



Botanical Survey at Danescroft Beaver Release Site

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Introduction:

Danescroft beaver release site was first surveyed by Devon Wildlife Trust in 1993, as Clyst William Cross County Wildlife Site. It was resurveyed by Devon Biodiversity Records Centre (DBRC) in 2014 as part of the Biodiversity Monitoring Framework, to see if the habitat was still of County Wildlife Site status. In May 2016 a pair of beavers were released onto the site, and a monitoring programme was set up so that the effect of the beavers on the habitat could be analysed. As part of the monitoring programme, DBRC was asked to carry out a baseline vegetation survey that could be repeated on a regular basis.

Methodology:

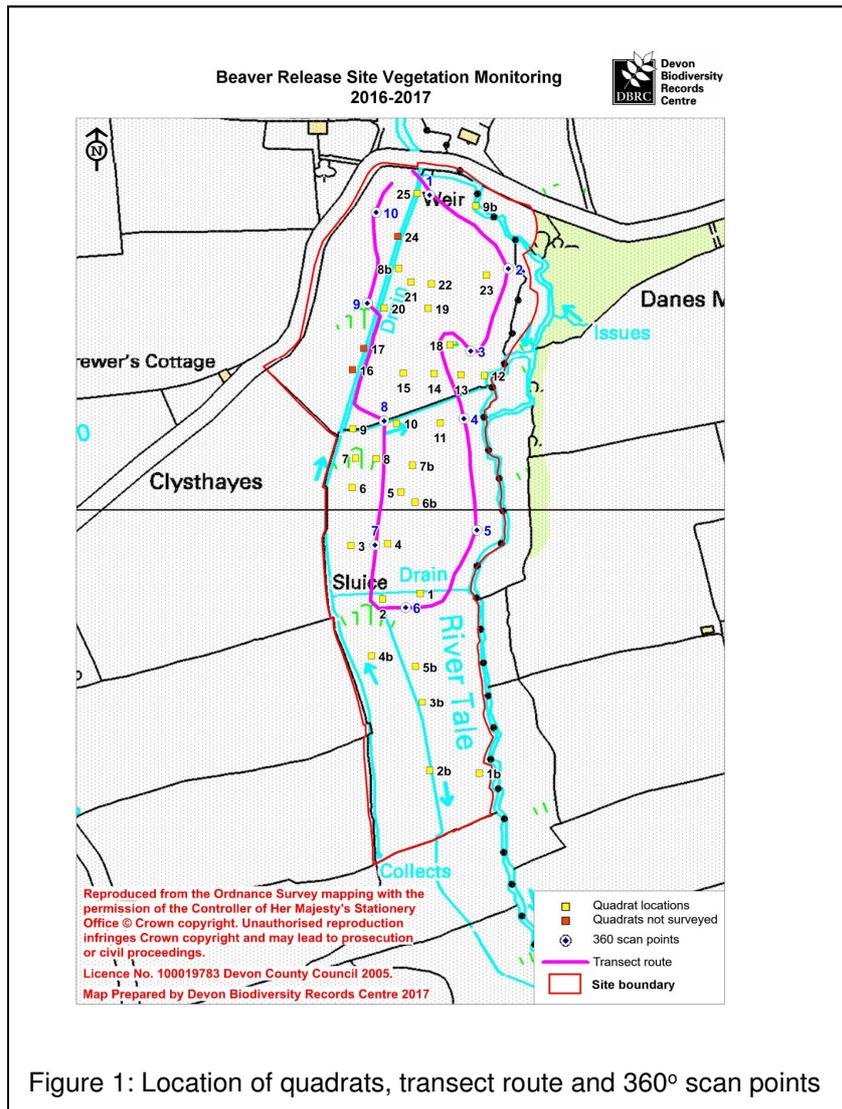
The site was visited on 14/06/2016 by DBRC staff for a walkover survey, so that locations for quadrats could be selected for survey on 21/06/2016. The site has a mosaic of habitats, including mire, fen, wet woodland, grassland, ditches, and a stream. Some areas of the site were inaccessible, behind areas of deep water, while other areas were difficult to access because the vegetation was 2m high and very dense. Twenty-five quadrats were selected to enable sensible and repeatable access, and to provide data on a range of vegetation types in the following situations:

- willow dominated, scrub woodland
- along ditches;
- close to the main pond area;
- in areas of dense, high, fen vegetation;
- near the stream boundary;
- in areas with scattered saplings within the grassland and fen;
- in the drier MG5 grassland;
- in species-rich 'good' fen;
- around a notable feature (e.g. large, mature, multi-stemmed grey willow)

All quadrats were 5m x 5m including those containing woodland and scrub, and the grid reference referred to the south-west corner. A GPS was used to locate the quadrats, but as this was only accurate to 3m at best, 8 figure grid references (10m squares) were used. The quadrats are shown in Figure 1. Some of the grid references were adjusted during the survey, if the original location was not practical, and a couple were not used because it was no longer possible to access that part of the site. A further nine quadrats (1b – 9b) were surveyed in the southern part of the site in January 2017.

The following data were collected from each quadrat:

- Species percentage cover values to give a DOMIN value
- Percentage cover of bare ground
- Percentage cover of open water (as best as can be managed in high dense vegetation)
- Vegetation height at five points (the four corners and the centre point) within the quadrat to give an average figure. A drop disk was used to measure the height
- Vegetation density at the same five points to give an average figure (using a home-made marked cane)
- Standing water - present (1) or not present (0)
- Damp underfoot (1) or not damp (0)



A photo was taken from each quadrat, from the south-west corner, looking north-east.

A transect was also walked through the site to collect information on dead fallen trees and standing deadwood, and to do a broad scale habitat assessment (see Figure 1 for the route). The following information was collected within 10m of transect line, and GPS co-ordinates taken:

- Fallen deadwood with a diameter of 20cm or larger
- Standing deadwood with a diameter of 20cm or larger
- Deadwood used in dams

During the transect walk a 360° scan of the habitats visible was taken at 10 points along the route (see Figure 1). The percentage cover of the following habitats was assessed:

- tall, coarse grass dominated
- hemlock water drop-wort
- soft rush (if in defined blocks)

- mixed fen vegetation (including species such as yellow flag, meadowsweet, jointed rushes, greater birds foot trefoil, valerian spp., reed canary grass, horsetails, herbs such as devil's bit scabious and knapweed)
- ruderals such as nettle, broad-leaved dock, ragwort
- bare ground
- scattered scrub and saplings
- open water above 1m sq and above

Results:

When the site was first surveyed in 1993 it was described as herb-rich unimproved marshy grassland with several wet ditches, some areas of developing *Salix* scrub, and an area of wet woodland around a pond (see Appendix 1). It was unintensively grazed by cattle, and the marshy community was described as variable, dominated by *Juncus* in some areas, by *Iris* in other, and with some small patches of *Molinia* and *Carex* spp. The different habitats were not mapped, and National Vegetation Classification (NVC) information was not recorded.

When the site was re-surveyed in 2014 it had been left unmanaged for some time, and the grassland had become rank. The site had been pony- grazed until about 10 years ago, but had not been grazed recently. The southern part of the site was dominated by hemlock water-dropwort (*Oenanthe crocata*) and the site was assessed as being not in positive management. The habitats were mapped, and NVC affinities were assigned, but a full NVC survey was not carried out. One Devon Notable species was recorded: wood club-rush (*Scirpus sylvaticus*)

The main habitats recorded were:

- Lowland fen (affinities with M27)
- Lowland fen/purple moor-grass and rush pasture (affinities with M27 and M23)
- Purple moor-grass and rush pasture (affinities with M23)
- Rough marshy grassland (no specific NVC affinities, but starting to head towards MG1)
- Wet woodland surrounding a pond (no NVC affinity was recorded, but W1 is likely to be the closest fit)

The data from the quadrat survey in June 2016 and January 2017 was analysed using TABLEFIT, a computer programme which identifies vegetation types by measuring how closely they align to certain standards. Species lists and abundance data are compared against a reference list (British Plant Communities (Rodwell 1991a, b, 1992, 1995, 2000)) to give a NVC affinity, plus a goodness-of-fit rating.

Goodness-of-fit ratings are meant only as a rough guide and are as follows:

- 80-100 (Very good)
- 70-79 (Good)
- 60-69 (Fair)
- 50-59 (Poor)
- 0-49 (Very poor)

A goodness-of-fit rating of over 50 is generally considered to be useful, whereas anything under 50 is unlikely to be correct. Table 1 shows the NVC affinities

assigned to the quadrats. Some of the NVC affinities given by TABLEFIT are odd (e.g. maritime grassland) but these are probably just unusual MG5 grassland. Figure 2 shows the quadrat data mapped alongside the habitat data from the 2014 survey. The GPS was only accurate to three metres, so some of the quadrats do not quite match up with the habitats mapped in 2014

Quadrat	Grid Reference	NVC Affinity & fit	Habitat	Comment
1.	ST07560292	M28 (50 – poor)	Mire	
2.	ST07530292	M28 (39 – very poor)	Mire	
3.	ST07500296	OV25a (42 – very poor)	Open habitat (nettles & thistles)	Probably incorrect
4.	ST07530296	M27c (65 – fair)	Mire	
5.	ST07540301	M27c (69 – fair)	Mire	
6.	ST07500302	M27c (69 – fair)	Mire	
7.	ST07500304	M28 (63 – fair)	Mire	
8.	ST07520304	M23a (71 – good)	Purple moor grass & rush-pasture	
9.	ST07500307	W7 (21 – very poor)	Wet woodland	
10.	ST07540308	MG10c (41 – very poor)	Species-poor rush-pasture	
11.	ST07580308	M27 (67 – fair)	Mire	
12.	ST07620312	W24 (74 – good)	Bramble scrub	
13.	ST07600312	M27 (82 – very good)	Mire	
14.	ST07580312	W6d (43 – very poor)	Wet woodland	
15.	ST07550312	W6d (28 – very poor)	Wet woodland	
16.	Not surveyed			
17.	Not surveyed			
18.	ST07590315	M28 (78 – good)	Mire	
19.	ST07570318	M23a (54 – poor)	Purple moor grass & rush-pasture	
20.	ST07530318	M27c (29 – very poor)	Mire	
21.	ST07550320	M23a (28 – very poor)	Purple moor grass & rush-pasture	
22.	ST07570320	MG1 (46 – very poor)	Grassland	
23.	ST07620321	MC9c (55 – poor)	Maritime grassland	Incorrect - probably just unusual MG5 grassland
24.	Not surveyed			
25.	ST07560328	OV25 (45 – very poor)	Open habitat (nettles & thistles)	Probably incorrect
1b.	ST07610276	OV24 (46 – very poor)	Open habitat (nettles & cleavers)	Probably incorrect
2b.	ST07570276	W24 (43 – very poor)	Bramble scrub	
3b.	ST07560283	M27c (52 – poor)	Mire	
4b.	ST07520287	MG10a (66 – fair)	Species-poor rush-	

Quadrat	Grid Reference	NVC Affinity & fit	Habitat	Comment
			pasture	
5b.	ST07560286	MC9 (43 – very poor)	Maritime grassland	Incorrect - but probably because it was nearly 100% Yorkshire fog
6b.	ST07560301	M27b (49 – very poor)	Mire	
7b.	ST07550304	M27c (58 –poor)	Mire	
8b.	ST07540321	M27c (49 – very poor)	Mire	
9b.	ST07610327	M23 (53 –poor)	Purple moor grass & rush-pasture	

Table 1: Quadrat NVC affinities

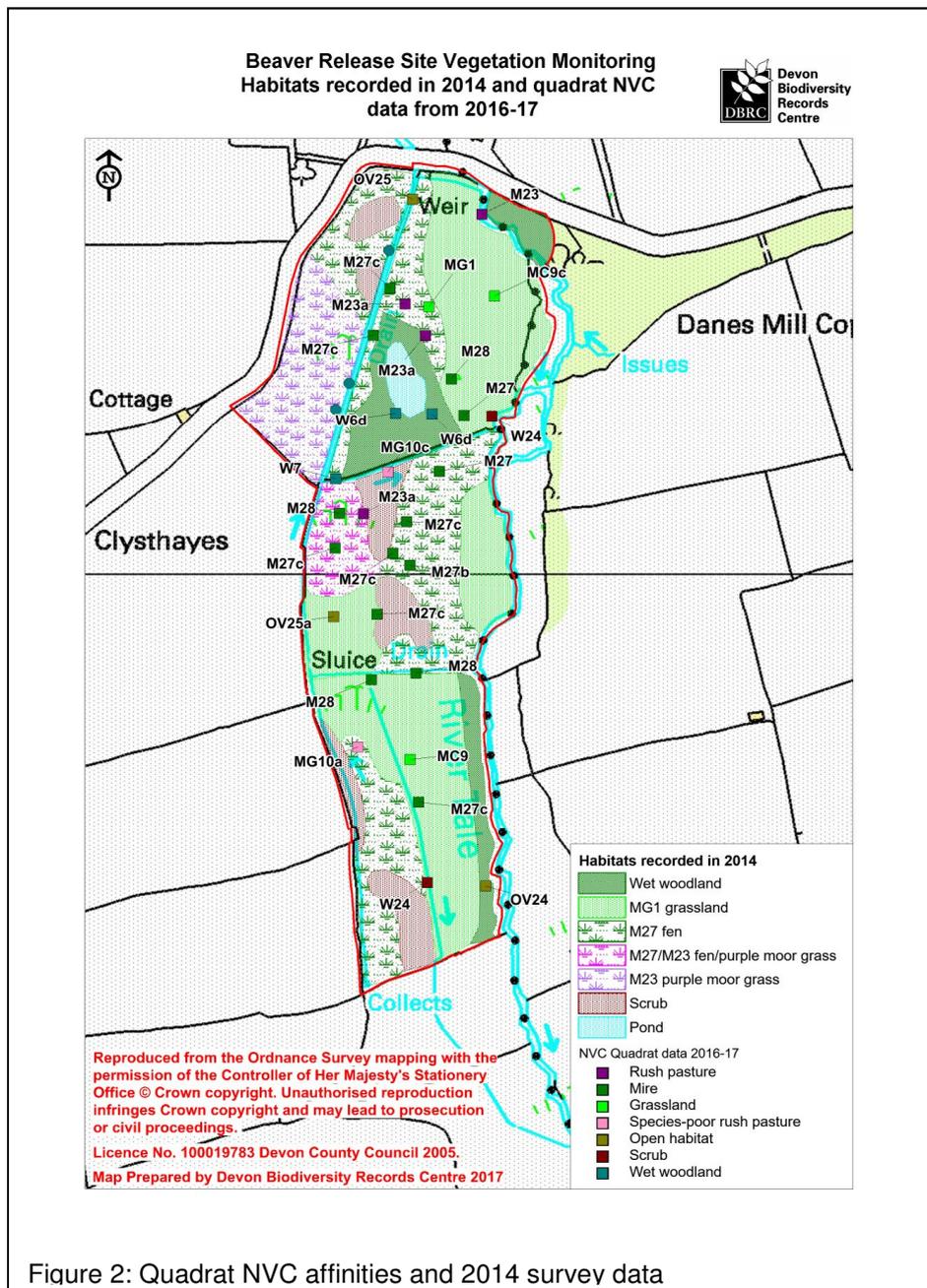


Figure 2: Quadrat NVC affinities and 2014 survey data

The results from the 360° scans are shown in Table 2 (see Figure 1 for location of the scan points). Hemlock water-dropwort dominates parts of the site, so it would be interesting to see if the beavers have any effect on this.

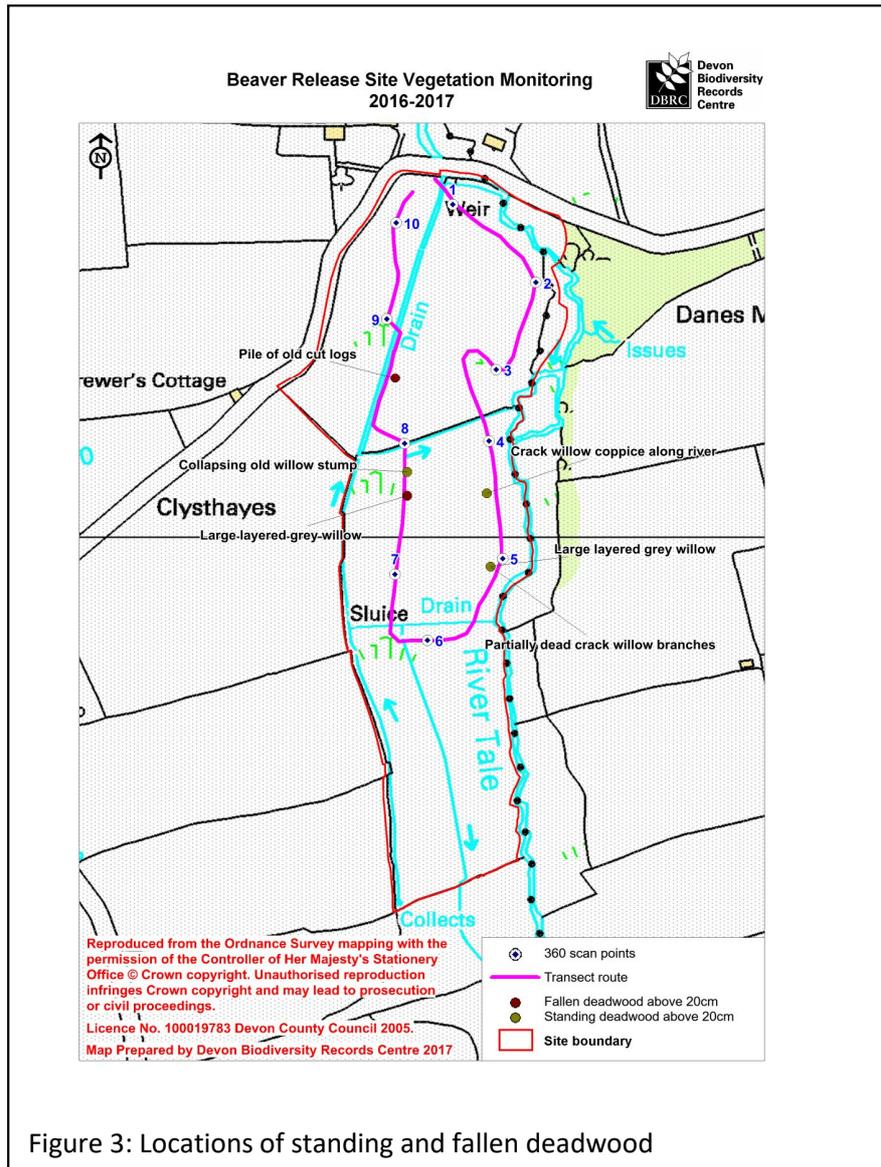
No.	% Tall/ coarse grass	% Hemlock Water Dropwort	% Soft rush	Mixed fen	Ruderals	Bare ground	Scattered scrub/ saplings	Finer grasses, herb sward	Open water
1	60	25	<0.5	10	5	<0.5	1	0	0
2	75	25	0	20	30	0	1	0	0
3	40	35	10	40	1	0	3	0	0
4	15	75	0	75	10	0	5	0	0
5	20	70	<0.5	75	5	0	5	0	0
6	15	25	1	75	1	0	5	0	0
7	5	80	2	90	1	0	3	0	0
8	0.5	2	<0.5	10	1	60	75	0	5
9	20	30	10	30	1	0	3	10	0
10	0	90-100	10	25	0	0	15	0	0

Table 2: Habitat composition noted from 360° scans

Standing and fallen deadwood with a diameter of over 20cm was also mapped as part of the transect walk (Table 3 and Figure 3). The amount of deadwood is likely to increase as the beavers modify the site.

Deadwood	Grid Reference	Description
Fallen deadwood above 20cm	ST07600297	Large layered grey willow; collapsing but generally alive & layering/sprouting
Fallen deadwood above 20cm	ST07 50303	Large layered grey willow; collapsing but generally alive & layering/sprouting
Fallen deadwood above 20cm	ST07520313	Pile of old cut logs rotting away nicely - fallen willow branch still hung up on tree, but definitely dead =+/- 6m long & roughly 20-25cm wide
Standing deadwood above 20cm	ST0760203037	Crack willow coppice along river - some sections entirely dead, others partially
Standing deadwood above 20cm	ST07600297	Partially dead crack willow branches
Standing deadwood above 20cm	ST07530305	Collapsing old willow stump with some dead sections of branch but mostly layering. <10cm diameter

Table 3: Location of fallen and standing deadwood above 20cm diameter



Future work:

It would be useful to repeat the quadrat sampling and the transect walks annually, to monitor how the vegetation changes. A full survey following the Biodiversity Monitoring Framework could be carried out after five years.

Appendices:

1993 and 2014 survey cards

DEVON WILDLIFE TRUST SITE SURVEY CARD

SITE NAME CLYST WILLIAM CROSS	FILE CODE ST/00/011	GRID REF ST 075029 <i>ET 01/01</i>
SURVEY TITLE E. DEVON	SURVEY DATE 25.5.93	DATABASE CODE ST00/016
DISTRICT E. DEVON	PARISH PLYMOUTH <i>PLYMOUTH ROADHEAD BURN ET 01/01</i>	RECORDER/S R White
OWNER ACCESS PERM. FR		
SITE STATUS NMR SSSI pSSSI DWT Res Other Res NCA CWS RIGS LNR NP Com <u>Priv</u> AONB ESA Other		
MANAGEMENT BODY NCC DWT RSPB NT LA FC WT SWM Other Pub.Body <u>Priv.Owner</u> Other		
OTHER DETAILS		

11.6 ET 01/01

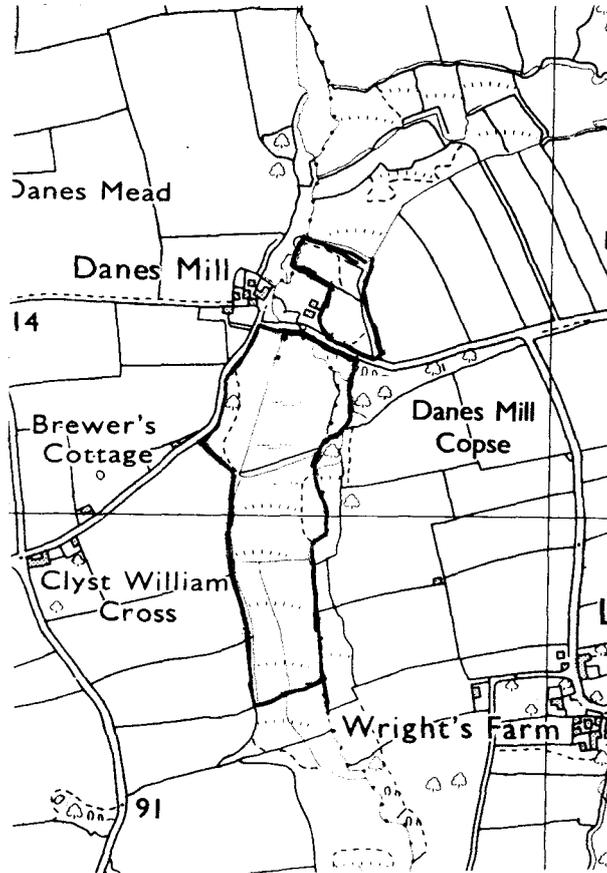
SITE AREA/ha 11.6	ALTITUDE/m	MAJOR ASPECT	MAJOR SLOPE/LEVEL
GEOLOGY [solid/drift]			
SOILS <u>Neut</u> Calc Acid Clay Loam Sand Peat Alluv Scree Rock Spoil Other Water-logged Poorly drained Freely drained			
SPECIAL INTEREST UNIMPROVED MARSHY GRASSLAND			
PRESENT USE GRAZING, CATTLE			
IS THE SITE UNDER THREAT? NO			

HABITATS	AREA/ha	MANAGEMENT
WOODLAND: ANC. SEM-NAT WOODLAND: REC. SEM-NAT WOODLAND: B/L PLANTN. WOODLAND: ANC. REPLANT WOODLAND: CONIF. PLANT SCRUB: DENSE/CONTIN. SCRUB: SCATTERED	STANDING WATER RUNNING WATER COASTAL: CLIFF GRASLND COASTAL: CLIFF HEATH COASTAL: SALT MARSH COASTAL: MUD BANK COASTAL: SHINGLE COASTAL: DUNE INLAND ROCK EXPOSURE HEDGEROW ARABLE DISTURBED GROUND BARE GROUND OTHER	NO MANAGEMENT GRAZING: LIGHT GRAZING: MODERATE GRAZING: HEAVY GRAZING: CATTLE GRAZING: SHEEP GRAZING: HORSES GRAZING: DEER GRAZING: RABBITS GRAZING: OTHER MOWING/HAY CUT SILAGE TOPPING/SWIPING BURNING SCRUB CONTROL SLURRY ARTIF. FERT. CHEM. HERBIC.
PARKLAND TREES GRASSLAND: LOWLAND GRASSLAND: UPLAND GRASSLAND: UNIMP. ACID GRASSLAND: UNIMP. NEUT GRASSLAND: UNIMP. BASI GRASSLAND: MARSHY	ADJ. LAND USE <u>B/L WOODLAND</u> CONIF. WOODLAND SCRUB HEATH BOG SWAMP WATER UNIMP. GRASSLND S/I GRASSLAND <u>IMP. GRASSLAND</u>	WOODLAND: WORKED COPP WOODLAND: ABAN. COPP WOODLAND: COPP-W-STDs WOODLAND: POLLARDS WOODLAND: HIGH FOREST WOODLAND: CLEARFELL WOODLAND: THINNED WOODLAND: REPLANTED WOODLAND: NON-INTERV WOODLAND: OTHER
GRASSLAND: S/I ACID GRASSLAND: S/I NEUT GRASSLAND: S/I BASIC GRASSLAND: IMP./RSDDED HEATH: WET LOWLAND HEATH: DRY LOWLAND HEATH: UPLAND BOG/FLUSH: BLANKET BOG BOG/FLUSH: RAISED BOG BOG/FLUSH: VALLEY BOG BOG/FLUSH: BASIN MIRE BOG/FLUSH: ACID FLUSH BOG/FLUSH: BASI FLUSH TALL HERB: BRACKEN TALL HERB: OTHER SWAMP OR FEN	ARABLE URBAN OTHER	

SITE NAME CLYST WILLIAM CROSS FILE CODE ST00SE08 GRID REF ST074028.

SITE MAP

(INCLUDE SCALE, NORTH POINT, COMMUNITY BOUNDARIES, QUADRAT LOCATIONS IF ANY)



Semi-improved fields
with stands of

Species rich grassland
to south of
road

SITE EVALUATION

(CONSERVATION VALUE, COMPARISON WITH OTHER SITES IN SURVEY/DISTRICT, RECOMMENDATIONS FOR PROTECTION/MANAGEMENT)

A large area of unimproved marshy grassland.
CWS.

all records on
revider 30/10/01

SPECIES LIST (WHOLE SITE)		SITE NAME: CLYST WILLIAM CROSS						
FILE CODE	ST003002	GRID REF	ST079025	ARE OTHER CARDS INCLUDED FOR QUADRATS?	206			
Asplen adian rute tricho	Agrostis can cap cur sto	otrubee ovalis penicis penicula	Bellis peren Beta vulgaris Brassica nig Calamin syl	helio pepius Euphrasi egg Filiolend ulm	Listera ovat Lotus cornic ulig f Lychnis flos f Lycopus euro o	pel reptans ster Primula veri pal vulg Stellari als o	Spergan erac Stachys arve off pal sylv Stellari als o	
Athyrium fil Blechnum spi Dryopt affin dilitata filix Equiset arve fluv f pal f	Aira caryoph pra Alopec genic f prat Anthox odora f Arrhenet ela Brachy sylv Briza media Bromus horde ram ster Cynosur cr o	pend pil remota sylv Eleochar vul pel Eriophor ang vag Isolepis set Juncus acuti artic bufon bulb conglom effusus inflexus squar Luzula campe forst multi pilosa sylv Trichoph ces	Callitri egg Calluna vulg Caltha pelus Calysteg sep Capsella bur Cardamin fle hir prat f	Foenicul vul Fragaria ves Fumaria nura off Galanth niva Galeops tetr Galium aseri cruc mollugo odorat pel o sar verum o	Lysimach nem Lythrum port sali Malva moscha sylv Matricar met recut Medicago ara lup Melampy prat Mentha aquat arv Menyanth tri Mercuria per Moerhing tri Montia fonta sib Myosotis arv dis lara scorp o sec Narciss pseu Narthec ossi Nasturt offi o	Prunella vul Pulicar dyse o Ranuncul acr f bulbo ficaria flam o hed oio repens f Reseda luteo Rhinanth min Ribes nigrum sylv uva Rubia perigr Rubus idaeus Rumex acella acetosa f cong crispus obt sang Ruscus acule Sagina procu Salix repens Sanguiso min Sanicula eur Scrophul aur nodosa Scutella min Sedum acre album ang ref Senecio aqua eru jac squa sylv vulg	gram hol media Succisa prat Symphyt offi x upl Tanus comun Taraxac egg Teucrium sco Thlaspi arve Thymus praec Torilis japo Tragopog pra Trifoli camp dubium hyb medium prat e repens Triploso ino Tussilag far Typha latifo Ulex galii Umbilic rup Urtica dioic Vaccin myrti Valleria offi Valerian car locusta Verbasc thap Verbena offi Veronica arv becca chamae fil hed mont off serp	
Phyllit scol Polypod vulg Polyst setif Pterid aquil	Deschamp ces flex Desmazet rig Elymus canin rep Festuca arun gig ovine prat rubra Glyceria dec fluit Hordeum muri Holcus lanat mollis Lolium multi per o	Achillea pil o ptar Adoxa moscha Aegopod poda Aethusa cyn Agrimon euph Ajuga reptan f Alisma plant Alliaria pet Allium triqu ursinum vineale Anagalli arv tenella Anemone nem Angelica syl Anthrisc syl o Anthyll vuln Ashanes arve Apium nodifl o f	Carduus ruta Carline vulg Centaurie nig scab o Centauri ery Centrant rub Cerast fonta glom Chaeroph tea Chamaer ang Chenopod alb Chrysosp oop Circaea lute Cirsium arve pel o vulg o	Genista angl Geranium col dis lucid molle robert Seum urbanum Glechoa hed Gnaphal ulig Hedera helix Heracl sohon Hieraci egg pilos Humulus lupu Hyacinth non Hydrocot vul f Hyperic and hum perf pulch tet myochoe rad Impatiens gla Inula conyza Iris foetidi pseuda f-la	Ononis repen Orchis mascu Origanum vul Oralis aceto Papaver dubi rhoeas Pedicula pal sylv Pentaglo sea Petasite fra hyb Picris echio Pimpinel sax Plantago cor lanc f major mer Polygala ser vulg Polgonum avi hyd iap pers Potomog poly Potentil ang ans erecta R	congr obt sang Ruscus acule Sagina procu Salix repens Sanguiso min Sanicula eur Scrophul aur nodosa Scutella min Sedum acre album ang ref Senecio aqua eru jac squa sylv vulg Serratul tin Sherardi arv Silene alba dioica vul ssp mer vul ssp vul Sinapis arv Sison anomum Smyrnium olu Solarium dulc nig Solidago vir Sonchus arve asper oler	repens Triploso ino Tussilag far Typha latifo Ulex galii Umbilic rup Urtica dioic Vaccin myrti Valleria offi Valerian car locusta Verbasc thap Verbena offi Veronica arv becca chamae fil hed mont off serp Vicia cracca hirsuta sativa sepium tet Vinca major minor Viola arvens canina odorata pal rei riviniana tri Wahlerbe hed	
Acer campestr pseu Aesculus hip Alnus glutin o-l Betula pendu pub Castanea sat Cleatis vit Cornus sangui Corylus avel Crataeg mono Cytisus scop Euonymus eur Fagus sylvat Frangula aln Fraxinus exc Ilex aquifol Ligust vulga Lonicera per Maius sylves Pinus sylves Populus trem Prunus avium spino Quercus petr robur Rhododen pon Rosa arvensi canina Rubus fruti o	Dactylis glo Danthon decu Deschamp ces flex Desmazet rig Elymus canin rep Festuca arun gig ovine prat rubra Glyceria dec fluit Hordeum muri Holcus lanat mollis Lolium multi per o Melica unifl Miliun effus Molinia caer f Nardus stric Phalaris aru o Phleum prate Phragmit aus Poa annua nebor prat triv Trisetum fla Vulpia bromi Carex binery caryoph debisse divulsa echinata flacca hirta host laev muricata nigra	Achillea pil o ptar Adoxa moscha Aegopod poda Aethusa cyn Agrimon euph Ajuga reptan f Alisma plant Alliaria pet Allium triqu ursinum vineale Anagalli arv tenella Anemone nem Angelica syl Anthrisc syl o Anthyll vuln Ashanes arve Apium nodifl o f Aquileg vulg Arabis thala Arctium laco minus Arenaria ser Armeria mari Artemes vulg Arum maculat Atriplez pet prost Ballota nigr Barbarea vul	Conium macul Conopod maju R Convolv arve Coronop didy Corydai clav Crepis capil ves Cymbalar mur Dactylor fuc maculata prat f Daucus carot Digital purp Dipsacus ful Drosera rotu Epilob cilia hir montanum obs pal per Epipact hell Erica cinere tetralix Erodium cicu Erophil vern Eupetor carn Euphorb ang	Linum biene cath	erecta R	erecta R	erecta R	erecta R
Salix alba aurita caprea ciner frag Sambucus nig Sorbus aucup Taxus baccat Tilia x vulg Ulex europae Ulmus glabra proc Viburnum lan Viburnum opu	Trisetum fla Vulpia bromi Carex binery caryoph debisse divulsa echinata flacca hirta host laev muricata nigra	Achillea pil o ptar Adoxa moscha Aegopod poda Aethusa cyn Agrimon euph Ajuga reptan f Alisma plant Alliaria pet Allium triqu ursinum vineale Anagalli arv tenella Anemone nem Angelica syl Anthrisc syl o Anthyll vuln Ashanes arve Apium nodifl o f Aquileg vulg Arabis thala Arctium laco minus Arenaria ser Armeria mari Artemes vulg Arum maculat Atriplez pet prost Ballota nigr Barbarea vul	Conium macul Conopod maju R Convolv arve Coronop didy Corydai clav Crepis capil ves Cymbalar mur Dactylor fuc maculata prat f Daucus carot Digital purp Dipsacus ful Drosera rotu Epilob cilia hir montanum obs pal per Epipact hell Erica cinere tetralix Erodium cicu Erophil vern Eupetor carn Euphorb ang	Linum biene cath	erecta R	erecta R	erecta R	

ADDITIONAL SPECIES

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Clyst William Cross (East Devon)

County Wildlife Site Monitoring Form

1. Pre visit summary

SITE NAME Clyst William Cross	SITE CODE ST00/011	CENTRAL GRID REFERENCE ST075029	
REASON FOR MONITORING VISIT BMF	DATE SITE MONITORED + NAME (ORGANISATION) 22 May 2014 H Gibbons & A Stubbings (DBRC)	DATE OF LAST SURVEY + NAME 25/05/1993 R White	
DISTRICT / UNITARY / NATIONAL PARK / AONB East Devon	PARISH / WARD Plymtree/Broadhembury	DATE OF LAST ADVISORY VISIT / NAME & ORGANISATION Unknown	
SITE STATUS CWS	MANAGEMENT BODY Landowner	STRATEGIC NATURE AREA N/A	
LANDOWNER/MANAGER - Name, address and other contact details (incl email).			
Access permission from:			
SITE AREA (ha) 11.4	MAJOR ASPECT East	MAJOR SLOPE Minor	ALTITUDE (m) 85-90
GEOLOGY (solid / drift from Geology maps) – see http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html Aylesbeare Mudstone Group - Mudstone			
SOILS Neut Scree	Calc Slightly Acid Water logged	Clay Loam Poorly drained	Sand Peat Alluv Freely drained Rock Other:
ORIGINAL REASON FOR CWS DESIGNATION AND COMMENTS Unimproved marshy grassland			

2. Post visit summary

Overall Site Assessment	Red / amber / green
Overall Management Assessment	High / Medium / Low
Comments / key issues / Management recommendations	An unimproved shallow valley site with a mosaic of habitats including mire, fen and grassland. Much of the site is undermanaged and would benefit from management. Management options need to be discussed with Natural England. This site has great potential to be a very diverse CWS and of huge local significance.
Action needed (e.g. send details to NE, signpost to adviser)	Send details to NE
CWS criteria and suitable boundary assessed?	Yes
Current reason for CWS designation	Over 0.5ha fen meadow
Other details or special interest of site: Devon Notables: Wood club-rush.	



Clyst William Cross (East Devon)

3. SITE CONDITION ASSESSMENT

See guidance notes. Please annotate the map provided to show key habitats and features e.g. key Biodiversity Action Plan (BAP) habitats & communities showing National Vegetation Classification (NVC) affinity linked to reason for designation / location of key species. Provide a brief description below and assess condition using guidance notes.

3.0 Brief description of CWS (location, overview of habitats present, history of site, topography etc)

A site of moderate size and flat topography located adjacent to the River Tale, approximately 1.5km north-west of Payhembury, East Devon. The site supports fen, mire and grassland communities and is bisected by a single track road. Most of the site falls to the south of the road and two parcels of land are situated to the north of the road. Much of the site has remained unmanaged for some time and as such the sward is tall and often grass dominated.

This site was surveyed in 1993 and as that time the site was grazed unintensively with cattle. The valley was described as supporting a variable marshy community with some areas dominated by rushes, yellow flag iris, and small patches of purple moor-grass and sedges. The recent lack of management has encouraged dominance of the site by hemlock water-dropwort and grasses and as such the botanical diversity at this site has reduced.

3.1 Condition assessment of habitats for which the site was designated (Biodiversity Action Plan (BAP) habitats >0.5ha).

As this site has been left unmanaged for some time the grasslands have become fairly rank and as such have not been recorded as BAP habitats within this report. Management of this site in the future may restore these habitats as species-rich and as such they may once more be recorded as BAP habitat.

Lowland fen

Area 1: Tall and unmanaged fen vegetation (up to head height in places). The sward supports dominant hemlock water-dropwort, abundant meadowsweet, frequent nettle, rough meadow-grass, bog stitchwort and sharp-flowered rush, locally frequent marsh horsetail and water mint and occasional wild angelica, soft rush, common marsh bedstraw, meadow foxtail, common sorrel, Yorkshire-fog and yellow flag iris. Marsh thistle, cuckoo flower, creeping forget-me-not, ragged robin, bugle, sweet vernal-grass, tufted hair-grass, greater bird's-foot trefoil, reed canary grass and common spotted orchid have a rare distribution.

This area has affinities with National Vegetation Classification (NVC) community M27 (*Filipendula ulmaria* – *Angelica sylvestris* (meadowsweet – wild angelica) mire)

Area 2: Similar to Area 1 with locally dominant hemlock water-dropwort, abundant meadowsweet, frequent tufted hair-grass, meadow foxtail, rough meadow-grass, meadow foxtail, rough meadow-grass and Yorkshire-fog and occasional common marsh bedstraw, common nettle, common sorrel, crosswort, cleavers, yellow flag iris, marsh horsetail, creeping forget-me-not, sharp-flowered rush and wild angelica. Wood club-rush (Devon Notable) water figwort, reed canary-grass a species of willowherb, water pepper and greater bird's-foot trefoil have a rare distribution.

Again this area also has affinities with NVC community M27.

Area 3: A narrow strip of M27 with much hemlock water-dropwort, meadowsweet and yellow flag iris. Wood club-rush (Devon Notable) is present here.



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Area 4: An inaccessible area to the north supporting dominant hemlock water-dropwort with yellow flag iris and common nettle. Some wood club-rush (Devon Notable) is present here. Much grey willow scrub is also present within this area. This area has loose affinities with NVC community M27.

Condition assessment (Areas 1 – 4)

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%	No
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 (ie dead vegetation).	Yes
Habitat condition assessment (High/Medium/Low)	Medium

Lowland fen / purple moor-grass & rush pasture

Area 5: Possibly one of the most diverse parts of the site. The sward height here is lower than on many of the parts of the CWS, possibly as it is grazed by deer. There are patches of tall hemlock water dropwort but the shorter vegetation is more diverse. Species present here include locally dominant sharp-flowered rush, locally abundant Yorkshire-fog, frequent tufted hair-grass, meadowsweet and yellow flag iris, locally frequent fen bedstraw (Devon Notable) and occasional wild angelica, common sorrel, meadow foxtail, marsh thistle, ragged robin, sweet vernal-grass, cuckooflower, greater bird's-foot trefoil, bog stitchwort and a species of willowherb. Tormentil, bugle, devil's-bit scabious, cleavers, gipsywort and bittersweet have a rare distribution.

This area has affinities with NVC communities M27 and M23 (*Juncus effusus/acutiflorus* – *Galium palustre* (soft rush / sharp-flowered rush – common marsh bedstraw) rush-pasture)

Condition assessment (Area 5)

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
Habitat condition assessment (High/Medium/Low)	High

Purple moor-grass & rush pasture

Area 6: A horse-grazed pasture to the west of the site with a easterly aspect. The sward here is heavily grazed, particularly the drier parts of the grassland. The more interesting part of this field is the species-rich mire at the bottom of the slope. The sward here comprises locally abundant sharp-flowered rush and bristle club-rush, frequent ragged robin, greater bird's-foot trefoil and a species of forget-me-not, locally frequent common marsh bedstraw, marsh horsetail, lesser spearwort and meadowsweet and occasional water mint, marsh stitchwort (record unverified), cuckooflower, yellow flag iris and bog stitchwort. Purple moor-grass, southern marsh orchid, common fleabane, silverweed and square-stemmed St John's-wort have a rare distribution.

This area has affinities with NVC community M23. The rest of the field, where drier, supports semi-improved grassland which is heavily grazed and fairly species-poor.

Condition assessment (Area 6)

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



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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
Habitat condition assessment (High/Medium/Low)	High

3.2 Condition assessment of other Biodiversity Action Plan habitats not previously noted or those which have developed since the site was designated and now meet the CWS criteria >0.5ha.

N/A

3.3 Description of other habitats which are either not a Biodiversity Action Plan habitat or Biodiversity Action Plan habitats which are too small to meet the CWS criteria size threshold of <0.5ha.

Improved grassland

Area 7: Improved cattle-grazed fields to the south separated by a ditch. The fields here are grassy and herb-poor with abundant perennial rye-grass, frequent creeping buttercup, rough meadow-grass and white clover and occasional meadow foxtail, floating sweet-grass and cuckooflower.

It is unknown as to why this site was included within the CWS boundary as it was not part of the original survey in 1993.

Rough marshy grassland

Area 8: Rough grassland forming a large patch towards the southern part of the site. The sward here comprises dominant meadow foxtail, locally dominant Yorkshire-fog, common nettle and hemlock water-dropwort, abundant red fescue, frequent creeping buttercup, lesser stitchwort, common sorrel, sweet vernal-grass, rough meadow-grass and common knapweed, locally frequent meadowsweet and occasional soft rush, wild angelica, yellow flag iris, common mouse-ear, cuckooflower, cleavers, crossword, hogweed, creeping thistle, false oat-grass, ribwort plantain, meadow buttercup and tufted hair-grass. Hairy sedge, gipsywort, greater bird's-foot trefoil, meadow vetchling, red clover, water pepper, silverweed, red campion and bog stitchwort have a rare distribution.

This area has no specific affinities with any NVC communities though is starting to head towards MG1 (*Arrhenatherum elatius* (false oat-grass) grassland) which is typical of meadows that have been left unmanaged.

Area 9: A relatively large area of rough damp grassland towards the north of the site. This area is wetter to the west where it merges in with the fen of Area 4. The drier part of the grassland to the east supports dominant red fescue, abundant meadow foxtail, frequent common nettle, sweet vernal-grass and common sorrel and occasional cock's-foot, creeping thistle, yarrow and field woodrush. Red campion, meadow vetchling, white dead nettle and hedge woundwort have a rare distribution.

This again is starting to become rough and have characteristics of NVC community MG1.

Area 10: A field to the north of the single track roads that bisects the site. This field is 'gardened' in nature and now supports a pond which was relatively recently installed (since 2006). Rough damp grassland surrounds the pond and supports abundant meadow foxtail, locally abundant common sorrel, frequent meadowsweet, water mint, common sorrel, creeping buttercup, sweet vernal-grass and rough meadow-grass and occasional soft rush, cuckooflower, sharp-flowered rush, greater bird's-foot trefoil, broadleaved dock, gipsywort, Russian comfrey, wild angelica and hairy sedge. Ragged robin and common fleabane have a rare distribution.



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The pond supports a species of pondweed, floating sweet-grass, yellow flag iris and greater reed-mace. A newt, possibly a male palmate newt, was seen in the pond at the time of survey.

Rough grassland

Area 11: Rough dry grassland with abundant meadow foxtail, frequent sweet vernal-grass, ribwort plantain, creeping buttercup and common sorrel, locally frequent lesser stitchwort and occasional meadow buttercup, dandelion, common knapweed, red fescue, common bent, common mouse-ear and hogweed. Crosswort, red clover, yarrow and cock's-foot have a rare distribution.

This area is also showing signs of moving towards the NVC community MG1.

Wet woodland

Area 12: A small area of wet woodland / scrub surrounding a large pond. This area is largely inaccessible. Grey willow and alder form the canopy and shrub layer. The ground comprises water mint, creeping buttercup, hemlock water-dropwort, wood club-rush (Devon Notable), water figwort, *Sphagnum* floating sweet-grass, gipsywort, field wood-rush, branched bur-reed, yellow flag iris and lesser spearwort.

Area 13: A small area of wet woodland with an alder canopy. The shrub layer comprises ash, blackthorn, hawthorn, holly, elder, hazel and grey willow. The ground layer supports, bramble, red campion, common dog violet, ivy, wood speedwell, honeysuckle, yellow archangel, bugle, yellow pimpernel, nettle, broad buckler-fern, marsh marigold, wood avens, yellow flag.

Other habitats

Area 14: An open area of disturbed ground following bramble removal. Several young trees have been planted here including cherry, rowan, oak, beech, hazel and ash.

Area 15: Dense mature scrub with hazel, blackthorn and sycamore.



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4. SITE MANAGEMENT ASSESSMENT

Please annotate the map to show management issues (poaching / scrub invasion etc) and describe below

4.1 Management assessment of habitats detailed within 3.1

Include relevant details reg. current management e.g. grazing (stock / stocking levels / time year / avermectins), fertiliser (organic / inorganic / quantities / timing), herbicides, scrub/bracken control, weed control/invasive species, topping, hay cut (time year), woodland management, drainage etc.

Areas 1 – Area 5: Unmanaged fen and purple moor-grass & rush pasture habitats. The main part of the site was grazed by ponies about 10 years ago but has not been grazed recently. In 1993 this site was recorded as being cattle grazed.

Management assessment (High/Medium/Low)	Low
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Area 6: Heavily grazed by horses.

Management assessment (High/Medium/Low)	Low
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4.2 Management assessment of habitats detailed within 3.2

N/A

4.3 Management assessment of habitats detailed within 3.3

Area 7: Improved field. **Management assessment N/A**

Areas 8 – 11: Rough unmanaged grassland forming a large part of the CWS. **Low**

Areas 12 & 13: Unmanaged wet woodland **High**

Area 14: Scrub removed and trees planted **Medium**

Area 15: Dense scrub **Medium**



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4.4 Other management information

Has management of the site been discussed with the landowner?

Yes / No Phone / Site / Other

Landowner given permission to give details to another organisation for advice / grant information?

Yes / no Name of organisation.....

Total area of holding Unknown	Nature of holding Unknown
--------------------------------------	----------------------------------

Recommendations for future management (please show on map): Discussed with landowner - yes/no

This site supports an interesting mosaic of habitats in an unimproved valley setting. The original survey carried out in 1993 indicates that the site was very species-rich and of great significance at that time. Unfortunately fens and rush pastures tend to become rough and scrub up if they are left unmanaged for long periods of time and this has occurred at this site.

The landowner of the vast majority of the site is very keen on wildlife but has found long term management of the site tricky. Due to the local significance of this site and the great potential in it being reverted to a species-rich state it is recommended that the landowner is made aware of potential support regarding the long term management of this site, for example stewardship agreements. DBRC will forward this site to Natural England in the hope that a local advisor can help provide information to the landowner.

The local dominance of hemlock water-dropwort may be of some concern at this site as a barrier to grazing the site (the roots are highly toxic to mammals, including cattle). It is recommended that the Natural England Adviser discusses this with the landowner regarding potential future management of the site. Weed wiping to reduce the dominance of this species is an option but the site is wet and may be difficult to access.

Area 6 is currently very heavily grazed by horses. Horses are not the most suitable of grazers in species-rich areas as they have very dexterous lips and are able to graze swards very short, being very selective with their grazing too. Cattle grazing here would be better for the long term with regards to floristic diversity. Cattle grazing from April – October would be the most ideal situation as it prevents the grassland from being poached during the wetter winter months.

Is the site under any grant schemes? (e.g CSS/ELS/HLS/WGS). Date that scheme ends. Brief details of relevant options. Landowner interested in renewing the scheme?

Not currently

Is there a management plan? previous wildlife advice ? who drew this up? Date drawn up? Does the landowner refer to it?

No

Previous management (if applicable):

Most of the site was cattle grazed in 1993 and was horse / pony grazed until about 10 years ago. Since that time the site has been largely been left unmanaged.

Landowner history and future plans

The landowner is very keen to manage the site to enhance the value of it for wildlife. The landowner is also very keen on finding out about stewardship as a means of supporting long term management.



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Action for DBRC / surveyor: (e.g. ask NE or FC to contact landowner, draw up FEP etc)

Pass details of site to NE

Other notes:



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5. OVERALL SITE EVALUATION:

5.1 Habitats for which the site is designated (this is a summary box from section 3.1)

Area	Habitat	Condition L/M/H	Man'ment L/M/H	Overall assessment	Key reason for not being assessed as green
1 - 4	Lowland fen	M	L	M	Unmanaged
5	Lowland fen / purple moor-grass & rush pasture	H	L	M	Unmanaged
6	Purple moor-grass & rush pasture	H	L	M	Unmanaged
8 - 10	Was species-rich fen / mire. Now rough marshy grassland	L	L	L	Unmanaged
11	Was species-rich (probably lowland meadow). Now rough grassland	L	L	L	Unmanaged

5.2 Current habitats (this only needs to be filled in if there has been a significant change to the habitats for which the site was designated)

N/A

5.3 Overall site assessment

Overall condition of site (Red/Amber/Green)

Red	Not in positive management or condition. Site requires urgent attention.
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Overall site management assessment:

Low	Not in positive management.
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5.4 Is this site still of CWS standard?

Yes

5.5 Which specific CWS guideline(s) does it meet (please reference to specific polygons on the map)?

Area	Criterion No.	Text
1-6	3.5.2	Over 0.5ha fen meadow (M27, M27/M23 & M23)

5.6 Please list the Biodiversity Action Plan priority habitats on site:

Lowland fen
 Purple moor-grass & rush pasture
 Wet woodland

5.7 Are there any new features of interest (including notable species)?

Yes, two Devon Notables (Wood club-rush & fen bedstraw)



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5.8 Should there be any change to the current CWS boundary and are there any areas that are no longer of CWS standard (please refer to specific polygons)?

Yes – it is recommended that the more ‘gardened’ parts of the site (Areas 10, 13, 14 & 15) are removed from the CWS boundary as they do not meet the guidelines. It is also recommended that Area 7, the improved fields, are removed from the boundary.

5.9 Has the site been subject to any planning applications?

Unknown



Principal Funders

Clyst William Cross (East Devon)

SPECIES LIST (noteworthy species only)

Marsh stitchwort (unverified)
Wood club-rush (Devon Notable)

**Clyst William Cross
 County Wildlife Site**

