declining	NEUTRAL GRASSLAND - Lowland
010	Unfavourable - Declining	NEUTRAL GRASSLAND - Lowland
011	Unfavourable - Declining	NEUTRAL GRASSLAND - Lowland
012	Unfavourable - No change	NEUTRAL GRASSLAND - Lowland
013	Unfavourable - No change	NEUTRAL GRASSLAND - Lowland
014	Unfavourable - Declining	NEUTRAL GRASSLAND - Lowland
015	Unfavourable - Recovering	NEUTRAL GRASSLAND - Lowland
016	Unfavourable - Recovering	NEUTRAL GRASSLAND - Lowland
017	Favourable	NEUTRAL GRASSLAND - Lowland
018	Favourable	NEUTRAL GRASSLAND - Lowland
019	Favourable	NEUTRAL GRASSLAND - Lowland
020	Unfavourable - Recovering	NEUTRAL GRASSLAND - Lowland
021	Unfavourable - Recovering	NEUTRAL GRASSLAND - Lowland
022	Unfavourable - Recovering	NEUTRAL GRASSLAND - Lowland
023	Unfavourable - Recovering	NEUTRAL GRASSLAND - Lowland
024	Unfavourable - Declining	ACID GRASSLAND - Lowland
025	Not Recorded	LOWLAND SHRUB HEATH - Lowland
026	Favourable	BROADLEAVED, MIXED AND YEW WOODLAND - Lowland
027	Favourable	BROADLEAVED, MIXED AND YEW WOODLAND - Lowland
028	Favourable	LOWLAND SHRUB HEATH - Lowland
029	Favourable	OPEN MARSH AND SWAMP - Lowland
030	Unfavourable - Recovering	OPEN MARSH AND SWAMP - Lowland
031	Unfavourable - Recovering	OPEN MARSH AND SWAMP - Lowland
032	Unfavourable - Recovering	OPEN MARSH AND SWAMP - Lowland

[New-Forest-Woodlark-survey-2024-final.pdf](#)

Hampshire Ornithological Society 2024, New Forest Woodlark (*Lullula arborea*) survey 2024. Higher Level Stewardship Agreement The Verderers of the New Forest AG00300016.



New Forest Woodlark (*Lullula arborea*) survey 2024

Higher Level Stewardship Agreement
The Verderers of the New Forest
AG00300016

5 November 2024



Juvenile Woodlark © A Parker



Department
for Environment
Food & Rural Affairs



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Freshwater and Wetland Restoration Forum

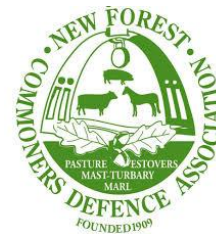
“ To act as an independent consultative and advisory body focused on strategic and long-term freshwater and wetland restoration priorities in the New Forest. ”



National
Trust



Forestry England



Environment
Agency



Hampshire
County Council



Hampshire &
Isle of Wight
Wildlife Trust



Wessex
Rivers Trust



New Forest
Access Forum

New Forest Freshwater and Wetland Restoration Plan

New Forest Freshwater and Wetland Restoration Plan: Section 1 - Guidance

Freshwaters and wetland restoration in the New Forest

- 1.1 The New Forest wetlands and watercourses are of exceptional importance for biodiversity. The streams that drain the New Forest arise within the Forest boundary and flow to either the sea or the chalk rivers on the boundaries; they flow almost entirely through semi-natural habitat and are buffered against adverse ecological change, for example from pollutants or extraction. The New Forest is the most important area in the UK for lowland valley mires, networks of small, acidic streams and temporary ponds. Together with rivers and permanent ponds, wet grassland, heathland and woodland, these are, variously, designated features within the [New Forest Site of Special Scientific Interest¹ \(SSSI\)](#), [New Forest Ramsar site²](#) and [New Forest Special Area of Conservation³ \(SAC\)](#).
- 1.2 However, from the 1840s onwards, New Forest watercourses have been deliberately channelized (Langford, 1996), confining them and separating

- Section 1 – Guidance
- Section 2 – Vision and outcomes
- Section 3 – Habitat descriptions
- Section 4 – Information sheets
- Section 5 – Criteria for inclusion
- Section 6 – Pre-surveys
- Section 7 – Manual of techniques
- Section 8 – Measures of success
- Section 9 – Monitoring

New Forest Wetlands

Helping to protect, restore and enhance
wetland habitats and species in the New Forest

14 August 2024



New Forest Wetlands

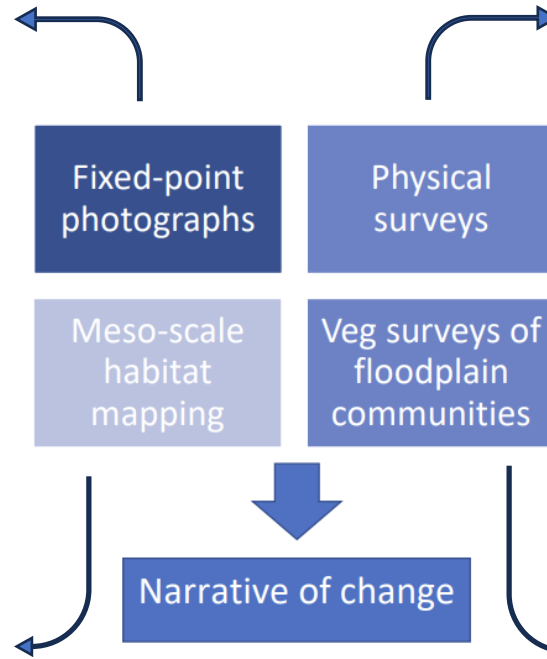
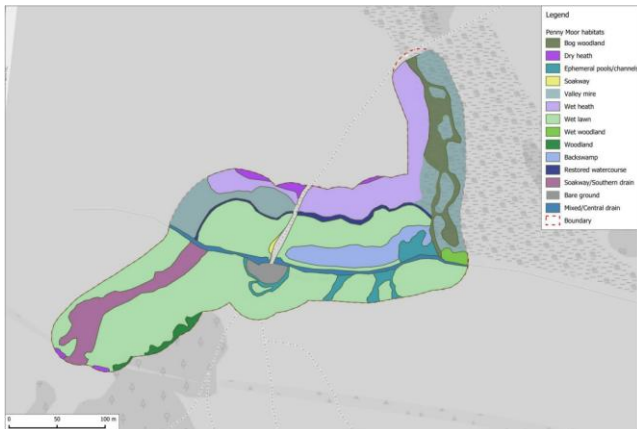
Key principles of freshwater and wetland restoration monitoring in the New Forest

- Monitoring should focus on measuring the impacts against desired outcomes as identified in the Evidence phase (case studies and measures of success).
- "Gamma diversity" should be considered in interpreting data – i.e. not a count of species associated with one feature, but the overall diversity of target assemblages within the system (n.b. invertebrates in particular can be very abundant in New Forest habitats, and a focus on rarer species is needed).
- Full monitoring is not necessary (or feasible) at every location. Use of selection criteria will ensure that only sites that are likely to benefit from restoration are selected (e.g. based on the level of modification and its consequences - channelization, lack of submerged and emergent vegetation in the channel, lack of transitional habitat).
- The monitoring should be focussed on the stretch or area where the restoration was carried out, but the impact on neighbouring reaches may also be considered (e.g. changes in deposition and flooding).
- Monitoring may need to continue over several years, as it can take a long time for wetland habitats to reach their full potential after restoration.
- The information should be in a form that can be used to create a narrative of change.
- Monitoring data should provide evidence of positive trophic cascades within the system e.g. improved conditions for plants, invertebrates and their predators.
- Monitoring will be used to assess whether further modifications are needed at restoration sites and to highlight any lesson learned about the techniques used.

Table 1: Measures of success for freshwater and wetland restorations.

Measure	Monitoring approach
1. Water is retained, peat re-wetted and ongoing deterioration of mires is prevented.	Habitat monitoring to show an overall increase in area of peat bog habitats. Vegetation surveys to establish whether vegetation fits the New Forest freshwater and wetlands habitat as described in Section 3 of the FWRP)
2. Active headward erosion ("nicks points") in mires and	Fixed point photography showing pre and post restoration features.





Module	Date	Channel width	Left Bank Height	Right Bank Height
1	08/2017	0.50	0.67	0.81
	06/2024	1.50	0.1	0.1
2	08/2017	0.90	0.44	0.54
	06/2024	1.08	0.25	0.38
3	08/2017	0.30	0.75	0.76
	06/2024	2.10	0.18	0.29



Figure 8: Box plots indicating the cover of different plant groups according to habitat type at Penny Moor.

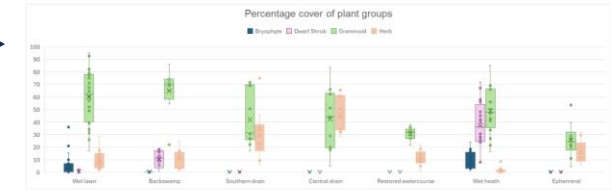
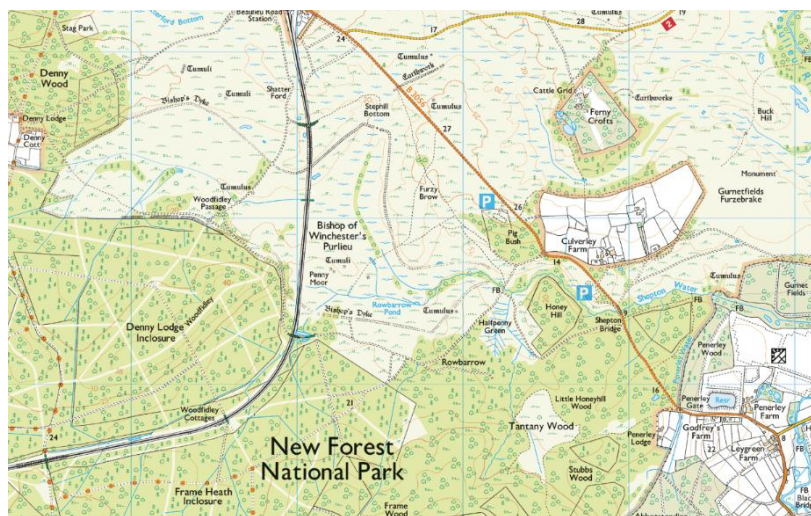


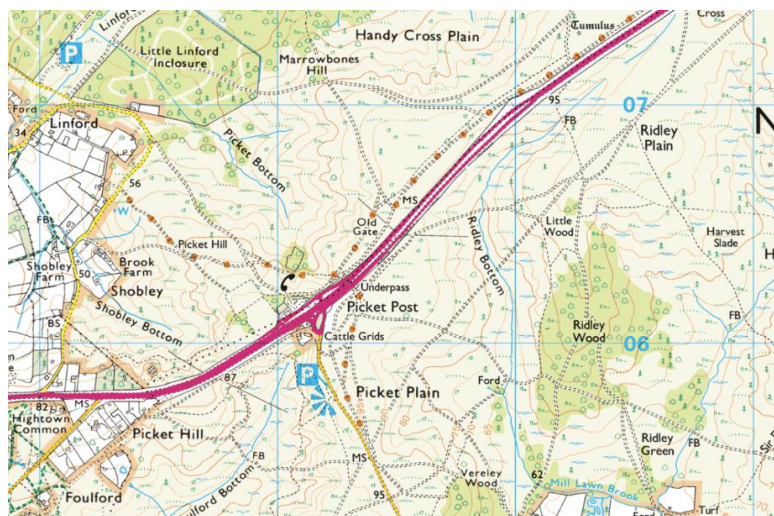
Table 3: Species richness and other variables recorded from quadrats within each wetland habitat type surveyed at Penny Moor.

	Wet lawn	Bog Myrtle lawn	Southern drain	Central drain	Restored watercourse	Wet heath	Pooled and disturbed
Species richness	13 (+/-1.1)	12.5 (+/-1.1)	11.8 (+/-0.6)	15.9 (+/-1.3)	8.1 (+/-0.6)	14.2 (+/-1.4)	13 (+/-0.8)
Vegetation bulk (cm)	6.8 (+/-0.6)	12.8 (+/-1.2)	15.4 (+/-4.9)	18.1 (+/-4.9)	-	19.8 (+/-1.7)	4.6 (+/-0.7)
Bare ground (%)	23.9 (+/-3.2)	4.6 (+/-2.1)	0.9 (+/-0.9)	0	0	6.5 (+/-1.8)	61 (+/-3.6)
Total veg cover (%)	75.3 (+/-4.3)	86.3 (+/-5.9)	71.2 (+/-9.8)	88.2 (+/-5.6)	42.2 (+/-1.9)	96.8 (+/-2.4)	41.6 (+/-3.8)
Leaf litter (%)	0	7.1 (+/-2.6)	0	0	0	0.7 (+/-0.3)	0
Dung (%)	0.1 (+/-0.1)	0.5 (+/-0.2)	2.4 (+/-1.7)	0	0	1.1 (+/-0.5)	0

Penny Moor



Picket Mire

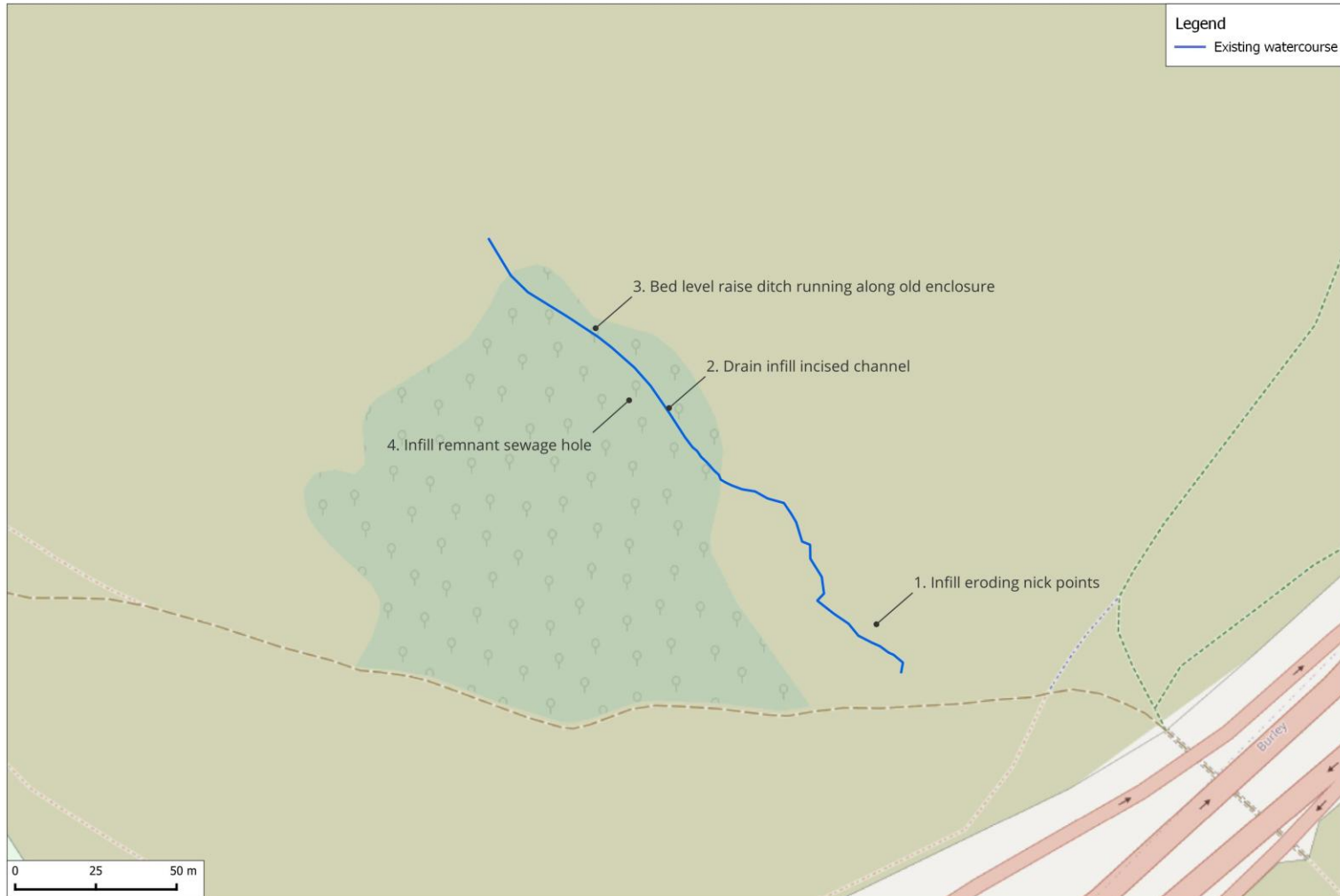


Picket Mire – need for restoration

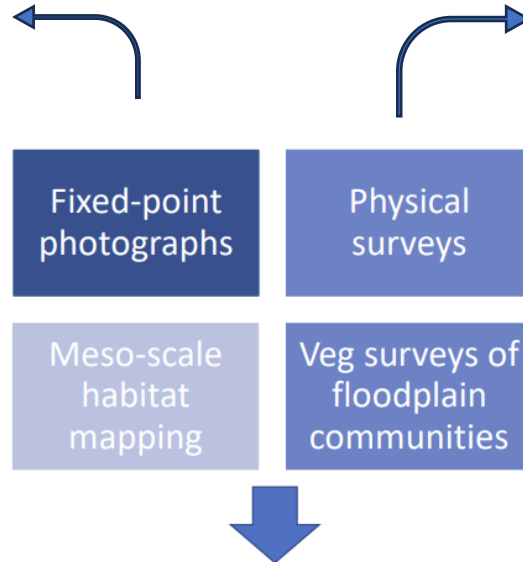


Feature	How to identify in the field	
1. Artificial drainage ditches within peat bogs	• Presence of straight watercourses with a uniform profile and without the complexity of natural shallow bog runnels. • Characteristic wetland vegetation reduced in extent (refer to habitat descriptions) • Terrestrialised 'islands' with scrub/conifers	√
2. Headward erosion of channels in mires ("nick points")	• Peat 'waterfall' and scoured pools within valley mires, with intact Valley Bog with diffuse runnels above and a defined stream channel below.	√
3. Modified watercourses in floodplain lawns and woodland	• Straight watercourses lacking meanders • Evidence of old meanders adjacent to straightened channels • Remains of old spoil heaps along banks (although these may have eroded away) • Lack of in-channel and marginal communities (including Poached and Disturbed Habitat). • Deposition of gravel downstream	√
4. Over-incision in streams (gullyng)	• Vertical banks along most of the watercourse, deepened channel • Presence of dry rather than wet acid grassland/heathland in floodplain • "Waterfalls" from adjacent floodplain mires	
5. Side drains	• Presence of perpendicular drains feeding into main watercourse	
6. Disconnect between watercourse and floodplain	• Incised channel with spoil indicating that movement between the watercourse channel and floodplain is inhibited. • Most obvious in winter months/periods of peak flow.	√
7. Infrastructure (culverts, vented causeways, bridge)	• Presence of infrastructure, including bank protection to reduce erosion and infrastructure in stream bed to slow flow	

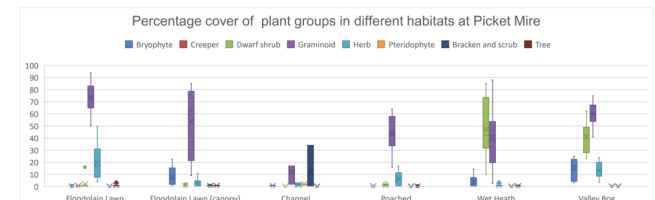
Map 2: Restoration works carried out at Picket Mire



Picket Mire – monitoring work



Narrative of change

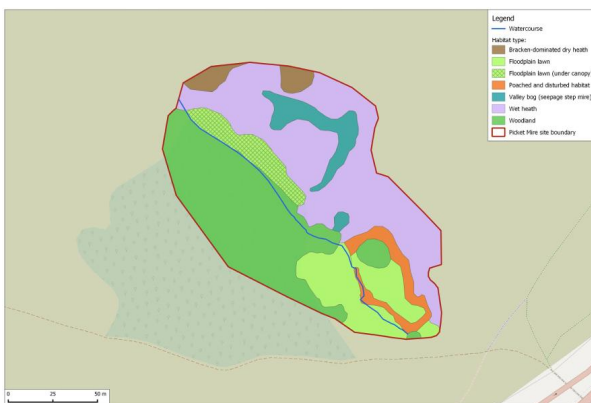


1: Box plots indicating the cover of different plant groups according to habitat type at Picket Mire (the solid box shows the interquartile range, with the median value represented by X. Whiskers indicate the minimum and maximum values).

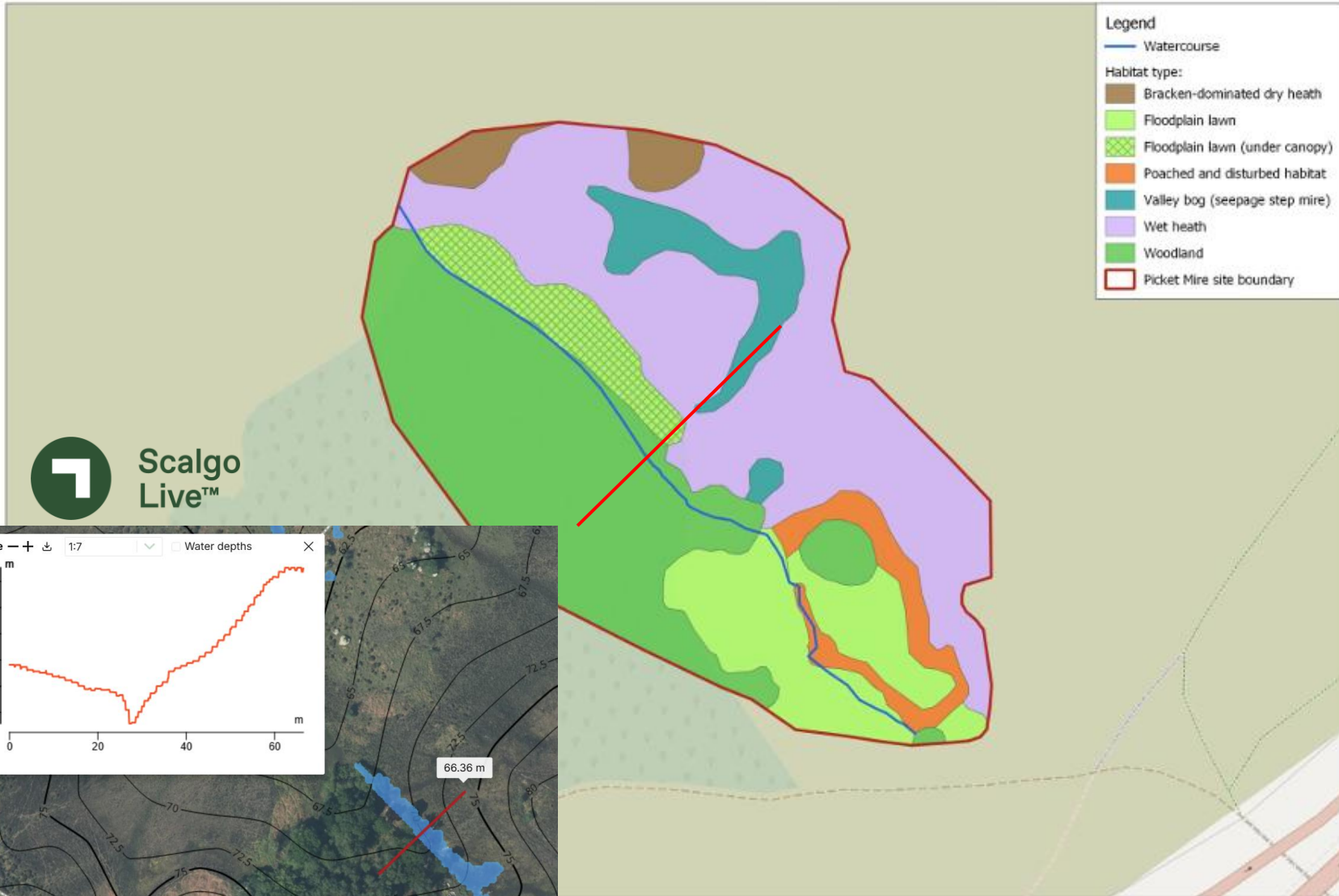
Table 3: Species richness and other variables recorded from quadrats within each wetland habitat type surveyed at Picket Mire.

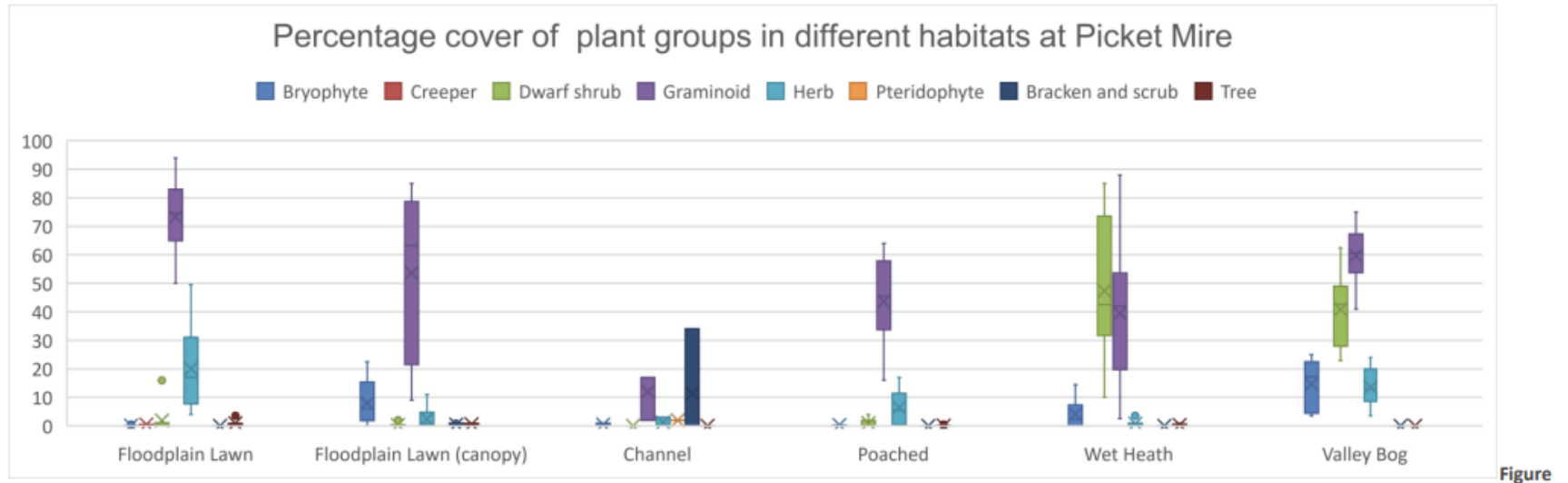
	Floodplain Lawn	Floodplain Lawn (with canopy)	Oligotrophic Stream (in-channel)	Poached and Disturbed Habitat	Wet Heath	Valley Bog
Bare ground (%)	4.9(+/-1.35)	9(+/-1.9)	81.33(+/-10.81)	48.9(+/-4.27)	5.3(+/-1.82)	4.88(+/-1.26)
Leaf litter (%)	0.8(+/-0.41)	30.63(+/-12.71)	0.33(+/-0.33)	0(+/-0)	2.05(+/-0.63)	1.25(+/-0.37)
Dung (%)	0	0	0	0	1(+/-0.47)	0
Sward Height (cm)	2.5(+/-0.27)	4.25(+/-0.65)	12.33(+/-9.06)	3.7(+/-0.68)	20(+/-3.3)	10(+/-0.83)
No. of species	13.7(+/-0.9)	8.63(+/-1.18)	5.67(+/-1.2)	14.6(+/-1.8)	7.6(+/-0.65)	9.25(+/-0.37)

Figure



Picket Mire – habitat survey



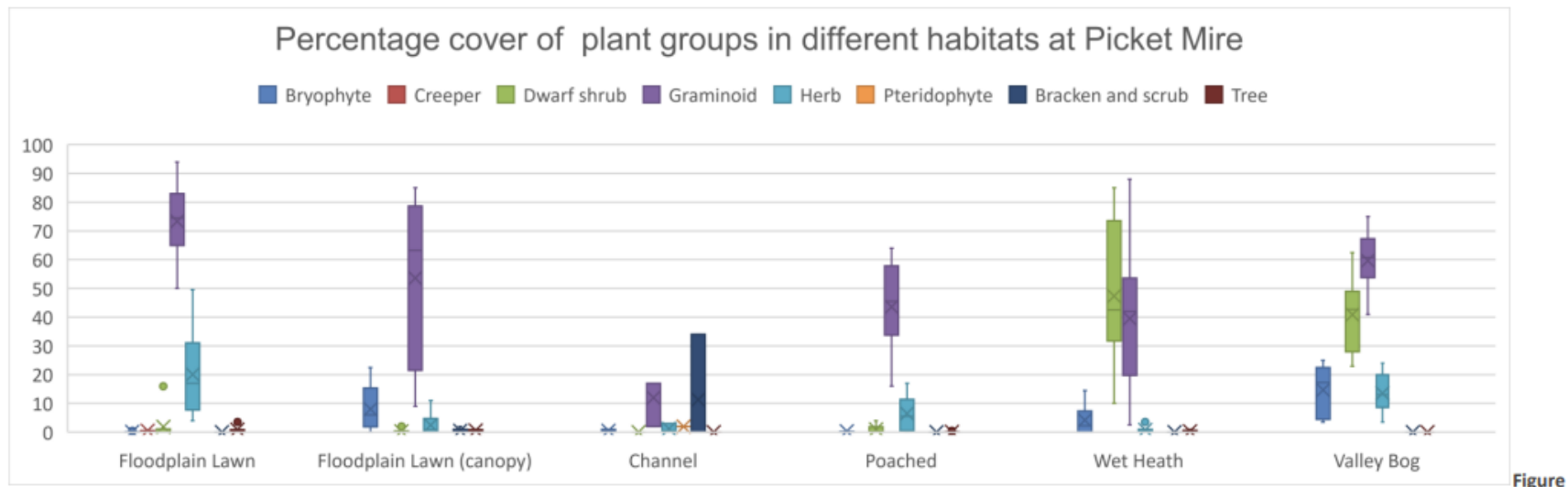


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Picket Mire – fixed point photos



Picket Mire – Physical features

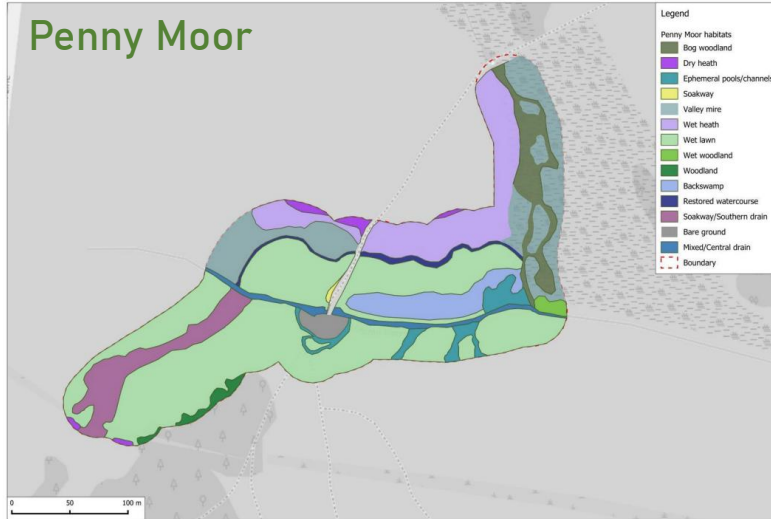


Channel dimensions

Location	Height (m)		Width (m)	
	2023	2025	2023	2025
A	0.7	0.53	0.53	1.0
B	0.93	0.51	0.2	0.6
C	1.06	0.4	0.5	1.38
D	1.35	0.1	1.3	2.4
E	1.5	0.5	1.1	0.9
F	1.85	0.7	0.8	0.6
G	0.84	0.15	0.55	3.0
H	0.25	0.25	1.28	1.28
I	0.2	0.2	0.22	0.22
J	0.59	0.2	0.46	2.8
K	0.53	0.01	0.9	2.8
L	0.17	0.16	3.0	3.0
M	0.38	0.35	1.10	1.10
Average	0.79	0.31	0.92	1.62







Longdown



Anderwood





Map 3: Height data used to identify a site boundary for Picket Mire

