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UK Habitat Classification and National Vegetation Classification survey at Nea Meadows Local Nature Reserve, Highcliffe, Christchurch, Dorset

CGO Ecology Ltd

Christchurch

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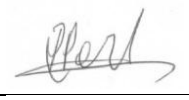
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Non-technical summary

Introduction

CGO Ecology Ltd (CGO) was instructed by Highcliffe and Walkford Parish Council (the Client) to conduct a habitat survey at Nea Meadows Local Nature Reserve, Highcliffe, Dorset (the Site). The Ordnance Survey grid reference is SZ 2023 9381. The Client manages the Site on behalf of BCP Council, the owner. The Site is surrounded by private residential properties. It was previously farmed, then managed as a public park. The survey is to inform an updated Management Plan. The last habitat survey was conducted by Dorset Wildlife Trust in 2013.

Methods

CGO conducted survey visits between July 2024 and October 2025. Initial visits in July 2024 mapped habitat types using the UK Habitat Classification (UKHab) system, and surveyed the meadow flora using the National Vegetation Classification (NVC) system. Subsequent visits refined habitat extents and types. QGIS software was used to produce a habitat map, and to measure habitat extents. Client and stakeholder consultation has been conducted.

Results

Three habitat types account for most of the Site: woodland, grassland, and lake/pond. In UKHab terms, these are 'w1g Other broadleaved woodland', 'g3c Other neutral grassland', and 'r1g Other standing water'. There are smaller areas of grassland, scrub, and ornamental hedges. Two streams ('r2b Other rives and streams') enter the lake: the culverted and polluted Bure Brook, and the relatively clean Chewton Farm Fetching Drain. The Site is accessed via an asphalt drive, car park, and footpath, and a network of gravel paths.

The 'meadow' which gives Nea Meadows its name occupies around a third of the Site. The meadow flora is impoverished, with only 5-10 species per square metre, but is relatively weed-free and seminatural. Woodland across the Site lacks canopy structure, glades are rare, and there is too much bramble, as well as non-native shrubs in some areas. The southeast woodland is suffering from 'ash dieback'.

Conclusions and recommendations

The Site has changed significantly since it was last surveyed. Tree and scrub cover has increased at the expense of other habitats. The meadow has been encroached by scrub and woodland. Despite long-term efforts to enhance it, floral diversity is low with unfulfilled potential. Woodland has invaded the wildlife pond and damp grassland, yet little of the woodland is 'wet' itself. The lake shore is completely shaded and homogeneous, with few aquatic plants. Leaf-fall has accelerated siltation, mud islands have formed, and throughflow is reduced.

Radical intervention is required to rebalance the Site's habitat diversity through short- to medium-term management and long-term maintenance. Lake shore shading must be reduced to prevent further siltation, reduce flood risk, and save remaining habitat niches. A five-year programme is recommended, removing 10% of trees per year, until at least 50% of the shoreline is unshaded. Annual maintenance must prevent regrowth and invasion by undesirable plants. The lake should be desilted, the arisings deposited at a carefully selected location on the south shore, and other aquatic and riparian habitat interventions explored.

Selective overseeding is recommended to diversify the meadow flora, trialled in compartments. Scrub and woodland fringes must be reduced, with arisings and topsoil scraped off, and grassland seeding instead.

Woodland fringes around damp grassland must be reduced, and glades created for saplings and ground flora, especially along the Drain. Diseased ash should be felled, and stacked as deadwood. Bramble and nettle must be reduced, and invasives controlled or eradicated.

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1. Introduction

CGO Ecology Ltd (CGO) was instructed by Highcliffe and Walkford Parish Council (the Client) to conduct a habitat survey at Nea Meadows Local Nature Reserve, Highcliffe, Dorset (the Site). The Ordnance Survey grid reference is SZ 2023 9381. The Client manages the Site on behalf of BCP Council, the owner. The Site is surrounded by private residential properties. It was previously farmed, then managed as a public park.

The aim of the current survey is to inform an updated Management Plan, to replace the previous one which operated from 2012-2017 (CBC, 2012). The last habitat survey was conducted by Dorset Wildlife Trust in 2013 (DWT, 2013).



Figure 1 – Extent of Nea Meadows LNR.

2. Methods

CGO conducted survey visits between July 2024 and October 2025. The surveyor was Dr Chris Gleed-Owen BSc (hons) PhD MCIEEM, Director and Principal Ecologist of CGO, ecological consultant since 2008 (17 years), and suitably-qualified and experienced surveyor.

Initial visits in July 2024 mapped habitat types using the UK Habitat Classification (UKHab) system (UKHab Ltd, 2023), On 30th July 2024, a series of 10 representative 2m x 2m quadrats were surveyed in the meadow flora using the National Vegetation Classification (NVC) system (Rodwell *et al,* 1992). All plant species and their percentage cover were recorded. Species richness per square metre was also recorded, using the top-left quadrant of the 2m x 2m quadrat. Subsequent visits were conducted to refine habitat extents and types.

The UKHab plan was produced by CGO GIS Officer Jack Parker using QGIS software. This was also used to measure habitat extents.

Client and stakeholder consultation has been conducted, including a meeting held on Site in July 2025, attended by the Client, BCP Council, CGO, and a habitat management contractor.

3. Results and discussion

Three broad habitat types account for most of the Site: woodland, grassland, and standing water. In UKHab terms, these are ‘w1g Other broadleaved woodland’, ‘g3c Other neutral grassland’, and ‘r1g Other standing water’. There are smaller areas of amenity grassland (‘g4 Modified grassland'), scrub (‘h3h Mixed scrub’), and conifer and ornamental hedges (‘h2b Non-native and ornamental hedgerow’).

Two streams (‘r2b Other rives and streams’) enter the lake: the culverted Bure Brook from the north, and the Chewton Farm Fetching Drain from the east.

The Site is accessed via an asphalt drive, car park, and footpath (‘u1b Developed land sealed surface’), and a network of gravel paths (‘u1c Artificial unvegetated unsealed surface’).



Figure 2 – UKHab plan of the Site. Woodland canopy overhanging the lake is shown as a dashed line. The south/southeast portion of the lake is completely shaded, and only around half the lake is unshaded.

Quadrat number	OS grid reference	Species per quadrat	Species per square metre
NM1	SZ 20186 93868	10	8
NM2	SZ 20204 93881	10	5
NM3	SZ 20235 93897	8	6
NM4	SZ 20237 93870	13	10
NM5	SZ 20250 93849	10	6
NM6	SZ 20287 93856	12	9
NM7	SZ 20295 93835	9	7
NM8	SZ 20311 93851	6	6
NM9	SZ 20346 93844	12	8
NM10	SZ 20370 93832	9	7

Table 1 – Meadow NVC survey quadrat information and species richness results.

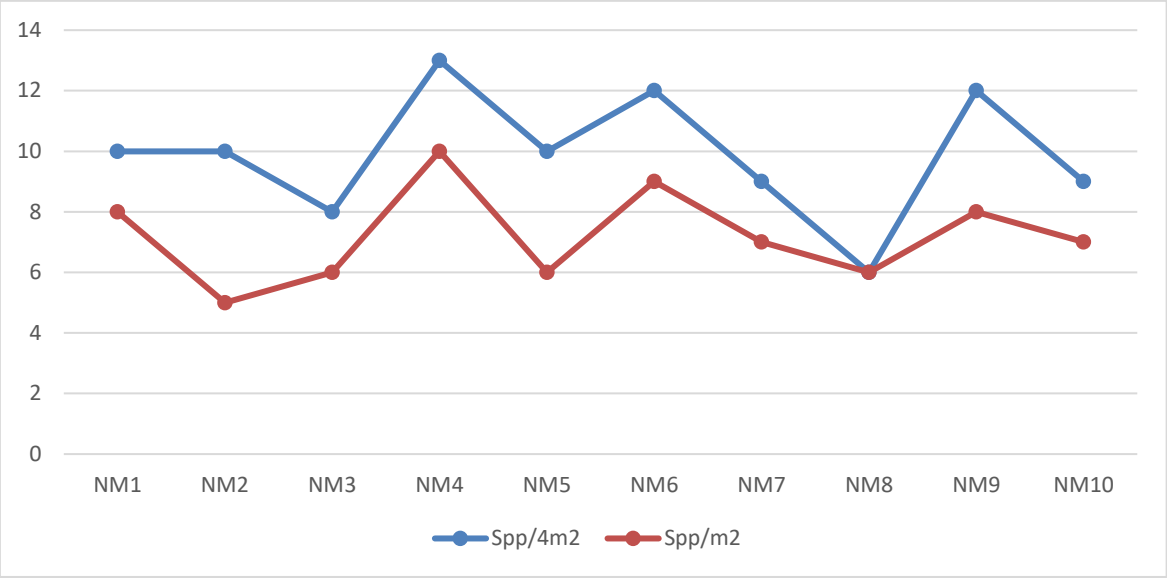


Figure 3 – Comparison of species richness per square metre and per quadrat (four square metres).



Figure 4 – NVC quadrat locations.

The main grassland area, the 'meadow' which gives Nea Meadows its name, occupies around a third of the Site. The flora reflects the pH, which is mildly acidic in this area, and within the range considered to support 'neutral grassland' (pH 4.5-6.5 according to UKHab, 2023). The soil has a higher silt and clay content than the sand and gravel substrate which underlies heathland in Southeast Dorset and the New Forest. This loam buffers the pH somewhat, and the base-rich mineral content allows for a more diverse flora than acid grassland.

The meadow flora is relatively impoverished, however, with only five to 10 species per square metre. The UKHab category of g3c Other neutral grassland is justified, nevertheless. The sward is not 'lush', and the cover of agricultural and amenity grasses is very low. The general absence of 'weed' species is also notable.

Common name	Species
Cat's-ear	*Hypochaeris radicata*
Cock's-foot	*Dactylis glomerata*
Common bent	*Agrostis capillaris*
Common bird's-foot-trefoil	*Lotus corniculatus*
Common knapweed	*Centaurea nigra*
Common ragwort	*Senecio jacobaea*
Creeping cinquefoil	*Potentilla reptans*
Crested dog's-tail	*Cynosurus cristatus*
Greater bird's-foot-trefoil	*Lotus pedunculatus*
Hairy sedge	*Carex hirta*
Meadow foxtail	*Alopecurus pratensis*
Perennial rye-grass	*Lolium perenne*
Red clover	*Trifolium pratense*
Red fescue	*Festuca rubra*
Ribwort plantain	*Plantago lanceolata*
Rough meadow-grass	*Poa trivialis*
Sheep's sorrel	*Rumex acetosella*
Smooth hawk's-beard	*Crepis capillaris*
Sweet vernal-grass	*Anthoxanthum odoratum*
Timothy	*Phleum pratense*
White clover	*Trifolium repens*
Wild carrot	*Daucus carota carota*
Yarrow	*Achillea millefolium*
Yorkshire-fog	*Holcus lanatus*

Table 2 – Plant list (24 species) from NVC survey of the meadow in July 2024.

No other neutral grassland category is appropriate. The Site is a well-drained slope and not a floodplain meadow like ‘g3a Lowland meadows’ or ‘g3c Upland hay meadows’ (UKHab, 2023). Only three of the g3a indicator species were recorded in the NVC quadrat survey. Desirable herb cover is over 30%, rye-grass cover is well under 10%, but overall species richness is well below the 15/m^2 threshold for g3a.

There is no correspondence at all with g3b in terms of geography, altitude, or floral characteristics. Equally, the scant cover of rye-grasses, white clover, and other indicators of fertility rule out g4 Modified grassland for the meadow.

Common bent and sweet vernal-grass are consistently dominant, and were recorded in nine out of 10 quadrats, comment bent at over 80% cover on average. There is much common knapweed, averaging 35% cover, and present in eight out of 10 quadrats. Yorkshire fog and red fescue are major components of most quadrats, and palatable grass cover is low, which is testament to previous management efforts.

The meadow grassland community at Nea Meadows is a clear match with NVC mesotrophic grassland type ‘MG5 Cynosurus cristatus - Centaurea nigra grassland’ (Rodwell *et al,* 1992). All 12 of the ‘constant species’ are present, making up half the total species list. This alone is sufficient to assign MG5. MG5 grassland is found on well-drained permanent meadows and pastures, which describes Nea Meadows, apart from its period as a public park. None of the subcommunities are a match.

The meadow flora has some affinities with ‘MG3 Anthoxanthum odoratum - Geranium sylvaticum grassland’, being dominated by sweet vernal-grass and common bent, with much red fescue and Yorkshire fog. However, it lacks characteristic herbs and grasses (Rodwell *et al,* 1992), and does not fit MG3’s northern geography. No other MG community is close.

Species	NM 1	NM 2	NM 3	NM 4	NM 5	NM 6	NM 7	NM 8	NM 9	NM10	No. Q's	Avg %
Cat's-ear						5	3			4	**3**	**1.2**
Cock's-foot	5			3	3	2					**4**	**1.3**
Common bent	90	90	90		100	100	60	95	90	100	**9**	**81.5**
Common bird's-foot-trefoil				15							**1**	**1.5**
Common knapweed	30	40		80	50	10	75		50	20	**8**	**35.5**
Common ragwort	10	1			3				1		**4**	**1.5**
Creeping cinquefoil			40								**1**	**4**
Crested dog's-tail		5		5					2	1	**4**	**1.3**
Greater bird's-foot-trefoil	2			35			3				**3**	**4**
Hairy sedge	5										**1**	**0.5**
Meadow foxtail			5								**1**	**0.5**
Perennial rye-grass			5		3				1		**3**	**0.9**
Red clover		30		20	15				10	1	**5**	**7.6**
Red fescue		25		10		2		15	25	10	**6**	**8.7**
Ribwort plantain	2	15		5	3	25	2	40	35	50	**9**	**17.7**
Rough meadow-grass			50	10							**2**	**6**
Sheep's sorrel						2					**1**	**0.2**
Smooth hawk's-beard						5		5	15		**3**	**2.5**
Sweet vernal-grass	30	40	3	20		90	5	90	70	90	**9**	**43.8**
Timothy			10	10	5	5	10				**5**	**4**
White clover				5	25				5		**3**	**3.5**
Wild carrot	60						3				**2**	**6.3**
Yarrow						10		40	2	25	**4**	**7.7**
Yorkshire-fog	50	15	15	25	30		25				**6**	**16**
Number of species	**10**	**9**	**8**	**13**	**10**	**11**	**9**	**6**	**12**	**9**		

Table 3 – Comparison of plant communities from 10 quadrats.

The damp g3c Other neutral grassland areas which occupy a glade in the southeast part of the Site has not been surveyed in detail, and there is no obvious NVC community match. It is seasonally wet, damp throughout the year, and has stands of tall herbs such as purple loosestrife (*Lythrum salicaria*) and wild angelica (*Angelica sylvestris*). It could align with 'MG8 Cynosurus cristatus - Caltha palustris grassland', and has some affinities with MG3 (despite being geographically inappropriate), or may simply represent variation in MG5.

The area of g3c immediately east of the bowling club has not been surveyed using NVC methods, and a community has not been assigned. However, it is notable in having a good cover of pignut (*Conopodium majus*). As above, it has affinities with MG3, MG5, and MG8.

Woodland across the Site lacks canopy structure, with few glades, and excessive bramble (*Rubus fruticosus* agg). Non-native shrubs are problematic in some areas, such as snowberry (*Symphoricarpos albus*) and Himalayan honeysuckle (*Leycesteria formosa*) in woodland beside the Chewton Farm Fetching Drain and southeast lake shore. There is also a localised infestation of Himalayan balsam (*Impatiens glandulifera*) on the north side of the Drain.

The southeast woodland is ash-dominated and suffering from ‘chalara dieback’. This woodland belt borders residential gardens, with informal paths connecting them to the Site. Consequently, there are many non-native shrubs and herbs in this area. Further west in this woodland belt, however, there is a significant glade which is unusual for the Site.

There are few notable individual trees on Site. A large pedunculate oak at the east end of the meadow is visually impressive, and possibly a veteran. It has seven leading stems and five low horizontal beams. It is open-grown, and spreading from 1-2m height, possibly indicating that it was coppiced when young. A path leads south from here to a wooden footbridge across the Chewton Farm Fetching Drain.

The dead monolith of a large cedar-of-Lebanon (*Cedrus libani*) still stands in woodland north of the Drain, following its reduction within the last 10 years. At the southwest edge of the Site is a mature silver birch (*Betula pendula*) notable for its five robust stems.

The Chewton Farm Fetching Drain is the cleanest and least-culverted of the two watercourses; the Bure Brook often appears polluted. The banks of the Drain have a good fern cover, and occasional pockets of floral diversity. The Drain is also connected to the wildlife pond northeast of the bowling club. A wooden footbridge crosses it here, with a notable large oak immediately west.

The question of whether any woodland on Site is ‘ancient woodland’ is an interesting one. It can usually be resolved by presence-absence of ground flora indicator species, examining the known history and potential for recent enhancement interventions, and interpreting the topographic location. A Site in a steep-sided valley or ravine is more likely to preserve an ancient flora because it is difficult to manage.

The woodland north of the Drain has remnant patches of wild garlic (*Allium ursinum*) and wood anemone (*Anemone nemorosa*), which hint at old character. However, there are very few trees which could be veteran contenders. This is an area which has attracted antisocial behaviour in recent years.

4. Conclusions and recommendations

The Site has changed significantly since it was last surveyed. Tree and scrub cover has increased at the expense of other habitats. The meadow has been encroached by scrub and woodland. Despite long-term efforts to enhance it, floral diversity is low with unfulfilled potential. Woodland has invaded the wildlife pond and damp grassland, yet little of the woodland is ‘wet’ itself. The lake shore is completely shaded and homogeneous, with few aquatic plants. Leaf-fall has accelerated siltation, mud islands have formed, and throughflow is reduced.

Radical intervention is required to rebalance the Site’s habitat diversity through short- to medium-term management and long-term maintenance. Lake shore shading must be reduced to prevent further siltation, reduce flood risk, and save remaining habitat niches. A five-year programme is recommended, removing 10% of trees per year, until at least 50% of the shoreline is unshaded. Annual maintenance must prevent regrowth and invasion by undesirable plants. The lake should be desilted, the arisings deposited at a carefully selected location on the south shore, and other aquatic and riparian habitat interventions explored.

To diversify the meadow flora, overseeding with additional grass and herb species should be considered, potentially trialled in compartments, localised fringes, or other niches. Preparatory management may be needed, such as a hard cut and scarification prior to overseeding. A generic mix such as Emorsgate EM5 could be considered for added forb and grass diversity, but many of the component species are already present, and this is probably not a cost-effective approach. Instead, targeted overseeding with a few desirable species would be the best approach.

Target species must be location-appropriate, and should aim to restore some of the species known to have been present previously, but apparently now lost. For example, field bindweed (*Convolvulus arvensis*) which probably succumbed to scrub encroachment. Its seeds can be purchased as a single species from Emorsgate.

Tormentil (*Potentilla erecta*) was formerly recorded (DWT, 2013), and although generally an acid grassland indicator, it could survive marginally at Nea Meadows. Seeding along short-sward path-edges, especially sandier locations, would be appropriate.

Musk storksbill (*Erodium moschatum*) is another species which appears to have been lost since 2013. It would do well on the meadow if introduced via seed (purchased or collected).

Some species which are scarce on Site currently could also be assisted in their dispersal. For example, ox-eye daisy (*Leucanthemum vulgare*).

Additional grasses could include tall fescue (*Festuca arundinacea*), which has a localised presence near the south edge of the meadow, but did not feature in any NVC quadrats. Seed could be collected from the Site rather than purchased.

Scrub and woodland fringes around the meadow must be cut back, arisings and topsoil scraped off, and grassland seeded. Most scrub is bramble-dominated, but blackthorn (*Prunus spinosa*), Japanese honeysuckle (*Lonicera japonica*), and others are present.

Woodland fringes around the southeast damp grassland must also be reduced, and glades created for saplings and ground flora, especially along the Drain. Diseased ash should be felled as a priority, and stacked as deadwood for fungi, saproxylic invertebrates, and vertebrates that feed on them.

Bramble and nettle cover on the ground must be reduced when glades are created, otherwise they will quickly dominate and increase in density and height. Invasive shrubs and tall herbs must be controlled or eradicated.

5. References

CBC (2012) *Nea Meadows Local Nature Reserve – Management Plan 2012-2017.* Christchurch Borough Council, Christchurch.

DWT (2013) *Nea Meadows SNCI, Christchurch – Site Number: SZ 29/015 – Grid Reference: SZ 202938.* Dorset Wildlife Trust, Dorchester.

Rodwell, J.S., Pigott, C.D., Ratcliffe, D.A., Malloch, A.J.C., Birks, H.J.B., Proctor, M.C.F., Shimwell, D.W., Huntley, J.P., Radford, E., Wigginton, M.J., & Wilkins, P. (1992) *British Plant Communities Volume 3 – Grasslands and montane communities.* Cambridge University Press, Cambridge.

UKHab Ltd (2023) *UK Habitat Classification Version 2.0 (at http://www.ukhab.org)*

6. Photographs



Plate 1 – NVC quadrat NM1.



Plate 2 – NVC quadrat NM2.



Plate 3 – NVC quadrat NM3.

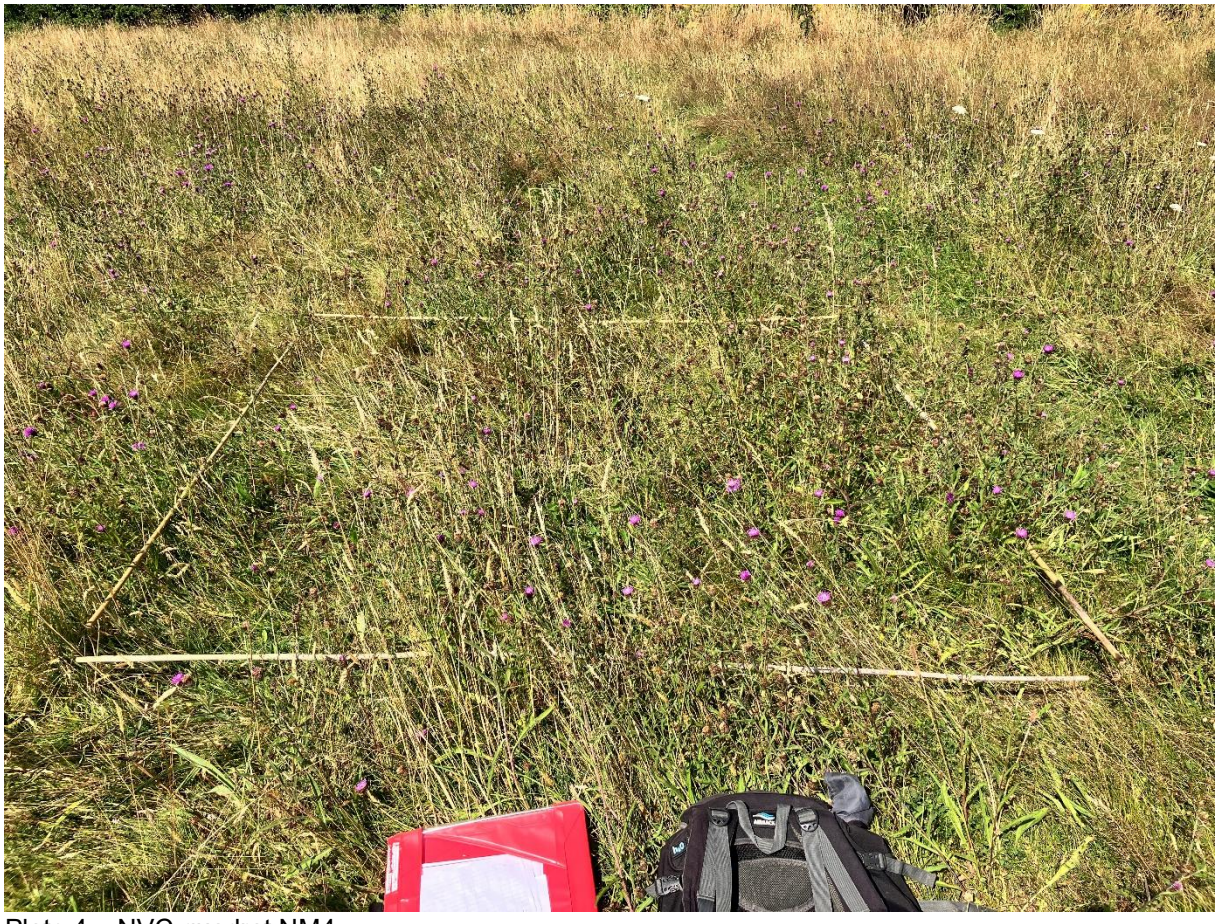


Plate 4 – NVC quadrat NM4.



Plate 5 – NVC quadrat NM5.



Plate 6 – NVC quadrat NM6.



Plate 7 – NVC quadrat NM7.



Plate 8 – NVC quadrat NM8.



Plate 9 – NVC quadrat NM9.



Plate 10 – NVC quadrat NM10.



Plate 11 – General view of lake from southwest shore.



Plate 12 – West end of meadow, with tall herbs meeting woodland fringe of lake.



Plate 13 – General view west-east across meadow.



Plate 14 – General view east-west across meadow.



Plate 15 – Chewton Farm Fetching Drain from east footbridge (south of spreading oak).



Plate 16 – Damp grassland glade at southeast end of Site, looking east.



Plate 17 – Ash tree suffering from chalara dieback, southeast woodland edge over damp glade.



Plate 18 – Damp grassland glade with tall herbs, south part of Site, looking east.



Plate 19 – Ash trees afflicted with chalara dieback, southeast woodland. Photographed on 30th July 2024.



Plate 20 – Riparian habitat of Chewton Farm Fetching Drain, from footbridge near bowling club.