Principal Funders

File Code: ST00/011
Site Name: Clyst William Cross

Survey	Walkover Survey
Date	04 July 2019
Surveyor	P. Sansum

1. Site Information		
Grid Reference: ST075030	**District:** East Devon	**Parish:** Plymtree
Landowner/manager: N. Hart, Danescroft, Plymtree, EX15 2LQ **Contacted: Yes ☑ No ☐**		

2. Summary of survey and assessment

Brief Site description: As in 1993 when this site was originally surveyed, Clyst William Cross CWS comprises a mosaic of semi-natural habitats occupying a section of the River Tale floodplain. The key component is a complex of fen and marshy grassland habitat associated with a pond and ditch system running the length of the site north to south and broadly in parallel with the main river channel which forms the site's eastern boundary. Flanking the areas of tall herb fen in the areas of highest water table are semi-natural grassland stands of varying degrees of dampness, willow scrub and wet woodland. The site is partially bounded west and east by mature native trees in hedgerows and along the Tale itself.

The site was last surveyed under the CWS Biodiversity Monitoring Framework in 2014 (H Gibbons & A Stubbings, DBRC). A further botanical survey was carried out in 2017 (E Knott, DBRC). Following the previous condition assessment, the recommendation to remove significant areas of secondary habitat and improved grassland from the site was followed. The present assessment refers only to the remaining parts as shown on the map below.

This report is of an interim CWS condition assessment intended to inform the River Otter Beaver Trial evidence base and was done by a walkover survey in conjunction with a Breeding Bird Survey (reported separately on 30/05/2019 and 04/07/2019). Areas of Lowland Fen, Wet Woodland and Purple Moor Grass & Rush Pasture priority habitats and other types of rough damp grassland intergrade in a complex continuum; a full Phase 2 survey would be required to accurately delineate their extents. The evidence from this interim assessment is of minimal change to the vegetation and habitats recorded in 2014 and 2017 and that these are broadly similar and similarly distributed on site.

Beavers have not therefore had a major impact on the distribution and extent of priority habitat on the site. However, there are indications of a shift in the direction of ecological change on the site which merits a reappraisal of the former condition and management assessments. Examples of early indicated

changes include expansion of the wet fen area relative to damp grassland, accumulation of deadwood in some wet woodland areas and improved light levels in some wet woodland areas.

Overall Site Assessment:

	2019	(2014)
Habitat Condition	Amber	Red
Habitat - Stable / Recovering / Declining / Lost	Stable	Low

CWS Criteria met: Unimproved marshy grassland: Yes - Lowland fen priority habitat site originally designated for is intact (Over 0.5ha fen meadow 3.5.2

Boundary need updating? NO

General recommendations or further actions
If beaver activity on the site is to be ongoing it would be valuable to repeat the quantitative vegetation and deadwood surveys undertaken in 2017 – i.e. revisit and resurvey the quadrats and transects - within the next 2 years or so, so that an analysis of change over approximately 5 years can be made.

3. Site Criteria Assessment *(focus on habitats, relating to original survey and CWS criteria– are habitats still present and are they declining/stable/improving since previous survey? Are new habitats present - not noted previously or developed over old habitats? (i.e.: mire succeeding to wet woodland). If site designated for other criteria (i.e.: notable birds/plants) is the interest still present?*

BAP habitats present:	Lowland Fen, Wet Woodland, Purple moor grass and rush pasture

3.1 Habitat Assessments

3.1/Wt: Wetlands

Polygon Number	**1,2,3,4**	**Phase One Habitats**	**Fen**
Priority Habitat	Lowland fen	**NVC Communities**	(M27, M27/M23 & M23)
Habitat Lost?	**Yes ☐ No ☑**		

Condition assessment

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Hydrology levels stable ☑

(i.e. relevant levels for habitat, no recent drainage apparent)

Average Forb/Graminoid ratio	Positive Indicator Species	Negative Indicator Species	% Cover of Scrub/Bracken	% Cover of Bare Ground
Forbs >75%	Frequent	Rare	<10%	<1%

Non-native/Invasive species	Bryophyte cover (if applicable to community)	Areas of Litter/Thatch Build-up	Average Sward Height (in cm)
Rare	Occasional	Frequent	>100

Additional Microhabitats	High value scrub, Pools Choose an item. Choose an item. Choose an item. Choose an item.
Management / Condition Threats and Issues	Tall herb fen with a good range of characteristic species of M27/M28 (*Filipendula ulmaria – Angelica sylvestris/ Iris pseudacorus - Filipendula ulmaria*) mire including *Iris pseudacorus, Angelica sylvestris, Filipendula ulmaria, Equisetum palustre, Equisetum fluviatile, Galium palustre, Rumex acetosa*, *Juncus* spp., *Lychnis flos-cuculi*, and *Urtica dioica* is the key habitat feature of this area of alluvial wetland. There are a number of colonies of the Devon priority species, *Scirpus sylvaticus*. The fen was surveyed in detail in 2014 and 2017 and the descriptions made for the 2014 report are still representative of the habitat with most of the species listed being observed during the current walkover survey. To the northwest of the site the fen habitat tends towards, and intergrades with, Purple moor-grass & rush pasture. For the present assessment these wet areas are taken as a continuous unit. In 2014 the high cover of Hemlock Water Dropwort (*Oenanthe crocata*) was cited as a management and condition issue and litter build-up associated with the vigorous (locally >2m tall) largely ungrazed habitat structure remains a feature of the site. Although undesirable in the context of traditional management by domestic livestock, this is a native species of lowland wetland with high nectar value for adult invertebrates and as a foodplant resource for larvae including a number of Lepidoptera and Coleoptera. Its prevalence, alongside *Iris pseudacorus* (which is also frequent on the site), in western British fens is a natural aspect of the geographically distinctive variations within the lowland fen habitat type. Large populations of the Chrysomelid beetle, *Prasocuris phellandrii*, were evident in May and nectaring Hymenoptera included the Ashy Mining Bee, *Andrena cineraria* as well as numerous Syrphid Diptera. The insect biomass provided by the Hemlock Water Dropwort is demonstrably a significant feeding resource for the several pairs of breeding migratory warblers which nest in adjacent patches of *Salix* scrub. Recent changes to the use of the site (since the 2014 survey) as part of a restoration ecology trial mean that the assessment of the condition and management of this habitat need to be reconsidered in a new context. Positive indicator species (JNCC CSM

	guidance on Lowland Fen monitoring) are frequent and *Oenanthe crocata* is not formally defined as an undesirable species. Quoting JNCC guidance on monitoring of Lowland Fen, "regular grazing is detrimental to the species assemblage (and also its structure for invertebrates), though sporadic grazing or other type of litter removal is necessary for plant species diversity".
Comment	There is legitimate concern that the overdominance of *Oenanthe crocata* on some parts of the fen area could have a long-term negative impact on the species diversity of the habitat. Although there does not appear to have been significant change in the character or extent of the areas of *Oenanthe crocata* dominance since the 2014 survey there is early evidence that wild-living beaver are beginning to positively impact on this issue. For example, by construction of channels between the main river corridor and the pre-existing ditch system the umbellifer canopy is now being broken up and this process also provides a natural agency for the "*other type of litter removal*" specified by JNCC (see above). In the longer term this would be highly likely to positively drive heterogeneity in the structure and diversity of the fen vegetation as channels, channel edges and litter mounds colonised or recolonised by more diminutive species and light demanding species which cannot currently compete with the tall umbellifer stand.

Summary box - Wetland:

Habitat Condition	Amber
Habitat - Stable / Recovering / Declining / Lost	Stable

Habitat Condition assessment factors for wetland habitats on site	
Lowland Fen elements	
1) The water level and its management should result in either surface water, or the ground being wet enough for a 6-inch nail to be easily pushed in throughout the year.	Yes
2) Cover of undesirable species (common nettle, docks, creeping/spear thistles, common ragwort and Indian (Himalayan) balsam) should be less than 10%	Yes
3) Cover of scrub should be less than 10%.	Yes
4) Cover of bare ground should be less than 10%.	Yes
5) No more than 25% of the fen area should have a continuous cover of litter (i.e. dead vegetation).	No
Purple Moor-grass & rush pasture elements	
1) Cover of undesirable species <10%.	Yes
2) Cover of large sedge species <30%, and cover of large grasses such as tufted hair-grass and reeds, <20%.	Yes

3) Cover of invasive trees and shrubs <5%.	Yes
4) Cover of non-jointed rushes (soft, hard and compact) <50%.	Yes
5) At least two indicator species are frequent and two occasional	Yes

3.1/Wd: Woodlands

Polygon Number	**5, 6, 12**	**Phase One Habitats**	**Semi-natural woodland/scrub**
Priority Habitat	Wet woodland	**NVC Communities**	W1, W6
Habitat Lost?	**Yes ☐ No ☑**	**On Ancient Woodland Inventory**	**NO**

Condition assessment

Ash dieback noted? ☐

Canopy Cover	Understorey & Shrub Layer	Field Layer & Ground Layer	Ancient Woodland Indicators	Canopy Tree Age Classes
Sparse - Undeveloped	Developing	Sparse - developing	Rare	2-3 age classes - Young, semi-mature trees and mature trees

% Cover of Non-natives* (Canopy)	% Cover of Non-natives* (Understorey/Shrub layer)	% Cover of Non-natives (Ground Flora)	% Cover of Bramble/Ivy (Ground Flora)	% Cover of Dense Leaf Litter
>75%	N/A	<5%	5-10%	<5%

Invasive species	Rides/Glades	Trees with Veteran Characteristics	Fallen Deadwood>20cm	Standing Deadwood>20cm	Regeneration of canopy trees associated with community	Regeneration of non-native or atypical native trees
None	Occasional	Rare	Rare	Occasional	Occasional	Choose an item.

Additional Microhabitats	Flushes. Streams. Choose an item. Choose an item. Choose an item. Choose an item. Choose an item. Choose an item.
Management/Condition Issues	Secondary woodland with considerable structural diversity, mostly low willow scrub of *Salix cinerea* and *Salix caprea* with some mature *Alnus glutinosa* and a range of other native trees and shrubs present at lower frequency. The stands are largely developing under the influence of natural forces – herbivory and the dynamics of the water table. Older trees naturally collapsing under their own weight on

	unstable substrates create a dynamic and complex structured vegetation with branches layering and stem- bases resprouting in response to herbivory and spontaneously 'self-coppicing'.
Comment	The woodland and scrub habitats are currently developing autogenically in response to site factors and do not require external management intervention since the herbivore pressure does seem to be effectively maintaining the amount of scrub woodland. There is no evidence of a significant decline of the wooded/scrub area and neither is it significantly encroaching on the fen and grassland, except, as mentioned above, to form ecologically valuable transitional scrub and underscrub. The deadwood resource is complex with standing and fallen deadwood frequently encountered as part of a network of living *Salix* plants. Large deadwood is evidently increasing in frequency, though a repeat of the deadwood monitoring transect established in 2017 was outwith the capacity of this survey.

Summary box - Woodland:

Habitat Condition	Green
Habitat management - Stable / Recovering / Declining / Lost	Stable

* This assessment treats sycamore (*Acer pseudoplatanus*) as an honorary native in relevant situations, for example where it appears naturalised, rather than planted, and appears as part of a long-established community within semi-natural woodland.

3.2 – Non-priority Habitat Assessment *(Use phase 1 habitat classifications)*

Polygon Number	**7,8,9,10,11**	**Phase One Habitats**	**Unimproved grassland/Semi-improved grassland**
NVC Communities	MG1 and small areas of neutral grassland with MG5 affinities	**Habitat Lost?**	**Yes ☐ No ☑**

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Average Forb/Graminoid ratio	Positive Indicator Species	Negative Indicator Species	% Cover of Scrub/Bracken	% Cover of Rye-grass & White Clover	% Cover of Bare Ground
Forbs 11-30%	Frequent	Occasional	<10%	<10%	<1%

Non-native/Invasive species	Sward Management	Fertiliser inputs	Average Sward Height (in cm)
None	Other	None	50-100

Additional Microhabitats	Streams Tussocky grasses Ditches Choose an item. Choose an item. Choose an item.
Management / Condition Threats and Issues	The parts of the site where grassland is the main cover (to the SE and NE of the site) continue to be ungrazed by domestic livestock and the development of a rank *Arrhenatherum* dominated sward does appear to have progressed (with reference to quadrat data collected in 2017) in some areas. However, forbs are still generally frequent and the original range of grass species are still present – hence the changes are unlikely to be irreversible. Reinstatement of an extensive grazing regime was deemed desirable at the time of the last survey in order to restore the species rich communities reported in the original survey of 1993. It was the interpretation of the last assessment that these areas of rough grassland may have formerly been characterised as Lowland Meadow and Lowland Fen priority habitat. However, in the absence of detailed species data from the 1990s survey, it is impossible to judge precisely the level of floristic deterioration that has occurred. It should also be noted that the recent low intervention management has also had some positive ecological outcomes including the formation of more natural transitions between the different structural elements of the site, for example, a well-developed bramble underscrub mantling the hedgerow, riparian trees and scrub areas which fringe the site and abut with grassland. There are also stands of blackthorn scrub and evidence of scattered regeneration of infield trees including oak. Within the main grassland area along the east side of the site there is still considerable heterogeneity. Small patches of *Iris pseudacorus* fen up to 10m wide are relatively species poor but include *Cirsium palustre, Filipendula ulmaria, Juncus acutiflorus* etc. In other areas low, open lawns of neutral grassland of a very different character to the surrounding *Arrhenatherum* dominated stands have developed under rabbit grazing. These are typically dominated by *Festuca rubra* and contain herbs such as *Cruciata laevipes* and *Centaurea nigra*. The dry grassland to the NW of the site is semi-improved but contains a superb open-grown veteran ash tree with rot holes, cracks, deadwood and associated biodiversity potential. The crown exhibits signs of ash dieback.
Comment	Roe Deer were seen consistently crossing the grassland on three visits to the site in April, May and July. A small planted stand of ash trees (c.50 trees over c.0.2ha) in this area is heavily affected by ash dieback and looks likely to fail.

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Summary box – grasslands (non Priority Habitat areas):

Habitat Condition	Amber
Habitat - Stable / Recovering / Declining / Lost	Declining

Current Management and Condition issues
Indicate management and habitat; how the information was sourced;
(delete as appropriate for each site and refer to BMF assessment guidelines)

Management & Condition Issues	Habitat/Polygon	Comment	Score
Under grazing	grassland	See below Weedy/undesirable species	
Vegetation litter build-up	Lowland Fen	A lack of grazing and/or trampling in the fen areas may cause decline in floristic richness on the site as litter from the vigorous tall umbellifer stands builds up. However, beaver activity on the site, if ongoing, is predicted to positively impact on this tendency.	2
Weedy/undesirable species	grassland/Lowland Fen	Quadrat surveys in 2017 did not sample the areas which currently have the highest dominance of *Arrhenatherum elatius* so change in cover cannot be quantified. The vegetation description for polygons 8 and 9 made in 2014 compared with observations in 2019 indicate that *Arrhenatherum* spread and dominance has increased in the last 5 years particularly in the south eastern section of the site.	3

1 This issue is trivial and is not currently affecting the habitat to any significant extent.
2 This issue is recent and a cause for concern, but habitat is likely to recover if management is put in place to reduce further condition loss.
3 This issue is a cause for concern and may have been ongoing for some time. There has been a definite loss of habitat condition, but this should still be recoverable with suitable management.
4 This issue has resulted in a marked decline in condition and the habitat is at imminent risk of being lost. Habitat is potentially recoverable but will require extensive management and effort.
5 Habitat has been lost or is of such poor condition that it cannot recover without extreme measures.

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Potential Futures Threats to Site	Habitat / Polygon	Comment
Scrub encroachment	grassland	The level of scrub development around drier grassland fringes may begin to impact on the open habitats of the site without intervention.
Other	general	Ash dieback affecting individual trees in boundaries and the high-value in-field veteran tree

4. 1 Species List

Alnus glutinosa	Alder
Alopecurus pratensis	Meadow Foxtail
Angelica sylvestris	Wild Angelica
Apium nodiflorum	Fool's-water-cress
Arrhenatherum elatius	False Oat-grass
Arum maculatum	Lords-and-Ladies
Asplenium scolopendrium	Hart's-tongue
Cardamine flexuosa	Wavy Bitter-cress
Carex remota	Remote Sedge
Carex sylvatica	Wood-sedge
Centaurea nigra	Common Knapweed
Chrysosplenium oppositifolium	Opposite-leaved Golden-saxifrage
Cirsium arvense	Creeping Thistle
Cirsium palustre	Marsh Thistle
Cruciata laevipes	Crosswort
Deschampsia cespitosa	Tufted Hair-grass
Dryopteris dilatata	Broad Buckler-fern
Elymus caninus	Bearded Couch
Equisetum fluviatile	Water Horsetail
Equisetum palustre	Marsh Horsetail
Festuca rubra agg.	Red Fescue
Filipendula ulmaria	Meadowsweet
Fraxinus excelsior	Ash
Galeopsis tetrahit	Common Hemp-nettle
Galium aparine	Cleavers
Galium palustre	Marsh-bedstraw
Hedera helix	Common Ivy
Heracleum sphondylium	Hogweed
Holcus lanatus	Yorkshire-fog
Hypericum tetrapterum	Square-stalked St John's-wort
Iris pseudacorus	Yellow Iris
Juncus acutiflorus	Sharp-flowered Rush
Juncus effusus	Soft-rush
Lamiastrum galeobdolon	Yellow Archangel
Lapsana communis	Nipplewort
Lotus corniculatus	Common Bird's-foot-trefoil
Mentha aquatica	Water Mint
Mercurialis perennis	Dog's Mercury
Molinia caerulea	Purple Moor-grass
Natrix natrix	Grass Snake
Oenanthe crocata	Hemlock Water-dropwort
Polystichum setiferum	Soft Shield-fern
Quercus robur	Pedunculate Oak

Rumex sanguineus	Wood Dock
Salix caprea	Goat Willow
Schedonorus giganteus	Giant Fescue
Scirpus sylvaticus	Wood Club-rush
Silene dioica	Red Campion
Silene flos-cuculi	Ragged-Robin
Solanum dulcamara	Bittersweet
Sparganium erectum	Branched Bur-reed
Stellaria graminea	Lesser Stitchwort
Urtica dioica	Common Nettle
Viola riviniana	Common Dog-violet

Aegithalos caudatus	Long-tailed tit
Anas platyrhynchos	Mallard
Branta canadensis	Canada Goose
Buteo buteo	Buzzard
Carduelis carduelis	Goldfinch
Certhia familiaris	Treecreeper
Chloris chloris	Greenfinch
Columba palumbus	Wood pigeon
Corvus corax	Raven
Corvus corone	Carrion crow
Corvus monedula	Jackdaw
Cyanistes caeruleus	Blue tit
Dendrocopos major	Great spotted woodpecker
Emberiza schoeniclus	Reed bunting
Erithacus rubecula	Robin
Fringilla coelebs	Chaffinch
Gallinago gallinago	Snipe
Gallinula chloropus	Moorhen
Hirundo rustica	Swallow
Larus fuscus	Lesser Black-backed Gull
Motacilla cinerea	Grey Wagtail
Parus major	Great tit
Passer domesticus	House Sparrow
Periparus ater	Coal tit
Phylloscopus collybita	Chiffchaff
Phylloscopus trochilus	Willow warbler
Pica pica	Magpie
Picus viridis	Green Woodpecker
Prunella modularis	Dunnock
Regulus regulus	Goldcrest
Sitta europaea	Nuthatch
Sylvia atricapilla	Blackcap

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Sylvia communis	Whitethroat
Troglodytes troglodytes	Wren
Turdus merula	Blackbird
Turdus philomelos	Song thrush
Turdus viscivorus	Mistle thrush

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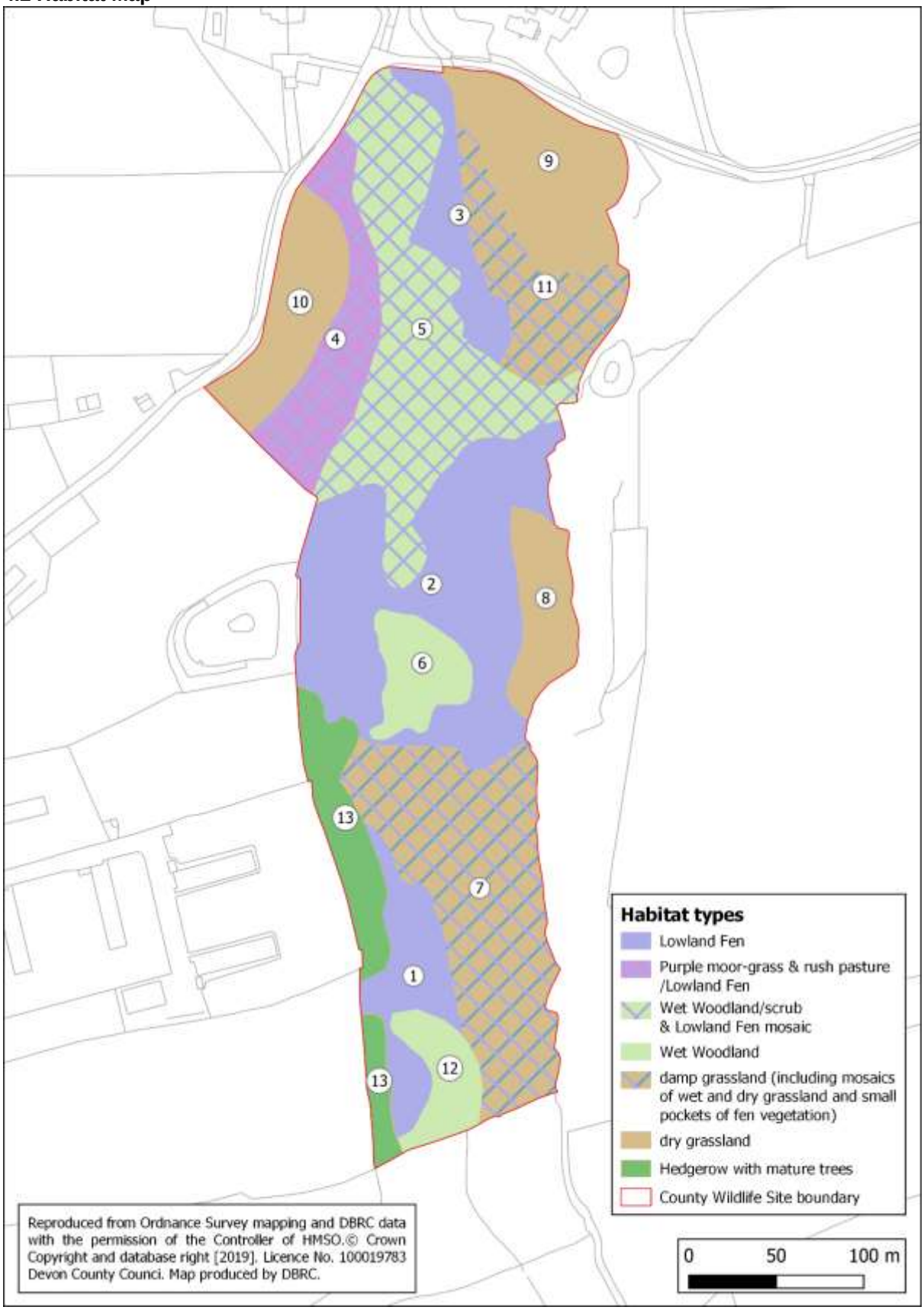
4.2 Habitat Map