County Wildife Site Criteria for Cornwall

Appendices

Environmental Records Centre for Cornwall and the Isles of Scilly

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CORNWALL COUNCIL

The wildlife TRUSTS Cornwall

Appendix 1

List of County Wildlife Sites in Cornwall

List current at July 2010

PENWITH			
P/K 1	Hayle Estuary and River System		
		P1.1	Hayle Estuary
		P1.3	Treloweth Woods
		P1.4	St Erth Pools
		P/K 1.5	Relubbus Ponds
		P1.6	Carbismill to Relubbus
P/K 2	North Coast		
		P2.2	Great Moor Zawn to Porthmeor Cove
		P2.5	Towednack Quae Head to Clodgy Point
		P/K 2.7	Hayle Dune System
P3	South Coast		
		P3.1	Prussia Cove to Stackhouse Cove
		P3.2	Stackhouse Cove to Perran Sands
		P3.3	Marazion Marsh
		P3.4	Mount's Bay
		P3.5	Mousehole to Lamorna Cove
		P3.6	Lamorna Cove to Merthen Point
		P3.7	Merthen Point to Porthcurno
		P3.8	Porthcurno to Porthgwarra
		P3.9	Porthgwarra to Pendower Coves
		P3.10	Pendower Coves to Pordenack Point
		P3.11	Pordenack Point to Sennen Cove
		P3.12	Sennen Cove to Carn Gloose
P/K 4	Red River Valley		
		P/K 4.1	Lower Red River
P5	Gwinear Tips and Trungle Valley		
P6.2	Clodgy Moor		
P7	Cold Harbour Marsh		
P8	Drift Reservoir		
P9	Higher and Lower Hill Woods(includes Trencrom Hill)		
P10	Selena Moor		
		P10.1	West Selena Moor
		P10.2	East Selena Moor
P11	Penwith Moors		
		P11.1	Carn Brea, Tredinney & Bartinney Commons
		P11.2	Caer Bran and Sancreed Beacon
		P11.3	Carnyorth Common and Bostraze Bog
		P11.4	Chun Downs to Boswens Common
		P11.5	Boswarva Carn
		P11.6	Central Moors
		P11.7	Churchtown Common to Trendrine Hill
		P11.8	Rosewall Hill
		P11.9	Bussow Moor & Carn Stabba
		P11.10	Busvargus & Tregeseal Common to Dowran Common & Bosworlas Moor
		P11.11	Botrea Downs
		P11.12	Bosvenning & Roskennals Common
		P11.13	Carn Downs
		P11.14	Carne Eanes & Trewellard Common
		P11.15	Trenowin Downs
P12	Newmill Quarry		
P13	Trink Hill		
P14	Brewgate Moor		
P16	Marsh Lane Meadows		
P17	Tolver Wood		

P18	Trevaylor Stream Woods		
P19	Tremethick Moor		
P20	Trewern & Lower Bodinnar Moors		
P21	Trengwainton Woods and Carn		
P22	Truthwall Valley		
P23	Nanquidno Downs and Valley		
P24	St Levan Valley		
P25	Tregenhorne Valley		
P26	Sennen Moor		
P/K 27	Clowance House & Park		
P28	Rosemorran Stream Valley and Boscreege Moor		
P29	Trevorian Common		
P30	Gurlyn Wood		
P31	Moorcroft and Trewoofe & Upper Lamorna Valleys		
P32	Boscawen-Noon & Bojewans Valleys		
P33	Rospannel, Alsia and Trevorgans Moors		

KERRIER			
K/P1	Hayle Estuary and River System		
		K/P1.5	Relubbus Ponds
K/P2	North Coast		
		K/P 2.7	Hayle Dune System
K3	South Coast		
		K3.1	Gunwallow: Marshes and Towans
		K3.2	Loe Pool
		K3.3	Porthleven to Lesceave Cliff
		K3.4	Praa Sands to Prussia Cove
		K3.5	Gatamala Cove to Maenporth
K/P4	Red River Valley		
		K/P 4.1	Lower Red River
		K/P 4.2	Roskear
K5	Pendarves Wood		
		K 5.1	Pendarves Wood & Trevoole Moor
		K 5.2	The Rocks
K6	Newton Moor		
K7	Carn Brea		
K8	Helford River System		
		K8.1	Rosemullion Head to Porthnavas Creek
		K8.2	Porthnavas Creek
		K8.3	Calamansack Wood to Gweek
		K8.4	Gweek Woods
		K8.5	Trelowarren Woods
		K8.6	Mawgan Creek to Helford
		K8.8	Gillan Creek
		K8.9	Nare Point and Head
K9	Budock Water		
K10	Carnmenellis Moor and Lancarrow Marsh		
		K10.1	Carnmenellis Moor
		K10.2	Lancarrow Marsh
K11	Stithians Reservoir		
K12	Portreath Valley		
K/CK 13	Fal Estuary Complex		
		K/CK 13.12	Perran Woods
K14	Kennall Vale		
K/CK15	Falmouth Reservoirs		
K16	Rame Common		

K17	Treleggan Moor		
K18	Treneere Wood		
K19	Tucoyse Valley and Brill Hill		
K20	Porkellis Moor		
		K20.1	South Porkellis Moor
		K20.2	North Porkellis Moor
K21	Trezebel Valley		
K22	Crowan Reservoirs		
K23	Boquio Downs		
K24	Polcrebo Downs		
K25	Bosvathick Wood & Croft Plantation		
K26	Grambla and Polglase Woods		
K/P 27	Clowance House and Park		
K28	Tregonning Hill		
K29	Rosemanowas Quarries		
K30	Godolphin Warren		
K31	Carnmeal Downs		
K32	Tehidy Woods		
		K32.1	West Tehidy
		K32.2	East Tehidy
K33	The Lizard		
		K33/I10	Windmill Farm Enclosures
		K33/I17	Penhale Cart Tracks
		K33/I18	Trudnoe Enclosures
		K33/I20	Clahar Enclosures
		K33/I24	St Rumon's Church & Long Alley Enclosures
		K33/I27	Tussler's Bridge Enclosures
		K33/I28	Poltesco Valley
		K33/I29	Crowgey - Trevedon Encs
		K33/I30	Sunny Corner and
		K33/I31	Worvas Enclosures
		K33/I33	Trethvas Enclosures
		K33/I45	Chygarkye Enclosures
		K33/I71	Roskilly enclosures
		K33/C36	Chynall's Cliff to Dolor Point
		K33/C37	Dolor Point to North Corner
K/CK34	Trewithen Moor		
K35	River Cober Valley		
		K35.1	Lower Cober Valley
		K35.2	Upper Cober Valley
K36	Truthall Wood		
K37	Bolenowe Carn Moor		
K38	Penventon Moor		
K39	Nine Maidens Downs		
K40	Tolgus		
K41	Treskerby Wood		
K42	Nancrossa Moor		
K43	Vale View Wood		
K44	Crowgey Moor		
K45	Roscarnon Wood		
K46	Maen Pearne Quarries		
K/CK47	Maenporth Valley		
K48	Treglidgwith Wood		
K49	Halabezack Moor		
K50	Carminowe Wood		
K51	Lestraines Moor		

K52	Halvasso Quarries		
K53	Crowan Beacon		
K54	Trannack Downs		
K55	Bodilly Valley		
K56	Calvadnack Moor		
K57	Boswin Moor		
K58	Carlean Wood		
K59	Medlyn Moor		
K60	Trelease Valley		
K61	Boden Valley		

CARRICK			
CK2	North Coast		
		CK 2.2	St Agnes Head and Cliffs
		CK 2.3	St Agnes to Perranporth
		CK 2.4	Perranporth Dunes
CK3	South Coast		
		CK 3.2	Pennarin Point to Portscatho
		CK 3.4	Greeb Point to St Anthony Head
		CK 3.6	Portloe to Portholland
		CK 3.7	Swanpool Beach to Maenporth
		CK 3.8	Maenporth
CK4	Carnkief Pond		
		CK 4.1	Carnkief Pond
		CK 4.2	Lelight & Brickmoor Plantation
CK5	Benny Mill Valley		
CK7	Treburthes		
CK8	Silverwell Moor Valley		
		CK 8.1	Park Hoskyn
		CK 8.2	Silverwell Moor
CK9	St Agnes Beacon		
CK10	Porthtowan Valley		
CK11	Tregare Barton Wood		
CK12	Bolingey Marsh		
CK/K13	Fal Estuary Complex		
		CK 13.1	Rosteague Wood
		CK 13.2	Porthcuel River
		CK13.3	The Lower Fal
		CK 13.5	St Michael Penkevil Woodlands
		CK 13.6	Trelowthas Wood
		CK 13.7	Upper Fal Woodlands
		CK 13.8	Mellingoose Woods
		CK 13.9	Lower Truro River
		CK 13.10	Upper Truro River
		CK 13.11	Tresillian River
		CK/K 13.12	Perran Woods
		CK 13.13	Restronguet Creek
		CK 13.14	Flushing Beach
		CK 13.15	Cowlands Creek
		CK 13.16	Lower Carnon Valley
		CK 13.17	Visick's Pool
CK14	Treworder Woods		
CK/K15	Falmouth Reservoirs		
CK/R16	Trenowth Woods		
CK17	Allet Bog		
CK18	Bishop's Wood		

CK19	Carn Moor		
CK21	Carland Moor and Birch Wood		
		CK 21.1	Carland Moor
		CK 21.2	Boswiddle
CK22	Unity Wood		
CK23	Philleigh Woods		
CK25	Great Tregassow Wood		
CK26	Trenerry Wood		
		CK 26.1	Trenerry Wood
		CK 26.2	Treworgan Quarry & L. Tolcarne.
CK/R27	Ladock, St Enoder & Trendeal Woods		
CK28	Carnhot		
CK29	Perkins Wood		
CK30	Carharthen Wood		
CK31	Trewedna Water Wood		
CK32	Trerew Wood		
CK33	Goonwinnow		
CK/K34	Trewithen Moor		
CK35	Cargoll		
CK36	Pomeroy Wood		
CK37	Carveth Wood		
CK38	Golden Wood		
CK39	Grogoth Wood		
CK40	Treverbyn/Tresowgar Woods		
		CK 40.1	Treverbyn Wood
		CK 40.2	Tresowgar Wood
CK41	Nansavallon Wood		
CK/R42	Luke's Shop		
CK/R43	Trevilvas Wood		
CK/R44	Trevan Wood		
CK/R45	Tredinnick		
CK46	North Tresamble		
K/CK47	Maenporth Valley		
CK48	Helstone Water Wood		
CK50	Callestick Vean		
CK/R51	Portholland Woods		
CK52	Halbullock Moor		
CK53	Metha Wood		
CK54	Polvenna Wood		
CK/R55	Trefullock Moor		

RESTORMEL			
R/NC 1	Red Moor		
R2	North Coast		
		R 2.1	Pentire Point
		R 2.2	The Gannel
		R 2.3	Mawgan Porth to Newquay
R3	South Coast		
		R 3.1	Readymoney Cove
		R 3.2	Gribben Head to Southground Cliffs
		R 3.3	Polmear Lake and Par Sands
		R 3.4	Pentewan to Higher Porthpean
		R 3.5	Chapel Point
		R 3.6	East Portholland to Gorran Haven
R/NC/CN4	Fowey River System		
		R/CN 4.1	Pont Pill & Hall Walk; Carne Farm

		R/CN 4.2	Colwithick Wood & Penpoll
		R/CN 4.3	Hay Point
		R/CN 4.7	Lantyan, Woodgate & Penquite Wds
		R/NC/CN 4.8	Lanhydrock
R5	Pelyn Woods		
R6	St Austell Valley Woodlands		
R7	Criggan Moor to Treskilling Downs		
		R 7.1	Criggan Moor
		R 7.2	Menadew
		R 7.3	Upper Luxulyan Valley
		R 7.4	Treskilling Downs
R8	Carruggatt Wood		
R9	Luxulyan Valley Woodlands		
		R 9.1	North Hill Wood
		R 9.2	Bodelva Moor Ponds
R10	Par Marsh		
R11	Porth Reservoir & Firhill Wood		
R12	Denzell Downs to Menadew's Plantation		
R13	Pollawyn Moor		
R 15.2	Retallack & Rosevanion Quarry		
R/CK 16	Trenowth Wood		
R19	Paramoor Wood and Homer Downs Plantation		
R20	Roche Rock		
R21	Burngullow Common & Gover Valley		
R22	Halvenna Woods and Ennis Barton		
R23	Hensbarrow		
R24	Trencreek Valley		
R25	Galowras Mill Valley		
R26	Temple Treleaven & Horsemoor Woods		
R/CK 27	Ladock, St Enoder and Trendeal Woods		
R28	Caerhays Estate Woodlands		
R29	Bodinnick Wood		
R30	Carnanton/Nanskeval Wood		
R31	Garlenick Wood		
R32	Harvose & Ventonwyn Wood		
R33	Park Matthews Wood		
R34	Poldew Wood		
R35	Longstone Downs		
R37	Carbis Moor		
R38	Carne Cross & Starrick Moor		
R39	Lockengate Moor		
R40	Tregonetha Downs		
R41	Little Carne		
R/CK42	Luke's Shop		
R/CK43	Trevilvas Wood		
R/CK44	Trevan Wood		
R/CK45	Tredinnick		
R46	St Columb Minor Marsh		
R47	Hay Wood		
R48	Trethurgy & Garkar Valley		
R49	Roseney Valley Wood		
R50	Lanjeth Heath		
R/CK51	Portholland Woods		
R52	Quoit Farm		
R53	Tresaddern Farm		
R54	Ennisworgey		

R/CK55	Trefullock Moor		
R56	Trevithick		
R57	Rosenannon Valley		
R58	Rosedinnick		
R59	Pinnock Wood		
R60	Polmear Marsh		
R61	St Ewe Valley		

CARADON			
CN 1	East Looe River System		
		CN 1.1	Quarry Wood
		CN 1.2	Keasts Park Wood
		CN 1.3	St Martins to Cleese Wood
		CN 1.4	Prince Briar's Wood
		CN 1.5	Windsor Wood
		CN 1.6	East Looe West Bank - Trenant Point to Tregarland Wood
CN 2	Boconnoc Estate and Woodlands		
CN 3	Caradon South Coast		
		CN 3.1	Rame Head
		CN 3.2	Tregantle Cliff & Trethill Cliff
		CN 3.3	Eglarooze & Battern Cliffs
		CN 3.4	Bodigga Cliff
		CN 3.5	Looe Island
		CN 3.6	Talland Bay to Hendersick Point
		CN 3.7	Polperro
CN/NC/R 4	Fowey River System		
		CN/R 4.1	Pont Pill and Hall Walk
		CN/R 4.2	Colvithick Wood & Penpoll Creek
		CN/R 4.3	Hay Point
		CN 4.4	Lerryn and Manely Woods
		CN 4.5	Ethy Wood
		CN 4.6	Great and Middle Wood
		R/CN 4.7	Lantyan Woodgate and Penquite Woods
		CN/NC/R 4.8	Lanhydrock
		CN/NC 4.9	Glynn Valley Woods
		CN 4.10	Killham, Killatown & Bokenna Woods
		CN 4.11	Draynes and Hendergrove Woods
		CN 4.12	Doublebois Wood
		CN 4.13	Bofarnel
		CN 4.14	Grey Mare Downs
CN 5	Goonzion Downs		
CN/NC 6	Tamar River System		
		CN 6.1	St John's Lake
		CN 6.3	Cargreen to Cross Park Wood
		CN 6.4	Pentillie Estate Woods
		CN 6.5	Cotehele Woods
		CN 6.6	Okeltor
		CN 6.8	Clitter's Wood
CN/NC 7S	Bodmin Moor		
		CN/NC 7 S2	Hardhead Down & Warleggan Down
		CN/NC 7 S3	Blacktor Downs
		CN 7 S4	Colliford Reservoir
		CN/NC 7 S5	Dozmary Downs
		CN 7 S6	Browngelly Downs & Fowey Valley Mire
			CN 7 S6.1 Browngelly Downs

			CN 7 S6.2 Fowey Valley Mire
		CN 7 S10	Smallacombe Downs Plantation
		CN 7 S11	Siblyback Moor
		CN 7 S12	Siblyback Reservoir
		CN/NC 7 S14	Twelve Mens Moor
		CN 7 S15	Craddock Moor & Witheybrook Marsh
		CN 7 S16	Caradon Hill
CN/NC 8	Kit Hill		
CN/NC 9	Lynher River System		
		CN 9.1	Lower Lynher Estuary
		CN 9.2	Notter Bridge Section
		CN 9.3	The Lower Tiddy
		CN 9.4	Pillaton to Newbridge
		CN 9.5	Newbridge to Fillamore
		CN/NC 9.6	Rilla Mill to Bathpool
		CN 9.8	Caradon Wood
		CN 9.9	Modlien Woods
		CN 9.10	Rose Wood
		CN 9.11	Tregonnett Wood
CN 10	Tiddy River System		
		CN 10.1	Pathada Woods
		CN 10.2	Cutkive and Hay Woods
		CN 10.3	West Down & North Park Woods
		CN 10.4	Heskyn Wood
		CN 10.5	Oliver's Coppice & Milldown Wds
CN 11	Seaton Valley		
		CN 11.1	Lower Seaton Valley
		CN 11.2	Upper Seaton Valley
		CN 11.3	Tregastick & Blacketon Woods
		CN 11.4	Dingle Hill Wood
		CN 11.5	Kircumb Wood
		CN 11.6	Pickshill Wood
		CN 11.7	Cuttine Wood
CN 12	West Looe Valley		
		CN 12.1	West Looe to Watergate
		CN 12.2	Ten Acre Wood to Catherine Park Wood
		CN 12.3	Sowden's Wood to Hobb Park
		CN 12.4	Coldrinnick Woods
		CN 12.5	Herodsfoot Woods
		CN 12.6	Churchbridge to Homehill Woods
		CN 12.7	Liggars Wood
		CN 12.8	Gratton & Cliver Woods
CN 13	Halbathick Wood		
CN 14	East Court and Court Wood		
CN 16	Tincombe Reserve		
CN 17	Carpuan and Bowden Woods		
CN 18	Abraham's and Rumsdale Woods		
CN 20	Woolston Wood		
CN 21	Blackley Wood		
CN 22	Blind Wood		
CN 23	Broadmoor and Ball Woods		
CN 24	Bucklawren Wood		
CN 25	Dwellamill Wood		
CN 26	Goodmerry Woods		
CN 27	Hall and Lanrennick Woods		
CN 28	Headland Wood		

CN 29	Willake & Langunnet Woods		
		CN 29.1	Willake Wood
		CN 29.2	Langunnet Wood South
		CN 29.3	Langunnet Wood North
CN/NC 30	River Inny		
		CN/NC 30.2	Halwell Wood
		CN 30.3	Higher Trefrize Wood
		CN 30.4	Tregoiffe Wood
		CN 30.5	Tregrove Wood
		CN 30.6	Trerefters Wood
		CN 30.7	Great Wood
		CN/NC 30.9	Call & Westhill Woods
		CN/NC 30.10	Lower Larrick Wood
CN 31	Island Wood		
CN 32	Lambest Wood		
CN 33	Tregavithick Wood		
CN 34	Long Wood		
CN 35	Thorne Wood		
CN 36	Penharget and Common Woods		
CN 37	St Cleer Downs		
CN 38	Lean and Tampellow Woods		
CN 39	Tremarcoombe Common		
CN 40	Tregarrick Wood		
CN 41	Bearlands		
CN 42	Leigh Hill to Ladypark Woods		
CN 43	Clarrick and Pigshill Woods		
CN 44	Lanjore Woods		
CN 45	Pidgerton Wood		
CN/NC 46	Warleggan River		
		CN 46.1	Barley Splat Wood
		CN/NC 46.2	Cabilla Woods
CN 47	Villaton Wood		

NORTH CORNWALL

NC/R1	Red Moor		
NC 2	North Coast		
		NC 2.2	Porthcothan
		NC 2.3	Constantine Bay to Harlyn Bay
		NC 2.4	Trevone Bay to Stepper Point
		NC 2.5	Hayle Bay to Tintagel Head
		NC 2.6	Tintagel to Boscastle
		NC 2.8	Upton to Bude
		NC 2.9	Wrangle Point to Marsland Mouth
NC 3	Marsland Mouth		
NC 4	Fowey River System		
		NC 4.8	Lanhydrock
		NC 4.9	Glyn Valley Woods
NC 5	Allen Valley		
		NC 5.1	Trethevan Woods
		NC 5.2	Tower Wood to St Teath
		NC 5.3	Helstone Wood
		NC 5.4	Lemail Wood
NC/CN 6	Tamar River System		
		NC 6.10	Bradford Wood
		NC 6.11	Upper Tamar Woods

		NC 6.12	Tamar Lakes
		NC 6.13	Eastcott Moor
NC/CN 7 N	North Bodmin Moor		
NC/CN 7 S	South Bodmin Moor		
		NC 7 S1	South West Moor
		NC/CN 7 S2	Hardhead Down & Warleggan Down
		NC/CN 7 S3	Blacktor Downs
		NC/CN 7 S5	Dozmary Downs
		NC/CN 7 S7	The Upper Fowey Valley
		NC 7 S8	Halvana Plantation
		NC 7 S9	East Moor
		NC 7 S13	Trebartha Woodlands
		NC/CN 7 S14	Twelve Mens Moor
NC/CN 8	Kit Hill		
NC/CN 9	Lynher River System		
		NC/CN 9.6	Rilla Mill to Bathpool
		NC 9.7	Upper Lynher
NC 10	Scorsam and Dub Woods		
NC 11	Millook Woodlands		
NC 12	Crackington & Hill Down Valley		
NC 13	Trevallet Woods		
NC 18	Bude Canal		
NC 19	St Clether		
NC 20	Laneast and Badgall Downs		
		NC 20.1	Laneast & Badgall Downs
		NC 20.2	Napp's Moor
NC 21	Tregeare and Red Downs		
		NC 21.1	Tregeare Down
		NC 21.2	Red Down & Athill Wood
NC 22	Swannacott to Hilton Woods		
NC 23	River Neet Woodlands		
		NC 23.1	Tiscott Wood
		NC 23.2	Hessaford, Northcott Hill Hunthill and Herdbury Woods
		NC 23.3	Norton, Hersham & Newleigh
NC 24	Woodland Wood		
NC 25	Bodwannick Wood		
NC 26	Leigh Woods		
NC 27	Wrasford Moor		
NC 28	Woodford Woods & Coombe Valley		
NC 29	Ottery Valley		
NC/CN 30	River Inny System		
		NC 30.1	Trelaske Wood
		NC/CN 30.2	Halwell Wood
		NC 30.8	Penrest Woods
		NC/CN 30.9	Call & Westhill Woods
		NC/CN 30.10	Lower Larrick Wood
		NC 30.11	Armstrong Wood
		NC 30.12	Ruse's Mill
NC 31	Watergate Wood to Woodabridge		
NC 32	Landlake Wood		
NC 33	Cardinham Wood		
NC 34	Cardinham Downs		
NC 35	Hawkes Wood		
		NC 35.1	Hawkes Wood
		NC 35.2	Coronation Park & Valley

NC 36	Camel Estuary and River System		
		NC 36.1	Camel Estuary
		NC 36.3	Hustyn & Grogley Woods
		NC36.4	Colquite to Dunmere Woods
		NC 36.5	Helligan Woods
		NC 36.6	Wemfordbridge to Helsbury Park
		NC 36.7	Kernick Wood
		NC 36.8	Bodrigan Wood
		NC 36.9	Boscarne Wood
NC 37	Bakesdown Woods		
NC 38	Trelill Wood		
NC 39	Blisland Wood		
NC 40	Porthcothan Valley		
NC 41	Northdown Plantation		
NC 42	Helland Wood		
NC 43	Polmark Valley		
NC 44	Maer Lake		
NC 45	Valency Valley		
NC/CN 46	Warleggan River System		
		NC/CN 46.2	Cabilla Woods
NC 47	Beardon Wood		
NC 48	Tregerry and Higher Scarsick		
NC 49	Croan Wood		
NC 50	Nanscow Wood		
NC 51	Petherwin/Vicarage Woods		
NC 52	Weston Wood		
NC 53	West Petherwin Wood		
NC 54	Inunger		
NC 55	Helland Wood		
NC 56	Music Water		
NC 57	St Jidgey Valley		
NC 58	Middlefields Wood		
NC 59	Coxford		
NC 60	Moreton Farm		
NC 61	Higher Crackington Valley		
NC 62	Abbot's Hendra		
NC 63	Langdon		
NC 64	Week St Mary Woods		
NC 65	Benorth Wood		
NC 66	Trevillador		
NC 67	Ogbeare Wood		
NC 68	Deer Park Wood		
NC 69	Creddacott		
NC 70	Tuckingmill Wood		
NC 71	Tremore Valley Woods		
NC 72	Laneast Valley		

Appendix 2

The Selection of Local Sites by Size

Introduction

The DEFRA local sites report (DEFRA, 2006) indicates that local sites should have 'substantive value' and gives guidance on how this should be interpreted. Selection Criteria are detailed in paragraphs 44-48 of the DEFRA report.

Habitats are generally considered to be more important if they are large rather than small. Area is one of the considerations that need to be taken into account when judging the importance of any particular piece of habitat. The aim of this Appendix is to enable a judgement to be made by reference to area. There are a range of other considerations that need to be taken into account in designating a site. This is simply one small, but important, step.

Each block of habitat will be eligible for selection if it is equal in area to, or is greater in area than a certain figure. This is referred to as the size threshold criterion (STC) for that habitat.

Definitions

There are three words that will be used to describe pieces of habitat in this document: polygon, block and site. Because all ERCCIS data is held within a Geographical Information System (GIS), we begin with the way that the data is held (in the form of polygons) and move on to what the polygons represent in the real world.

Polygon and Block

When habitats are digitised (entered onto GIS), each closed loop is referred to as a polygon. The polygon may be drawn along the boundary of a discrete unit (a block) of habitat or it may be that two or more contiguous polygons are drawn to represent a block.

Polygons are sometimes the result of real biological differences because the original survey may have been at a very detailed level. For example the Coastal Saltmarsh of the River Tamar SAC was surveyed at the NVC level and the PHT is an amalgamation of all NVC types SM2-28, MG11 and MG12. In other cases there may be several contiguous polygons within a block because it was easier to digitise the block in that way.

Site

An isolated block may be called a site; a set of closely spaced blocks may also be referred to as a site.

For example, if we consider an estuary, the total area of saltmarsh for that creek could be referred to as a single site. However, within the estuary there are several separate areas of saltmarsh that go to make up the total. These may be individual blocks, or sets of blocks and they too could be considered as sites in their own right.

Further habitat specific guidance on what blocks may be considered to be sites is given in Appendix 4.

Rationale

There are two prime issues to address in determining the STC. The first is the total area of the habitat and the second is the number of blocks of habitat that go to make up that area.

There might appear to be a problem because we should deal with blocks but we have to deal with polygons. The fact is – whatever the reason for blocks being digitised in this way – it is the polygons that we are presented with by the GIS to assess the nature of the resource, not the block.

However, it is not a significant concern. This results from the fact that it is generally only the larger blocks that are split into smaller polygons, while the determination of the STC is critically dependent on the number and size of the smaller blocks. An analysis of the Coastal Saltmarsh of the Lynher estuary illustrates this:

Example: The Lynher
If we look at the size of block above which 99% of all the habitat is included then the STC for blocks is 0.25 ha, for polygons it is 0.23 ha; at the 98% level it is 0.41 ha for blocks and 0.30 ha for polygons. Even at the 95% level it is 0.63 ha for blocks and 0.43 ha for polygons. Clearly, there is no great difference in dealing with polygons rather than blocks.

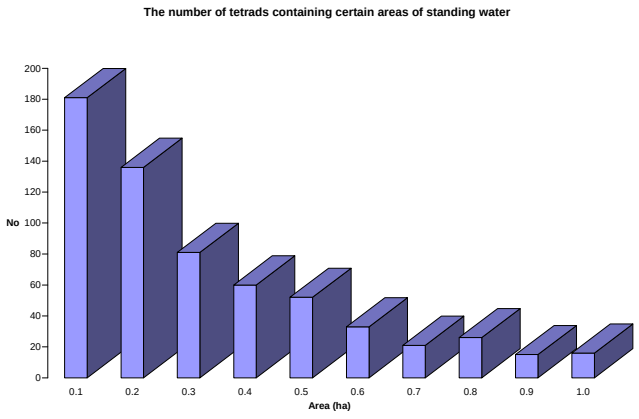
The area-block relationship
There is a general principle that the majority of any habitat is found in a few larger blocks. There are usually a lot of small blocks of any habitat, the total area of which is relatively small.

Example: Lowland Heathland
If we consider all Lowland Heathland blocks of 5 ha or more then 96% of the total area is included, but only 57% of the total number of blocks combine to produce that area. If we take all blocks of 1 ha or more then 99.3% of the total area is included, but only 83% of the total number of blocks.

Accordingly, even should we take 1 ha as a STC for Lowland Heathland then 17% of sites would be lost (while including all but 0.7% of the total area). Another example is illustrated below.

Example: the number of blocks for area of standing freshwater for each size.
Here again, the majority of the blocks are very small.

Fig 1



Accordingly, it is pointless to include any reference to the number of blocks in the initial STC guidelines, but these will be referred to later under Area of Search (AOS). Therefore the STC will be primarily based on the total area of the resource within the county.

Setting the STC
There is no simple biological rule that enables a STC to be set. We will set the STC for an uncommon habitat at about 0.1% of the total area of that habitat in the county. The 0.1% criterion has no more biological justification than it accords with current thinking on what constitutes an ecologically sensible site. In our opinion, this figure will generally select sites

in Cornwall which are eligible to be given some level of recognition of their importance together with some level of protection.

There will be no STC for a rare and very rare habitat where all blocks will be eligible, while the STC for more common habitats will rise more slowly to a maximum of 4.0 ha.

The full table is set out below, including the definitions of how we will qualify certain habitats using the terms very rare to very common.

Description	**Area (ha)**	**Description**	**Area (ha)**
Very Common	>29 999	Fairly Rare	350-1049
Common	9000-29 999	Rare	100-349
Fairly Common	2850-8999	Very Rare	<100
Uncommon	1050-2849		

Area (ha)	**STC (ha)**	**Area (ha)**	**STC (ha)**
0-249	All	2100-2849	2.0
250-349	0.3	2850-3999	2.5
350-449	0.4	4000-6999	3.0
450-749	0.5	7000-8999	3.5
750-1349	1.0	>8999	4.0
1350-2099	1.5		

These tables attend to some of the aims of paras 44-47 in the DEFRA Local Sites document.

Reflecting variations in Area of Search (AOS)

The concept of Areas of Search has been adopted in preparing the criteria for CWS, to ensure adequate representation of habitats across the county. Where some habitat types are particularly impoverished or fragmented, even small remaining areas may be considered of high nature conservation value, especially if they form part of a larger habitat resource dispersed across the landscape. If the resulting number of sites in an AOS is less than expected, the threshold will be adjusted accordingly. This approach is endorsed by paragraph 53 of the DEFRA guidance (2006).

As stated in paragraph 45 of the DEFRA guidance (2006), the calculation of the habitat block size and the determination of the percentage of the total resource to be conserved are a matter of judgement based on a sound knowledge of principles and processes and the distribution and abundance of the resource. Details of how these figures have been calculated for Cornwall are given in Appendix 2.

The Area of Search is the area over which the criteria are applied. For this purpose Cornwall is divided into areas which reflect local variations in wildlife and natural features. Following the principles specified in paragraph 40 of the defra 'Local Sites' guidance the AOS is based on the 'Natural Areas' defined by the former English Nature but combined with the former Countryside Commission's Character Areas. These Joint Character Areas, divide Cornwall into The Culm; Bodmin Moor; Cornish Killas; Hensbarrow; Carnmenellis; The Lizard and West Penwith.

When the STC for any habitat has been established for the county, the number of eligible sites can be calculated for each Natural Area or LCA. Where the number of sites is significantly less than the number which would be predicted if the sites were uniformly distributed, then we will amend the STC for the district or area as follows.

Where any area has less than ½ of the expected number, then we will drop the STC by one level of size.

Where any area has less than ¼ of the expected number, then we will drop the STC by a further level of size.

The levels of size that we will use is as follows:
0.10, 0.15 0.20, 0.25, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5 and 4.0 ha.

Using combinations of administrative districts and Natural Areas will enable us to reflect the aims of paragraph 48 of the DEFRA guidance (2006).

Subtidal Sites

The considerations above refer only to terrestrial sites, not to those which are subtidal. The whole of the subtidal area is as natural (or more so) as any existing semi-natural habitats that exist on the land. Accordingly, the whole of the subtidal area is considered to be of at least County importance and – theoretically, at least – all of County Wildlife Site status.

Appendix 3

Example of a County Wildlife Site Summary Sheet

SITES - County Wildlife Site Summary Sheets

CN12.1 - West Looe to Watergate

West Looe Valley

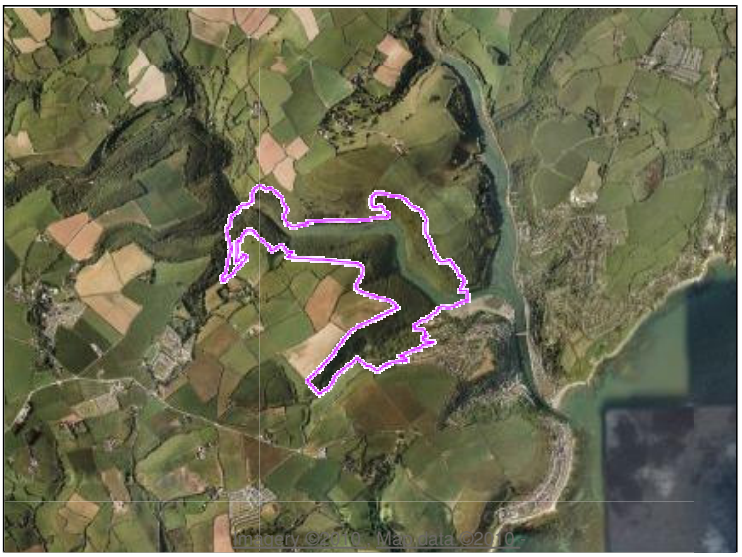
SITE INFORMATION

Location:
Less than half a mile north west of Looe

Grid Reference:
SX242540

Parish:
LANSALLOS CP

Area:
93.2 Ha



Important note about access to CWS

The County Wildlife Site designation does not confer public access.

What does the designation County Wildlife Site mean?

County Wildlife Sites (CWS) are the most significant areas for wildlife in Cornwall outside Sites of Special Scientific Interest (SSSIs) and Special Areas of Conservation (SACs). County Wildlife Sites contain features that are of substantive nature conservation value at a county level of significance. There are over 490 sites in Cornwall under both public and private ownership and they range from small ponds, copses and linear features, such as river valleys, to wetlands, ancient woodlands and large moors. They make up approximately 10% of the county's land area.

CWS were identified and selected in the 1980s and 1990s using a combination of aerial photograph data, local knowledge and, where possible, ground based surveys. CWS are selected through the application of a set of criteria agreed by Cornwall's Local Sites Partnership.

The benefits and implications of owning a County Wildlife Site

Owning a CWS brings both implications and benefits to the landowner:

- CWS can attract grant aid through Defra Environmental Stewardship schemes
- Cornwall Wildlife Trust can provide free management advice for landowners
- As the CWS designation is non-statutory, there are no restrictions placed on agricultural operations
- Landowners/Managers remain in control of all land management decisions
- Access is by landowner permission, no rights of access are created.
- Where substantial land use changes are proposed on a CWS, the Local Authority will take wildlife into account along with all other planning considerations

Progress towards achieving National Indicator NI197 Improved Local Biodiversity

Active conservation management is being achieved on this site ☑

Activity

May 2008 Surveyor: Liz Cartwright, CWT

50.3 ha surveyed as part of the County Wildlife Sites Project - condition of site reviewed and report outlining management recommendations produced and discussed with landowner/s.

Site Description

The site is situated along the lower reaches of the West Looe River and comprises Kilminorth Woods Local Nature Reserve on the western bank, Trenant and Bonniny Woods on the eastern bank and the adjacent stretch of tidal estuary. Much of the woodland is listed as ancient semi-natural and the site forms an important part of the West Looe Valley, supporting a range of important habitats and several species of note.

Kilminorth Wood is predominantly oak woodland, largely old coppice. The main species are sessile oak and birch but ash, beech, sweet chestnut, sycamore and occasional Scots pine are also present. Trees support well-developed bryophyte and lichen communities. The understorey generally consists of holly, hazel (including some neglected coppice), rowan and beech saplings and the ground flora cover varies. Lower slopes are dominated by heather, bilberry and great wood-rush with a rich and diverse bryophyte flora in parts. Bramble occurs further up the slope and open areas and rides support a diversity of grasses, sedges and herbs such as bluebell, wood anemone, primrose, wood sorrel, enchanter's nightshade, dog's mercury and common cow-wheat. There is both standing and fallen dead wood which provides good invertebrate habitat, and rock outcrops support bryophytes, ivy and ferns. 'The Giant's Hedge' runs through the wood, a stone-faced earth bank thought to have been built in the 6th Century. Although not considered species-rich, this provides a valuable wildlife corridor, is notable for an abundance of bryophytes, and the structure itself is of archaeological interest.

Trenant Wood is also old oak coppice and Bonniny is a small mixed broadleaved woodland. Along a tributary valley to the south of Kilminorth Wood, the site also includes the mature beech plantation at Beepark and a large area of mixed scrub, locally dominated by bracken, European gorse or downy birch with a range of associated trees, shrubs, grasses and herbs.

The estuary itself contains extensive intertidal mudflats and small patches of saltmarsh, habitats important for a variety of birds, particularly waders, wildfowl and gulls. The mudflats are mostly bare mud with some algae cover, and where saltmarsh has developed species include sea plantain, sea purslane and greater sea spurrey. More established areas are dominated by rushes and grasses including sea rush, saltmarsh rush, sea couch and red fescue.

BAP Priority Habitats: Upland Oakwood, Intertidal Mudflats, Coastal Saltmarsh

BAP Priority Species: bastard balm *Melittis melissophyllum*; records of 14 BAP moth species; birds include marsh tit *Poecile palustris*, curlew *Numenius arquata* and herring gull *Larus argentatus*; mammals include hedgehog *Erinaceus europaeus* and otter *Lutra lutra*.

Other notable species: Amber Listed birds include green woodpecker *Picus viridis*, redshank *Tringa totanus*, kingfisher *Alcedo atthis* and oystercatcher *Haematopus ostralegus*. Bats have been recorded here (unidentified species but all are Red Data Book and fully protected under legislation including the Wildlife and Countryside Act 1981).

Management

Trenant and Boninny Woods are part of a Woodland Trust Reserve and managed under the English Woodland Grant Scheme (approved 2006); Kilminorth Wood is owned by Cornwall Council and managed as a Local Nature Reserve. There is also an active community based wildlife and conservation group, The Friends of Kilminorth Woods.

Further Information

This summary sheet was produced using information held by the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS). For further details or a comprehensive/notable species search please contact the Wildlife Information Service, email: wis@cornwallwildlifetrust.org.uk.

For further information regarding Biodiversity Action Plan (BAP) Priority Habitats and Species refer to UKBAP. Note that species listed may be subject to more than one conservation status and may also be protected under legislation such as the Wildlife and Countryside Act 1981 or the Conservation of Habitats and Species Regulations 2010. Refer to JNCC for full current taxon designations.

Contact Us

To make a comment regarding this County Wildlife Site, please fill in a feedback form.

To submit a species record to ERCCIS, please fill in a recording form.

LOGOUT

Appendix 4

Information Relating to Priority Habitat Types

This appendix provides a more detailed description of and provides data about habitats for which CWS selection criteria have been prepared. The following is a complete list of those Priority Habitat Types (PHTs) that are thought to occur within Cornwall.

Maritime and Coastal Habitats Broad Habitat Type (BHT)
Coastal saltmarsh PHT
Coastal sand dunes PHT
Coastal vegetated shingle PHT
Estuarine rocky habitats PHT
Intertidal mudflats PHT
Maerl beds PHT
Maritime cliff and slopes PHT
Mud habitats in deep water PHT
Sabellaria alveolata reefs PHT
Saline lagoons PHT
Seagrass beds PHT
Sheltered muddy gravels PHT
Subtidal sands and gravels PHT
Tide-swept channels PHT

Broadleaved, mixed and yew woodland BHT
Lowland mixed deciduous woodland PHT
Traditional orchards PHT
Upland mixed ashwoods PHT
Upland oakwood PHT
Wet woodland PHT
Wood-pasture and parkland PHT

Boundary and linear features BHT
Hedgerows PHT

Arable and horticultural BHT
Arable field margins PHT

Improved grassland BHT
Coastal and floodplain grazing marsh PHT

Neutral grassland BHT
Lowland meadows PHT

Calcareous grassland BHT
Lowland calcareous grassland PHT

Acid grassland BHT
Lowland dry acid grassland PHT

Dwarf shrub heath BHT
Lowland heathland PHT
Upland heathland PHT

Fen, marsh and swamp BHT
Lowland fens PHT
Purple moor grass and rush pastures PHT
Reedbeds PHT

Upland flushes, fens and swamps PHT

Bog BHT
Blanket bog PHT

Standing open water and canals BHT
Eutrophic standing water PHT
Mesotrophic lakes PHT
Oligotrophic and dystrophic lakes PHT
Ponds PHT

Rivers and streams BHT
Rivers PHT

Inland Rock BHT
Calaminarian Grasslands PHT

Built up Areas and Gardens BHT
Open mosaic habitats on previously developed land PHT

Each PHT account opens with a general description and a statement which provides a National overview. There follows a figure for the area of the habitat for the county, that figure as a percentage of the National total, the number of polygons which were drawn for that area and a standard description of how the habitat should be described.

Two tables follow within which the area and number of polygons is listed for each Administrative District and Natural Area. Within those tables the following abbreviations are used:

Acronyms used in the 'Distribution' tables

Administrative District		Natural Area	
P	Penwith	Pe	Penwith
K	Kerrier	Lz	Lizard
CK	Carrick	CKG	Cornwall Killas & Granite
R	Restormel	BM	Bodmin Moor
CN	Caradon	Cu	Culm
NC	North Cornwall		

The final figure is the habitat threshold – that area which makes a block eligible to be considered as a County Wildlife Site. More details on the derivation of the threshold can be found in a separate document.

After the initial figures there are two tables. The first, sources, gives details of what sources we considered using before we began the PHT mapping exercise. The second, comments, gives a succinct overview of the how successful the mapping process was considered to be. The PHT definitions are those used in the South West Pilot Project.

Acronyms used in the 'Sources' tables

CCC	Cornwall County Council
CWT	Cornwall Wildlife Trust
ERCCIS	Environmental Records Centre for Cornwall and the Isles of Scilly
EN	English Nature (now Natural England)
NT	National Trust
OS	Ordnance Survey

COASTAL SALTMARSH PHT

General Description

Coastal saltmarshes in Britain comprise the upper, vegetated portions of intertidal mudflats, lying approximately between mean high water neap tides and mean high water spring tides.

A natural saltmarsh system shows a clear zonation according to the frequency of inundation. At the lowest level the pioneer glassworts *Salicornia* spp can withstand immersion by as many as 600 tides per year, while transitional species of the upper marsh can only withstand occasional inundation.

Saltmarshes are an important resource for wading birds and wildfowl. They act as high tide refuges for birds feeding on adjacent mudflats and as a source of food for passerine birds particularly in autumn and winter. In winter, grazed saltmarshes are used as feeding grounds by wild ducks.

National Context

The most recent saltmarsh surveys in Britain estimate the total extent of saltmarsh (including transitional communities) to be approximately 45 000 ha (England 32 500 ha, Scotland 6500 ha and Wales 6000 ha); there is next to nothing in N Ireland. This resource is concentrated in the major estuaries of low-lying land in eastern and north-west England and in Wales, with smaller areas in the estuaries of southern England and the firths of eastern and south-west Scotland.

Area of PHT in Cornwall (ha): 289 0.6% **National Total**

Number of polygons: 181

The habitat is: Rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	6	4	43	7	103	18	181
Area (ha)	10	1	62	17	158	41	289

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	1	180	0	0	181
Area (ha)	0	<1	289	0	0	289

For this habitat the threshold is 0.3 ha

COASTAL SALTMARSH: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
Aerial photos of the Fal & Helford SAC	Digital photographs taken in 2000	EN	Can be used to identify up-to-date boundaries where the tide allows.	ERCCIS	
County Wildlife Site files	Reports held in paper files (1980-1988)	ERCCIS	Useful as a back-up to the Saltmarsh Survey of Cornwall	ERCCIS	Good quality information
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
EN SAC surveys on GIS	Carried out to NVC level. 2001. Fal & Helford and River Tamar SACs.	EN	May well have useful information. Used 1995 API for boundaries.	EN	Good quality information
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN		ERCCIS	Poor quality
Saltmarsh landcover on GIS	Maps of saltmarsh drawn from a combination of references and API (1996)	ERCCIS	Should be close to the PHT	ERCCIS	Good quality information
Saltmarsh Survey of Cornwall	A map of all saltmarsh in the county (Burd, F (1986).	EN	The main source of saltmarsh ID throughout the county.	ERCCIS	High quality information, close to NVC

COASTAL SALTMARSH: Comments

Data Sources	**Comment**
Saltmarsh Survey of Great Britain: Cornwall (SSGB) Phase 1 EN SAC surveys on GIS County Wildlife Site (CWS) surveys.	The SSGB includes a detailed map of all the saltmarsh in Cornwall, using a vegetation classification similar to (and easily converted to) NVC. The EN SAC maps for the Tamar were very detailed. There are other surveys such as the CWS, Phase 1 and the Ordnance Survey symbols on the 1:10 000 maps, but only the CWS records were used, and then only sparingly.
The Definition	**Comment**
Good	The definition is clear.
Reliability of PHT Interpretation	**Explanation**
Good	The definition of Coastal Saltmarsh is clear and there is adequate detailed information for the whole county. Moreover, the identification of saltmarsh is relatively easy from aerial photographs and Ordnance Survey maps.
Overall Assessment	**Comments**
Good	We consider that the Coastal Saltmarsh PHT interpretation for Cornwall is precise and that the map shows the distribution with a high degree of accuracy.

COASTAL SAND DUNES PHT

General Description

Coastal sand dunes develop where there is an adequate supply of sand in the intertidal zone and where onshore winds are prevalent. The critical factor is the presence of a sufficiently large beach plain whose surface dries out between high tides. The dry sand is then blown landwards and deposited above high water mark, where it is trapped by specialised dune-building grasses which grow up through successive layers of deposited sand.

Fixed dune grassland forms largely closed swards where accretion is no longer significant, the surface is stabilised and some soil development has taken place. These communities mentioned are, or have been, maintained by grazing, whether by domestic stock or by rabbits.

National Context

Major dune systems are widely distributed within Britain. The total area is 53 000 ha (56 000 ha UK). The Sand Dune Survey of Great Britain (1993-1995) gives the total area of sand dunes as about 12 000 ha in England and 8000 ha in Wales. The ongoing Sand Dune Vegetation Survey of Scotland indicates that there may be as much as 48 000 ha of dune and machair in Scotland, of which 33 000 ha is dune.

Area of PHT in Cornwall (ha): 1030 1.9% **National Total**

Number of Sites: 31

The habitat is: Fairly rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	10	5	8	5	0	3	31
Area (ha)	320	30	540	20	0	120	1030

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	5	26	0	0	31
Area (ha)	0	30	1000	0	0	1030

For this habitat the threshold is 1.0 ha

COASTAL SAND DUNES: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up to the Sand dune Survey of Cornwall	ERCCIS	Good quality information
EN local team SSSI files	Paper information on SSSIs	EN	Could hold significant information	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Could hold significant information	ERCCIS	Good quality information where it exists: e.g. Gunwalloe
Phase 1 maps	Paper information	EN		ERCCIS	Poor quality
Sand dune landcover on GIS	Maps of sand dune drawn from a combination of references and API (1996)	ERCCIS	Should be close to the PHT	ERCCIS	Good quality information, but may exclude the embryonic stages.
Sand Dune Survey of Cornwall	A map of all the major sand dunes in the county.	EN	The main source of sand dune ID throughout the county.	ERCCIS	High quality information, close to NVC.

COASTAL SAND DUNES: Comments

Data Sources	**Comment**
National Sand Dune (NSD) Inventory	The NSD survey is a comprehensive overview of the sand dunes in the county. There are other sources, but they are unnecessary.
The Definition	**Comment**
Good	The definition is clear and unequivocal, being based on NVC communities.
Reliability of PHT Interpretation	**Explanation**
Good	There are two methods that may be reliably used to identify PHT: Phase 1 habitat types and NVC communities. Because the NSD is entirely mapped to NVC level, there is no difficulty with the interpretation.
Overall Assessment	**Comments**
Good	We consider that this PHT has been accurately mapped.

COASTAL VEGETATED SHINGLE PHT

General Description

Shingle is defined as sediment with particle sizes in the range 2-200 mm. Shingle structures take a variety of forms.

The vegetation communities of shingle features depend on the amount of finer materials mixed in with the shingle, and on the hydrological regime. The classic pioneer species on the seaward edge include sea kale *Crambe maritima*, sea pea, *Lathyrus japonicus,* Babington's orache*, Atriplex glabriuscula,* sea beet, *Beta vulgaris,* and sea campion *Silene uniflora*; such species can withstand exposure to salt spray and some degree of burial or erosion.

Shingle structures may support breeding birds including gulls, waders and terns. Diverse invertebrate communities are found on coastal shingle, with some species restricted to shingle habitats.

National Context

In England and Wales it is estimated that 30% of the coastline is fringed by shingle.

The major vegetated shingle structures total some 5000 ha in England, 700 ha in Scotland and 100 ha in Wales. Dungeness, in southern England, is by far the largest site, with over 2000 ha of shingle, and there are only five other structures over 100 ha in extent in the UK. The main concentrations of vegetated shingle occur in East Anglia and on the English Channel coast, in north-east Scotland, and in north-west England and south-west Scotland. The Welsh coast has a number of small sites

Area of PHT in Cornwall (ha): 75

Number of polygons: 64

The habitat is: Very rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	14	17	9	5	13	6	64
Area (ha)	20	20	5	10	15	5	75

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	4	10	49	0	1	64
Area (ha)	2	10	62	0	1	75

For this habitat we will take all areas

COASTAL VEGETATED SHINGLE: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
OS maps	Maps showing shingle beaches together with MHW	OS	Can be used to identify possible boundaries.	Held at CCC	
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up, but not likely to be of significant use.	ERCCIS	Good quality information
EN local team SSSI files	Paper information on SSSIs	EN	Could hold significant information	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Could hold significant information	ERCCIS	Good quality information where it exists: e.g. Loe Bar
Phase 1 maps	Paper information	EN		ERCCIS	Poor quality
ERCCIS species database	An electronic record of the species of Cornwall inc. ca 1 million flora records	ERCCIS	Using certain characteristic species to identify possible sites of the PHT	ERCCIS	Good quality information.

COASTAL VEGETATED SHINGLE: Comments

Data Sources	**Comment**
The ERCCIS species database National Trust (NT) reports	The species database contained comprehensive species lists for Cornwall. There was one NT report for Loe Bar that contained detailed maps.
The National Definition	**Comment**
Poor	The definition is provisional and inadequate, forcing us to define the habitat and methodology for ourselves.
	Local BAP Variation
	None significant, because good definitions do not exist.
Reliability of PHT Interpretation	**Explanation**
Poor	The definition of this PHT relies on general statements that are not precise. There is no detailed NVC description and only a vague description of the species to look for. This includes Sea Beet *Beta vulgaris* which is too widespread to be used in any search for PHT. Accordingly we have expanded the definition in the following way. We have considered that we should try to find examples of the NVC communities SD1 and SD2 and have followed the short list of characteristic species given in the JNCC Report No 270. For SD1 the main species included in the list comprised Sea-kale *Crambe maritima*, Yellow Horned-*poppy Glaucium flavum* and Sea Pea *Lathyrus japonicus*; Curled Dock *Rumex crispus* is too widespread to be used for this kind of search. Associated species that were especially useful species in confirming the nature of the habitat were Sea Beet *Beta vulgaris ssp. maritima*, Biting Stone-crop *Sedum acre*, Thrift *Armeria maritima* and sea campion *Silene uniflora*. Sea sandwort, though preferential for this community, was excluded to distinguish the perennial vegetation of stony banks from the annual vegetation of drift lines habitat where it is a co-dominant species. For SD2 we have followed the short list of characteristic species given in the JNCC Report No 270. The species list of indicator species that comprised the search included Babington's orache

	Atriplex glabriuscula, biting stone-crop *Sedum acre*, frosted orache *Atriplex laciniata,* sand couch *Elytrigia juncea ssp boreoatlantica*, sea rocket *Cakile maritima* and sea sandwort *Honkenya peploides*. The presence of just one of the underlined species is sufficient to indicate that the habitat may be present.
	Summary
	Definitely is: one of the NVC types SD1 or SD2 Probably is: known to have certain characteristic species of SD1 and SD2
Overall Assessment	**Comments**
Average	We decided to use the methods laid out above to map those locations where the PHT probably occurs and to then produce a polygon which encompasses all the land where the community might occur. Accordingly, we believe we have produced a map that includes all areas where the PHT may occur, but in the majority of examples the area of each polygon is too large. There is only one site, Loe Bar, for which we have NVC information.

ESTUARINE ROCKY HABITATS PHT

General Description

This habitat encompasses rocky habitats in estuaries which are found from just above high water to those which are found just below low water. Estuarine rocky habitats incorporate substrata types such as bedrock and stable boulders. Generally rias are one of the most relevant types of inlet for rocky estuarine habitats. Estuarine rocky habitats, along with a complex of other estuarine habitats, are part of the 'connectivity' of land, estuary and open sea.

For example, the rich and sheltered waters of estuaries provide nursery grounds for fish, and estuarine rocky habitats are an important component of these nursery grounds.

The communities on subtidal estuarine rocky habitats are equally variable and at the most diverse end of the scale. The native oyster, a UK BAP priority species, can be associated with estuarine rocky habitats.

The area of this habitat in Cornwall is thought to be at least 60 ha of which at least 50ha is found in the Fal and Helford Rivers, but further research is needed to ascertain the area of the subtidal component.

National Context

There is no published figure for the area of this habitat. The UKBAP describes it as a comparatively uncommon feature in estuaries, mostly found in the north and western UK

Area of PHT in Cornwall (ha): 60 *(unknown)* **% National Total**

Number of polygons: *unknown*

The habitat is: Very rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	0	nk	nk	nk	nk	nk	nk
Area (ha)	0	>20	>30	2	6	1	>59

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	nk	nk	0	0	nk
Area (ha)	0	>9	>50	0	0	>59

For this habitat we will take all areas

ESTUARINE ROCKY HABITATS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
OS Landline and 1:10 000 raster maps of Cornwall		OS	The basis of the digitised boundary		
Aerial photos	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	

ESTUARINE ROCKY HABITATS: Comments

Data Sources	**Comment**
OS Landline Maps	The littoral rock BH was taken from these maps.
The Definition	**Comment**
Good	The definition is clear and unambiguous, though some fieldwork would be needed if the definition were to be interpreted rigorously.
Reliability of PHT Interpretation	**Explanation**
Good	There are some minor problems, though none that derive from any misunderstanding. Most are a combination of drawing errors and the fact that no subtidal rocks have been incorporated..
Overall Assessment	**Comments**
Good	The map is a good one, with the proviso that we still need to refine the polygons

INTERTIDAL MUDFLATS PHT

General Description

These mudflats are sedimentary intertidal habitats created by deposition in low energy coastal environments, particularly estuaries and other sheltered areas. Their sediment consists mostly of silts and clays with a high organic content. Towards the mouths of estuaries where salinity and wave energy are higher the proportion of sand increases

Mudflats are highly productive areas which, together with other intertidal habitats, support large numbers of predatory birds and fish. They provide feeding and resting areas for internationally important populations of migrant and wintering waterfowl, and are also important nursery areas for flatfish.

National Context

The total British estuarine resource has been estimated at over 500 000 ha of which 55% is intertidal area, mostly mud and sandflats with a lesser amount of saltmarsh. Intertidal flats cover about 250 000 ha.

They are widespread in the UK with significant examples in the Wash, the Solway Firth, Mersey Estuary, Bridgwater Bay and Strangford Lough.

Area of PHT in Cornwall (ha): 2594 1.0% **National Total**

Number of polygons: 593

The habitat is: Uncommon

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	31	108	155	42	212	45	593
Area (ha)	135	160	608	167	980	544	2594

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	36	557	0	0	593
Area (ha)	0	37	2557	0	0	2594

*Strictly speaking, these may not lie within the respective boundary, but lie adjacent to them.

For this habitat the threshold is 2.0 ha

INTERTIDAL MUDFLATS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
OS Landline and 1:10 000 raster maps of Cornwall		OS	The basis of the digitised boundary		
Aerial photos	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	

INTERTIDAL MUDFLATS: Comments

Data Sources	**Comment**
OS Landline Maps	The MLW was taken from these maps. The MHW was digitised from 1:10 000 raster maps.
The Definition	**Comment**
Good	The definition is clear and unambiguous, though considerable fieldwork would be needed if the definition were to be interpreted rigorously.
Reliability of PHT Interpretation	**Explanation**
Good	There are some minor problems. The mudflats were copied directly from the OS maps and in this case we have also incorporated the sandflats in the belief that estuarine sandflats are probably muddy sands distinct from the sandflats of the maritime coastland.
Overall Assessment	**Comments**
Good	The map is a good one, with the proviso that we have incorporated the estuarine sandflats without a rigorous examination of their nature.

MAERL BEDS PHT

General Description

Maerl is a collective term for several species of calcified red seaweed. It grows as unattached nodules on the seabed, and can form extensive beds in favourable conditions. Maerl is slow-growing, but over long periods its dead calcareous skeleton can accumulate into deep deposits (an important habitat in its own right), overlain by a thin layer of pink, living maerl.

Maerl beds typically develop where there is some tidal flow, such as in the narrows and rapids of sea lochs, or the straits and sounds between islands. Beds may also develop in more open areas where wave action is sufficient to remove fine sediments, but not strong enough to break the brittle maerl branches. Live maerl has been found at depths of 40 m, but beds are typically much shallower, above 20 m and extending up to the low tide level.

National Context

Maerl beds are found off the southern and western coasts of the British Isles, north to Shetland, but are particularly well developed around the Scottish islands and in sea loch narrows, around Orkney, and in the south in the Fal Estuary. Maerl beds also occur in other western European waters, from the Mediterranean to Scandinavia.

The distributions of the three main maerl bed-forming species in Britain are not entirely clear because of problems with identification in the field. *Phymatolithon calcareum* occurs throughout British waters, while *Lithothamnion glaciale* is a northern species with its southern limits at Lundy in the Bristol Channel and in the North Sea, off Yorkshire. *Lithothamnion corallioides* has caused the most problems with identification, but appears to be a south-western species with Scottish records as yet unconfirmed. Currently, it is known to occur in less than 15 of the ten km squares for the UK as defined by JNCC.

Area of PHT in Cornwall (ha): *estimated (est)* 100

Number of polygons: 4

The habitat is: Very rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	0	2	2	0	0	0	4
Area (ha)	0	10	100	0	0	0	110

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	0	4	0	0	4
Area (ha)	0	0	110	0	0	110

For this habitat we will take all areas

We have not mapped the distribution of this PHT.

MARITIME CLIFF AND SLOPES PHT

General Description

Maritime cliffs and slopes comprise sloping to vertical faces on the coastline where a break in slope is formed by slippage and/or coastal erosion.

Maritime cliffs can broadly be classified as 'hard cliffs' or 'soft cliffs', though in practice there are a number of intermediate types. Hard cliffs are vertical or steeply sloping and be formed of rocks resistant to weathering, such as granite. Soft cliffs are formed in less resistant rocks such as shales or in unconsolidated materials such as boulder clay; being unstable they often form less steep slopes and are therefore more easily colonised by vegetation.

National Context

Hard cliffs are widely distributed around the more exposed coasts of the UK, occurring principally in south-west and south-east England (the latter area having the bulk of the 'hard' chalk cliffs), in north-west and south-west Wales, in western and northern Scotland and on the north coast of Northern Ireland. Soft cliffs are more restricted, occurring mainly on the east and central south coasts of England and in Cardigan Bay and north-west Wales. There are also examples on the coasts of Fife and Skye in Scotland and Antrim in Northern Ireland.

Approximately 4000 km of the British coastline has been classified as cliff.

Area of PHT in Cornwall (ha): 3750 (minimum estimate)

Number of polygons: not known

The habitat is: Fairly common

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Area (ha)	750	750	550	450	500	750	3750

This is a minimum estimate based on a coastal strip of 100m

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Area (ha)	550	450	2400	0	350	3750

This is a minimum estimate based on a coastal strip of 100m

For this habitat the threshold is 3 ha

We have not mapped the distribution of this PHT. Nevertheless, taking a combination of the length of the Cornwall coastline and an estimate of the minimum distance of the inland limits of maritime influence, leads to a crude estimate of the total area of this habitat.

MUD HABITATS IN DEEP WATER PHT

General Description

Mud habitats in deep water occur below 20-30 m in many areas of Britain's marine environment, including marine inlets such as sea lochs. The relatively stable conditions associated with deep mud habitats often lead to the establishment of communities of burrowing megafaunal species where bathyal species may occur with coastal species.

These soft mud communities occur extensively throughout the more sheltered basins of sea lochs and voes. As these sites are typically sheltered from wave action, these communities may occur in quite shallow depths (15 m).

Offshore mud habitats can be characterised by the burrowing urchin *Brissopsis lyrifera* and the brittlestar *Amphiura chiajei* and in certain areas around the UK, such as the northern Irish Sea, this community may also include *N. norvegicus*.

In boreal and Arctic areas of water deeper than 100 m, the soft muds are dominated by a community of foraminiferans and hatchett shells *Thyasira* spp. with polychaete worms. There can be thousands of dead foraminiferan tests per square metre.

For this habitat we will take all areas

Sabellaria alveolata REEFS PHT

General Description

Sabellaria alveolata reefs, are formed by the honeycomb worm *Sabellaria alveolata*, a polychaete which constructs tubes in tightly packed masses with a distinctive honeycomb-like appearance. These reefs can be up to 30 cm or even 50 cm thick and take the form of hummocks, sheets or more massive formations. Reefs are mainly found on the bottom third of the shore, but may reach mean high water of neap tides and extend into the shallow subtidal in places.

They do not seem to penetrate far into low salinity areas.

Reefs form on a variety of hard substrata, from pebbles to bedrock, in areas with a good supply of suspended sand grains from which the animals form their tubes, and include areas of sediment when an attachment has been established.

National Context

The British Isles represent the northern extremity of the range in the north-east Atlantic, which extends south to Morocco. The reefs also occur in the Mediterranean.

In Britain, *S. alveolata* reefs are found only on shores with strong to moderate wave action in the south and west, between Lyme Bay on the south coast of England and the Scottish coast of the Solway Firth.

Area of PHT in Cornwall (ha): 3

Number of polygons: 12

The habitat is: Very rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	0	0	0	0	1	11	12
Area (ha)	0	0	0	0	<1	3	3

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	0	12	0	0	12
Area (ha)	0	0	3	0	0	3

For this habitat we will take all areas

Sabellaria alveolata REEFS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
Coastal Saline Lagoons in Cornwall (1985)	A detailed survey of saline lagoons in Cornwall	EN	A detailed survey of the saline lagoons of the county including descriptions of those coastal ponds that might be classified as this habitat.	ERCCIS	Fairly good quality. The only reliable source for the whole county.
Phase 1 maps	Paper information	EN	Will be used where considered necessary	ERCCIS	In general, medium quality

Sabellaria alveolata REEFS: Comments

Data Sources	Comment
Little, C. (1985). Coastal Saline Lagoons in Cornwall. NCC	A detailed, but brief, examination of all the possible sites in Cornwall.
The Definition	**Comment**
Good	There is no problem using the definition.
Reliability of PHT Interpretation	**Explanation**
Good	The definition is sufficiently general that interpretation is relatively straightforward.
Overall Assessment	**Comments**
Good	There are few possible sites to examine in the county, so that only a few simple judgements are needed to produce an inventory of sites. There is some doubt relating to a small number of sites, but there are no significant areas of doubt. We believe that the map of the small areas of Saline Lagoon is reasonably accurate.

SALINE LAGOONS PHT

General Description

Lagoons in the UK are essentially bodies, natural or artificial, of saline water partially separated from the adjacent sea. They retain a proportion of their seawater at low tide and may develop as brackish, full saline or hyper-saline water bodies.

Lagoons can contain a variety of substrata, often soft sediments which in turn may support tasselweeds and stoneworts as well as filamentous green and brown algae.

In addition lagoons contain invertebrates rarely found elsewhere. They also provide important habitat for waterfowl, marshland birds and seabirds.

There are several different types of lagoons, ranging from those separated from the adjacent sea by a barrier of sand or shingle ('typical lagoons'), to those arising as ponded waters in depressions on soft sedimentary shores, to those separated by a rocky sill or artificial construction such as a sea wall.

National Context

The largest lagoon in the UK is in excess of 800 ha (Loch of Stenness) although the rest are much smaller and some may be less than 1 ha. The total area is certainly at least 5000 ha in Britain.

Area of PHT in Cornwall (ha): 49 <1% **National Total**

Number of polygons: 13

The habitat is: Very rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	3	1	5	3	1	0	13
Area (ha)	31	1	7	5	5	0	49

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	0	13	0	0	13
Area (ha)	0	0	49	0	0	49

For this habitat we will take all areas

SALINE LAGOONS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
Coastal Saline Lagoons in Cornwall (1985)	A detailed survey of saline lagoons in Cornwall	EN	A detailed survey of the saline lagoons of the county including descriptions of those coastal ponds that might be classified as this habitat.	ERCCIS	Fairly good quality. The only reliable source for the whole county.
Phase 1 maps	Paper information	EN	Will be used where considered necessary	ERCCIS	In general, medium quality

SALINE LAGOONS: Comments

Data Sources	**Comment**
Little, C. (1985). Coastal Saline Lagoons in Cornwall. NCC	A detailed, but brief, examination of all the possible sites in Cornwall.
The Definition	**Comment**
Good	There is no problem using the definition.
Reliability of PHT Interpretation	**Explanation**
Good	The definition is sufficiently general that interpretation is relatively straightforward.
Overall Assessment	**Comments**
Good	There are few possible sites to examine in the county, so that only a few simple judgements are needed to produce an inventory of sites. There is some doubt relating to a small number of sites, but there are no significant areas of doubt. We believe that the map of the small areas of Saline Lagoon is reasonably accurate.

SEAGRASS BEDS PHT

General Description

Seagrass beds develop in intertidal and shallow subtidal areas on sands and muds. They may be found in marine inlets and bays but also in other areas, such as lagoons and channels, which are sheltered from significant wave action.

Three species of *Zostera* occur in the UK, and all are considered to be scarce (present in 16-100 ten km squares). Dwarf eelgrass *Zostera noltii* is found highest on the shore, often adjacent to lower saltmarsh communities, narrow-leaved eelgrass *Zostera angustifolia* on the mid to lower shore and eelgrass *Zostera marina* predominantly in the sublittoral.

National Context

The Cromarty Firth supports what is most probably the largest total area of dwarf eelgrass and narrow leaved eelgrass in Britain (approximately 1200 ha) while the Maplin Sands is estimated to be the largest surviving continuous population of dwarf eelgrass in Europe (covering around 325 ha). The Fleet has the most extensive population of all three *Zostera* species in Britain. Other important sites include the Exe Estuary, Maplin Sands, the Solents marshes and the Isles of Scilly, Morfa Nefyn, Milford Haven and the Moray Firth.

Area of PHT in Cornwall (ha): 46 <1% **National Total**

Number of polygons: 27

The habitat is: Very rare

Distribution by Administrative District*							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	4	7	8	0	8	0	27
Area (ha)	1	6	31	0	8	0	46

Distribution by Natural Area*						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	1	26	0	0	27
Area (ha)	0	0	46	0	0	46

*Strictly speaking, these may not lie within the respective boundary, but lie adjacent to them.

For this habitat we will take all areas

SEAGRASS BEDS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Report (2002): The location and conservation of eelgrass beds in Cornwall and the Isles of Scilly	Paper report which gives complete details of the location and history of every eelgrass be in the county.	CWT	The boundaries of each eelgrass bed were digitised. for this report	Held at CWT	

SEAGRASS BEDS: Comments

Data Sources	Comment
Hocking, S. & Tompsett, P. (2002). The Location & Conservation of Eelgrass Beds in Cornwall & the Isles of Scilly. CWT	A comprehensive survey of the location of every bed within Cornwall and the Isles of Scilly
The Definition	**Comment**
Good	There is no problem using the definition.
Reliability of PHT Interpretation	**Explanation**
Good	There is no problem, because no interpretation is needed.
Overall Assessment	**Comments**
Very Good	We believe that the map of Seagrass Beds in Cornwall is accurate.

SHELTERED MUDDY GRAVELS PHT

General Description

Sheltered muddy gravel habitats occur principally in estuaries, rias and sea lochs, in areas protected from wave action and strong tidal streams. In fully marine conditions on the lower shore this habitat can be extremely species-rich because the complex nature of the substratum supports a high diversity of both infauna and epifauna. However, good quality examples of this habitat are very scarce.

The priority habitat may be considered as an intertidal extension of a habitat more common in the sublittoral. The communities of interest to this plan are restricted to the intertidal and shallow sublittoral. Shallow subtidal muddy gravel (more than 3 m below Chart Datum) can contain communities of burrowing anemones such as *Mesacmaea mitchelli*, *Aureliania heterocera*, *Cereus pedunculatus* and *Cerianthus lloydii*.

National Context

Analysis of the survey records held on the MNCR database suggests that fully saline sheltered muddy gravel communities are scarce in their British distribution. However, the biotope is found extensively in the Solent and Helford River. Other notable locations include the rias of south-west Britain, for example the Fal Estuary, Salcombe Harbour and Milford Haven. Other known sites include the Sound of Arisaig, the Dyfi Estuary and Llanbedrog on the Lleyn Peninsula.

The extent of this habitat in Cornwall is not currently known.

For this habitat we will take all areas

SUBTIDAL SANDS AND GRAVELS PHT

General Description

Subtidal sand and gravel sediments are the most common habitats found below the level of the lowest low tide around the coast of the United Kingdom. The sands and gravels found to the west of Britain (English Channel and Irish Sea) are largely shell derived, whereas those from the North Sea are largely formed from rock material.

Many of the inshore habitats are important nursery grounds for juvenile commercial species such as flatfishes and bass. Offshore, sand and gravel habitats support internationally important fish and shellfish fisheries while SE have recently carried out a comprehensive survey of benthic communities in the Greater Minch.

National Context

Detailed information on the distribution of biotopes found within the PHT is generally restricted to an area less than 3 km from the shore. The survey resolution of these communities decreases at greater distances offshore.

Certain surveys of benthic communities have been undertaken at various times and in various areas including the North Sea and the English Channel but some are at broad scale habitat mapping only. There appears to be no detailed comprehensive overview of the national resource.

The extent of this habitat in Cornwall is not currently known.

For this habitat we will take all areas

TIDE-SWEPT CHANNELS PHT

General Description

The term 'tidal rapids' is defined as 'strong tidal streams resulting from a constriction in the coastline at the entrance to, or within the length of, an enclosed body of water such as a sea loch. Depth is usually shallower than five metres.'

In deeper situations tidal streams may generate favourable conditions for diverse marine habitats (e.g. the entrances to fjordic sea lochs, between islands, or between islands and the mainland, particularly where tidal flow is funnelled by the shape of the coastline). Strong tidal streams may be felt down to 30 m.

National Context

Tidal streams occur at many places around Britain. Both the Menai Strait in North Wales and the Scilly Isles provide good examples of tide-swept communities considered to be of national importance.

The morphology of fjords and fjards is therefore very different to lowland marine inlets and the estuaries of the south and east of the British Isles. However, in south-west England, eustatic change has created rias by drowning coastal river valleys such as the Dart, Tamar and Fal. At the narrow entrances of these rias, strong tidal currents have generated diverse habitats of biological significance. Maerl beds are also closely identified with the conditions found in tidal narrows and rapids in the south-west (the Fal estuary) and the north of the British Isles (Orkney).

The extent of this habitat in Cornwall is not currently known.

For this habitat we will take all areas

LOWLAND MIXED DECIDUOUS WOODLAND PHT

General Description

Lowland mixed deciduous woodlands are typically lowland woods of about 20 ha growing in a flat or gently undulating farmland landscape. he woods are usually dominated by mixtures of oak, ash and hazel which may have been coppiced in the early pat of the twentieth century.

These woodlands vary considerably in their ground flora, ranging from the dog's mercury *Mercurialis perennis* dominated ground layer of the W8 woodlands which often include enchanter's nightshade *Circaea lutetiana* and primrose *Primula vulgaris* in addition to bluebell *Hyacinthoides non-scripta* and wood anemone *Anemone nemoralis* to the poorer examples of W10. They are, accordingly, similar in some respects to both the upland mixed ashwoods and the upland oakwoods and may in some places be difficult to separate.

National Context

There are no precise figures for the total extent of this woodland type, but it is believed to be between about 150 and 200 000 ha in the UK. It includes most semi-natural woodland in southern and western England and parts of lowland Wales and Scotland.

Area of PHT in Cornwall (ha): 159 (as mapped: see comments) 0.1% **National Total**

Number of polygons: 36 (as mapped: see comments)

The habitat is: Rare - Uncommon

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	0	2	0	1	24	9	36
Area (ha)	0	4	0	1	122	32	159

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	1	30	0	5	36
Area (ha)	0	2	141	0	16	159

For this habitat the threshold area is 1.5 ha

LOWLAND MIXED DECIDUOUS WOODLAND: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
Aerial photos of the Fal & Helford SAC	Digital photographs taken in 2000	EN	Can be used to identify up-to-date boundaries.	ERCCIS	
An analysis of NVC Vegetation survey data. (JNCC Report No 272).	Report	EN	Details those NVC communities and sub-communities that have been recorded in the county.	ERCCIS	Good quality information. Essential background.
Ancient Woodland Survey of Cornwall	A provisional inventory of Ancient Woodland in the county	EN	The main source of Peterken stand types throughout the county.	ERCCIS	High quality information, close to NVC
Broadleaved woodland landcover on GIS	Maps of Broadleaved woodland drawn from a combination of references and API (1996)	ERCCIS	Should be a useful start for digitising.	ERCCIS	Good quality information
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up toy the Broadleaved woodland Survey of Cornwall	ERCCIS	Good quality information
CWT Reserve Files	Management Reports	CWT	Contain compartment descriptions to NVC level.	CWT	Good quality information.
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Already incorporated into GIS	ERCCIS	Poor quality
Woodland Surveys in SW England using NVC (Heath & Oakes)	Report	EN	The main source of information relating to woodland NVC in the county	ERCCIS	Good quality information.

LOWLAND MIXED DECIDUOUS WOODLAND: Comments

Data Sources	**Comment**
Ancient Woodland Survey (AWS) County Wildlife Site (CWS) surveys Various NVC surveys of woodlands in Cornwall	The AWS, carried out in 1983, usually gives the Peterken Stand Type for a woodland. It includes the results of about 3100 ha of semi-natural woodlands in the county from about 350 sites. It is the main source of detailed information relating to woodlands in the county. The CWS surveys mainly date from 1980-1987. They give little additional useful information relating to this PHT. The various NVC surveys in the county are summarised in JNCC Report No. 272 *An Analysis of National Vegetation Classification Survey Data*. More detail is given in Heath and Oakes (1990) *Woodland Surveys in South West England using the National Vegetation Classification*
The National Definition	**Comment**
Poor	The definition is long-winded, but imprecise, allowing more than one interpretation from the same set of data. The Peterken Stand Types and NVC communities do not correspond within Cornwall.
	Local BAP Variation
	There is a local definition for Upland Oakwood alone, clearly written in the belief that there are no other similar PHT woodlands. The writer appears to be unaware that there are such PHTs as Lowland Mixed Deciduous Woodland. The local BAP says in para 1.2 that the NVC communities associated with Upland Oakwood: are the following: W8, W10, W11, W16 & W17. This includes certain NVC sub-communities entirely associated with Lowland Mixed Deciduous Woodland.
Reliability of PHT Interpretation	**Explanation**
Poor	There are two woodland classifications that may be reliably used to identify this PHT: Peterken Stand Type and NVC communities. Phase 1 is too broad and other classifications do not exist within Cornwall, except where they have been derived from Peterken or the NVC. Unfortunately, nearly all the Peterken Stand Types that have been derived for Cornwall's woodlands lead to an identification of either Upland Oakwood or Upland Mixed Ashwoods, whereas the NVC approach leads to quite different results. The NVC communities indicate that about half of the woodlands in Cornwall are Lowland Mixed Deciduous. We have adopted the approach that we would only use Peterken Stand Types. This is for two main reasons. Firstly, the majority of the woodland studies in Cornwall have used the Peterken Stand Type system while there are relatively few woodlands that have been assigned to a NVC community. Secondly, it is relatively easy to derive a Peterken Stand Type from simple fieldwork whereas it is extremely time consuming to try to derive an NVC community from limited species lists. Moreover, the results may be open to question. The choice that we made may give a biased result in that the

	Lowland Mixed Deciduous, which appear to be widespread, are not represented in our results. On the other hand, the use of Peterken Stand Type has allowed us to produce results that are transparent. That is, the allocation to PHT follows a clear and simple method where the PHT usually shows a direct correspondence to the original classification. The problem with this approach is that it is known that: 'The diversity which we perceive in vegetation types is affected by the method we use … (and) … it is therefore useful to use them in combination', (Jeanette Hall, JNCC Report No 272, p24).
	Summary
	Definitely is: Peterken Stand Type 6C or 6D. Probably is: inferred to be Peterken Stand Type 6C or 6D.
Overall Assessment	**Comments**
Poor	We have mapped very little of this PHT in Cornwall when there is a strong suspicion that another approach may have yielded a different result.

TRADITIONAL ORCHARDS PHT

General Description

Traditional orchards are related to wood-pasture and parkland, but are characteristically different. In general, the trees are of the family *Rosaceae* and the scale is smaller. This is reflected both in the size of the trees and the size of the plots.

To be classed as a priority habitat traditional orchards need to be managed in a low intensity way. This is shown by the fact that there is permanent grassland between the trees. It is known that orchards with visible herbicide strips are probably using pesticides. A further distinction is that traditional orchards are often planted at half the density of intensive orchards, though there may be some overlap.

National Context

Traditional orchards are found throughout the UK, but the majority are in England. The total area of traditional orchards in England is thought to be about 28 000 ha. There are concentrations in six counties, including Somerset in the South West. Somerset is one of the counties with large scale commercial planting, but there is thought to be little commercial planting in Cornwall where the total area of orchards would appear to be only about 70 ha.

Area of PHT in Cornwall (ha): 70 0.3% **National Total**

Number of polygons: not known

The habitat is: Very rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Area (ha)	2	0	17	4	31	17	71

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Area (ha)						

For this habitat we will take all areas

TRADITIONAL ORCHARDS: Possible sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Could be used to identify up-to-date boundaries.	Held at CCC	
Broadleaved woodland landcover on GIS	Maps of Broadleaved woodland drawn from a combination of references and API (1996)	ERCCIS	Should be a useful start for digitising.	ERCCIS	Good quality information
Ordnance Survey Maps	Ordnance Survey Maps	OS	Very useful	ERCCIS	Good quality, but may be dated
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Already incorporated into GIS	ERCCIS	Fair quality

UPLAND MIXED ASHWOODS PHT

General Description

The term upland mixed ashwoods is used for woods on base-rich soils in the north and west, in most of which ash is a major species, although locally oak, birch, elm, small-leaved lime and even hazel may be the most abundant species. Upland in the name reflects the abundance of this type of woodland on base-rich soils in upland Britain rather than to the altitude at which individual sites occur. Most upland mixed ashwoods are probably ancient.

Mixed ashwoods are amongst the richest habitats for wildlife in the uplands, notable for bright displays of flowers such as bluebell *Hyacinthoides non-scripta*, primrose *Primula vulgaris*, wood cranesbill *Geranium sylvaticum* and wild garlic *Allium ursinum*.

National Context

They are found throughout upland Britain and in Northern Ireland, though they are limited in the north-west Highlands.

There are no precise data on the total extent of upland ashwoods in the UK, but in the late 1980s the Nature Conservancy Council estimated the total extent of ancient semi-natural woodland of this type to be 40 000–50 000 ha. It has declined in area by clearance, overgrazing and replanting with non-native species, by about 30-40% over the last 50 years. A crude estimate places the total area of upland ashwood at 67 500 ha.

Area of PHT in Cornwall (ha): 1740 2.6% **National Total**

Number of polygons: 446

The habitat is: Uncommon

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	17	35	63	31	130	170	446
Area (ha)	30	130	270	120	530	660	1740

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	15	19	319	31	62	446
Area (ha)	25	60	1215	110	330	1740

For this habitat the threshold area is 1.5 ha

UPLAND MIXED ASHWOODS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
Aerial photos of the Fal & Helford SAC	Digital photographs taken in 2000	EN	Can be used to identify up-to-date boundaries.	ERCCIS	
An analysis of NVC Vegetation survey data. (JNCC Report No 272).	Report	EN	Details those NVC communities ands sub-communities that have been recorded in the county.	ERCCIS	Good quality information. Essential background.
Ancient Woodland Survey of Cornwall	A provisional inventory of Ancient Woodland in the county	EN	The main source of Peterken stand types throughout the county.	ERCCIS	High quality information, close to NVC
Broadleaved woodland landcover on GIS	Maps of Broadleaved woodland drawn from a combination of references and API (1996)	ERCCIS	Should be a useful start for digitising.	ERCCIS	Good quality information
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up toy the Broadleaved woodland Survey of Cornwall	ERCCIS	Good quality information
CWT Reserve Files	Management Reports	CWT	Contain compartment descriptions to NVC level.	CWT	Good quality information.
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Already incorporated into GIS	ERCCIS	Poor quality
Woodland Surveys in SW England using NVC (Heath & Oakes)	Report	EN	The main source of information relating to woodland NVC in the county	ERCCIS	Good quality information.

UPLAND MIXED ASHWOODS: Comments

Data Sources	**Comment**
Ancient Woodland Survey (AWS) County Wildlife Site (CWS) surveys Various NVC surveys of woodlands in Cornwall	The AWS, carried out in 1983, usually gives the Peterken Stand Type for the woodland. It includes the results of about 3100 ha of semi-natural woodlands in the county from about 350 sites. It is the main source of detailed information relating to woodlands in the county. The CWS surveys mainly date from 1980-1987. They give little additional useful information relating to this PHT. The various NVC surveys in the county are summarised in JNCC Report No. 272 *An Analysis of National Vegetation Classification Survey Data*. More detail is given in Heath and Oakes (1990) *Woodland Surveys in South West England using the National Vegetation Classification.*
The National Definition	**Comment**
Average	The definition of this PHT does not cause major problems in this county because there appears to be no differences in the result if either Peterken Stand Type or NVC communities are used. There is one problem in the definition of PHT woodland with this habitat in Cornwall. Many ash woods are subject to Sycamore invasion. Should the (non-native) Sycamore exceed 50% canopy cover than the woodland can no longer be considered as PHT even though the woodland is PHT in every other consideration. Sycamore is non-native, but not such an alien presence in this kind of woodland as it would be elsewhere, being a natural replacement for field maple in this county and occurring naturally in similar woodlands on the continent. It might be worth considering if Sycamore invasion of W8 woodlands should be viewed so rigidly as it is at present, because a small amount of management of these woodlands would, in some cases, soon restore them to a pristine state.
	Local BAP Variation
	There is a local definition for Upland Oakwood alone, clearly written in the belief that there are no other similar PHT woodlands. The writer appears to be unaware that there are such PHTs as Upland Mixed Ashwoods. The local BAP says in para 1.2 that the NVC communities associated with Upland Oakwood: are the following: W8, W10, W11, W16 & W17. This includes certain NVC sub-communities entirely associated with Upland Mixed Ashwoods.
Reliability of PHT Interpretation	**Explanation**
Average	There are two methods that may be reliably used to identify this PHT: Peterken Stand Type and NVC communities. Phase 1 is too broad and other classifications do not exist within Cornwall, except where they have been derived from Peterken or NVC. There is only one Peterken Stand Type (3D) in Cornwall that leads to this PHT. Unlike the case with some other PHT woodlands, the NVC and the Peterken systems do not appear to conflict. When using NVC communities we are usually considering W8

	or W9 woodlands. In Cornwall there are no known W9 woodlands and the majority of the W8 woodlands are of sub-community W8e. It appears reasonable to consider W8e woodlands as this PHT. In practice however, we have used Peterken Stand Type for this PHT, in just the same way that we have for the other PHT woodlands. We have adopted the approach that we would only use Peterken Stand Types. This is for two main reasons. Firstly, the majority of the woodland studies in Cornwall have used the Peterken Stand Type system while there are relatively few woodlands that have been assigned to a NVC community. Secondly, it is relatively easy to derive a Peterken Stand Type from simple fieldwork whereas it is extremely time consuming to try to derive an NVC community from limited species lists. Moreover, the results may be open to question. Our method should give unbiased results that are transparent. That is, the allocation to PHT follows a clear and simple method where the PHT usually shows a direct correspondence to the original classification.
	Summary
	Definitely is: Peterken Stand Type 3D. Probably is: Inferred to be Peterken Stand Type 3D.
Overall Assessment	**Comments**
Average	The map should give a reasonable picture of the distribution of this PHT in Cornwall.

UPLAND OAKWOOD PHT

General Description

Upland oakwoods are characterised by a predominance of oak (most commonly sessile, but locally pedunculate) and birch in the canopy, with varying amounts of holly, rowan and hazel as the main understorey species. The range of plants found in the ground layer varies according to the underlying soil type and degree of grazing from bluebell-bramble-fern communities through grass and bracken dominated ones to healthy moss-dominated areas.

Most oakwoods also contain areas of more alkaline soils, often along streams or towards the base of slopes where much richer communities occur, with ash and elm in the canopy, more hazel in the understorey and ground plants such as dog`s mercury *Mercurialis perennis*, false brome *Brachypodium sylvaticum,* Ramsons *Allium ursinum,* Enchanter's nightshade *Circaea lutetiana*, and tufted hair grass *Deschampsia cespitosa*.

The ferns, mosses and liverworts found in the most oceanic of these woods are particularly rich; many also hold very diverse lichen communities and the woods typically have a distinctive breeding bird assemblage.

National Context

There are no precise figures for the total extent of this woodland type, but it is believed to be between about 70 000 and 100 000 ha in the UK. It is found throughout the north and west of the UK with major concentrations in Argyll and Lochaber, Cumbria, Gwynedd, Devon and Cornwall. Related woodland does occur on the continent, particularly in the more oceanic areas but the British and Irish examples are recognised internationally as important because of their extent and distinctive plant and animal communities. For some of these species Britain and Ireland hold a substantial part of the world/European population.

Area of PHT in Cornwall (ha): 2982 (as mapped: see comments) 3.5% **National Total**

Number of polygons: 516 (as mapped: see comments)

The habitat is: Uncommon – Fairly common

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	1	47	69	40	178	181	516
Area (ha)	2	280	360	210	1050	1080	2982

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	16	412	23	65	516
Area (ha)	0	50	2442	120	370	2982

For this habitat the threshold area is 1.5 ha

UPLAND OAKWOOD: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
Aerial photos of the Fal & Helford SAC	Digital photographs taken in 2000	EN	Can be used to identify up-to-date boundaries.	ERCCIS	
An analysis of NVC Vegetation survey data. (JNCC Report No 272).	Report	EN	Details those NVC communities and sub-communities that have been recorded in the county.	ERCCIS	Good quality information. Essential background.
Ancient Woodland Survey of Cornwall	A provisional inventory of Ancient Woodland in the county	EN	The main source of Peterken stand types throughout the county.	ERCCIS	High quality information, close to NVC
Broadleaved woodland landcover on GIS	Maps of Broadleaved woodland drawn from a combination of references and API (1996)	ERCCIS	Should be a useful start for digitising.	ERCCIS	Good quality information
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up toy the Broadleaved woodland Survey of Cornwall	ERCCIS	Good quality information
CWT Reserve Files	Management Reports	CWT	Contain compartment descriptions to NVC level.	CWT	Good quality information.
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase I maps	Paper information	EN	Already incorporated into GIS	ERCCIS	Poor quality
Woodland Surveys in SW England using NVC (Heath & Oakes)	Report	EN	The main source of information relating to woodland NVC in the county	ERCCIS	Good quality information.

UPLAND OAKWOOD: Comments

Data Sources	**Comment**
Ancient Woodland Survey (AWS) County Wildlife Site (CWS) surveys Various NVC studies of woodlands in Cornwall	The AWS, carried out in 1983, usually gives the Peterken Stand Type for the woodland. It includes the results of about 3100 ha of semi-natural woodlands in the county from about 350 sites and is the main source of detailed information relating to woodlands in the county. The CWS surveys mainly date from 1980-1987. They give little additional useful information relating to this PHT. The various NVC surveys in the county are summarised in JNCC Report No. 272 *An Analysis of National Vegetation Classification Survey Data*. More detail is given in Heath and Oakes (1990) *Woodland Surveys in South West England using the National Vegetation Classification.*
The National Definition	**Comment**
Average	The definition is long-winded, but imprecise, allowing more than one interpretation from the same set of data. The Peterken Stand Types and NVC types do not correspond within Cornwall.
	Local BAP Variation
	The local definition is clearly written in the belief that there are no other similar PHT woodlands. In particular, the writer appears to be unaware that there are such PHTs as Lowland Mixed Deciduous Woodland and Upland Mixed Ashwoods. This leads to a description that amalgamates all three into one The local BAP says in para 1.2 that the NVC communities associated with Upland Oakwood: are the following: W8, W10, W11, W16 & W17. Upland Oakwoods are included within these NVC types, but not within W8 and only some of the sub-communities of W10.
Reliability of PHT Interpretation	**Explanation**
Poor	There are two woodland classifications that may be reliably used to identify this PHT: Peterken Stand Type and NVC communities. Phase 1 is too broad and other classifications do not exist within Cornwall, except where they have been derived from Peterken or the NVC. There are only two Peterken Stand Types (6A and 6B) in Cornwall that leads to this PHT. Unfortunately, the limited results from NVC indicate that about half of the oak woodlands in the county may be Lowland Mixed Deciduous (LMD). When using NVC communities we are usually considering W10 or W16 woodlands. In Cornwall nearly all the W16 woodlands are of the sub-community W16b and there appears to be no problem in assigning those to this PHT. It is with the W10 woodlands where there appears to be a problem. There are known to be relatively large areas of W10c which could be considered to be LMD. We have adopted the approach that we would only use Peterken Stand Types. This is for two main reasons. Firstly, the majority of the woodland studies in Cornwall have used the Peterken Stand Type system while there are relatively few woodlands that have been assigned to a NVC community.

	Secondly, it is relatively easy to derive a Peterken Stand Type from simple fieldwork whereas it is extremely time consuming to try to derive an NVC community from limited species lists. Moreover, the results may be open to question. Our method may give a biased result in that the Upland Oakwoods, which appear to be so dominant, actually include considerable areas of LMD. On the other hand, the use of Peterken Stand Types has allowed us to produce results that are transparent. That is, the allocation to PHT follows a clear and simple method where the PHT usually shows a direct correspondence to the original classification. The problem with this approach is that it is known that: 'The diversity which we perceive in vegetation types is affected by the method we use … (and) … it is therefore useful to use them in combination (Jeanette Hall, JNCC Report No 272, p24).
	Summary
	Definitely is: Peterken Stand Type 6A or 6B. Probably is: Inferred to be Peterken Stand Type 6A or 6B.
Overall Assessment	**Comments**
Average	The map of this PHT for Cornwall probably gives a fair representation of its distribution, but it does include woodlands which may better be regarded as Lowland Mixed Deciduous.

WET WOODLAND PHT

General Description

Wet woodland occurs on poorly drained or seasonally wet soils, usually with alder, birch and willows as the predominant tree species, but sometimes including ash, oak, pine and beech on the drier riparian areas. It is found on floodplains, as successional habitat on fens, mires and bogs, along streams and hill-side flushes, and in peaty hollows.

In terms of National Vegetation Classification (NVC) plant communities this habitat is characterised by W1 woodland to W3 woodland, W4c woodland, and W5 woodland to W7 woodland.

National Context

There are no precise data on the total extent of wet woodland in the UK, but in the late 1980s the Nature Conservancy Council estimated the total extent of this type in ancient semi-natural woodland to be about 25 000–30 000 ha. The area of recent wet woodland may be at least as large again. Thus a crude estimate of the total wet woodland area in the UK is 50 000–70 000 ha.

Area of PHT in Cornwall (ha): 2170 3.6% **National Total**

Number of polygons: 611

The habitat is: Uncommon

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	58	156	106	137	44	110	611
Area (ha)	260	410	380	720	120	280	2170

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	35	99	423	13	41	611
Area (ha)	180	180	1690	20	100	2170

For this habitat the threshold area is 2.0 ha

WET WOODLAND: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
Aerial photos of the Fal & Helford SAC	Digital photographs taken in 2000	EN	Can be used to identify up-to-date boundaries.	ERCCIS	
An analysis of NVC Vegetation survey data. (JNCC Report No 272).	Report	EN	Details those NVC communities ands sub-communities that have been recorded in the county.	ERCCIS	Good quality information. Essential background.
Ancient Woodland Survey of Cornwall	A provisional inventory of Ancient Woodland in the county	EN	The main source of Peterken stand types throughout the county.	ERCCIS	High quality information, close to NVC
Broadleaved woodland landcover on GIS	Maps of Broadleaved woodland drawn from a combination of references and API (1996)	ERCCIS	Should be a useful start for digitising.	ERCCIS	Good quality information
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up toy the Broadleaved woodland Survey of Cornwall	ERCCIS	Good quality information
CWT Reserve Files	Management Reports	CWT	Contain compartment descriptions to NVC level.	CWT	Good quality information.
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Already incorporated into GIS	ERCCIS	Poor quality
Woodland Surveys in SW England using NVC (Heath & Oakes)	Report	EN	The main source of information relating to woodland NVC in the county	ERCCIS	Good quality information.

WET WOODLAND: Comments

Data Sources	**Comment**
Ancient Woodland Survey (AWS) County Wildlife Site (CWS) surveys Various NVC studies of woodlands in Cornwall	The AWS, carried out in 1983, usually gives the Peterken Stand Type for the woodland. It includes the results of about 3100 ha of semi-natural woodlands in the county from about 350 sites. It is the main source of detailed information relating to woodlands in the county. The CWS surveys mainly date from 1980-1987. They give a great deal of additional useful information relating to this PHT. The various NVC surveys in the county are summarised in JNCC Report No. 272 *An Analysis of National Vegetation Classification Survey Data*. More detail is given in Heath and Oakes (1990) *Woodland Surveys in South West England using the National Vegetation Classification.*
The National Definition	**Comment**
Good	There are no problems interpreting this definition, mainly because the definition of a wet woodland is clear whether significant survey information exists or not.
	Local BAP Variation
	The Local BAP defines wet woodland in a different way from the UK BAP. The UK BAP states that: All the NVC types W1-W7 should be included. There are the additional comments: W7c sometimes occurs in mosaic with Upland Mixed Ashwoods NVC types. In these situations, if the patch is under 0.25ha in area, W7c should be included as part of this HAP rather than wet woodland. W8 particularly, and potentially other dry woodland communities, may occur within larger complexes of other wet woodland NVC types. If they occur as polygons below 0.25ha in size, they should be included in the wet woodland. If they cover an area greater than 0.25 ha they should be mapped separately, albeit they may be managed as part of the wet woodland. The local BAP says in para 1.3 that the NVC communities associated with wet woodland are the following: The phytosociological stereotypes, in terms of the National Vegetation Classification, conform to W1, W4, W5, W6, W7, and W8. Here there is no mention of W2 and the inclusion of W8. W8 is certainly an Upland Mixed Ashwood in Cornwall if it is above the MMU.
Reliability of PHT Interpretation	**Explanation**
Good	There are two methods that may be reliably used to identify this PHT: Peterken Stand Type and NVC communities. Phase 1 is too broad and other classifications do not exist within Cornwall, except where they have been derived from Peterken or NVC. Unfortunately, nearly all the Peterken Stand Types that have been derived for Cornwall's woodlands only refer to a small sub-set of all the wet woodlands. The majority of the wet woodland in the county is wet willow woodland, NVC community W1, which is not part of the Peterken classification.

	We have adopted the approach that we would use Peterken Stand Types where they existed and that we would consider Stand Types 7A and 7B to be definitely wet woodland. We have no significant areas of 7C, D and E. If there was no Peterken Stand Type, then we have used fieldwork that shows either wet willow woodland, wet Alder woodland or woodlands that have been assigned an NVC community in the range W1-W7. There are relatively few wet woodlands that have been assigned to an NVC community, but it is relatively easy to identify which woodlands should be accorded an NVC type that assigns it to this PHT. We had some minor problem with woodlands that were dominated by a mixture of oak spp and willow (usually *Quercus petraea-Salix cinerea*), but the ground flora was usually clear-cut, leading us to classify these too as wet woodlands.
	Summary
	Definitely is: Peterken Stand Type 7A or 7B. NVC type W1-W7 Inferred to be W1-7 (with good data) Probably is: Inferred to be Peterken Stand Type 7A or 7B. Inferred to be W1-7 (with inadequate data)
Overall Assessment	**Comments**
Good	We believe that this PHT is easy to interpret and map and that the results we have produced fairly reflect the distribution of wet woodlands in Cornwall.

WOOD-PASTURE AND PARKLAND PHT

General Description

Wood-pasture and parklands are the products of historic land management systems, and represent a vegetation structure rather than being a particular plant community. Typically this structure consists of large, open-grown or high forest trees (often pollards) at various densities, in a matrix of grazed grassland, heathland and/or woodland floras. These sites are frequently of national historic, cultural and landscape importance.

Included in this plan are: Wood-pastures and parklands derived from medieval forests and emparkments, wooded commons, parks and pastures with trees in them; parklands with their origins in the 19th century or later where they contain much older trees derived from an earlier landscape; under-managed and unmanaged wood-pastures with veteran trees, in a matrix of secondary woodland or scrub that has developed by regeneration and/or planting. and parkland or wood-pasture that has been converted to other land uses such as arable fields, forestry and amenity land, but where surviving veteran trees are of nature conservation interest.

National Context

This habitat is most common in southern Britain, but scattered examples occur throughout the country for example Hamilton High Parks and Dalkeith Oakwood in Scotland. Outgrown wood-pasture and mature high forest remnants ('virgin forests') occur in northern and central Europe, but the number and continuity of ancient (veteran) trees with their associated distinctive saproxylic (wood-eating) fauna and epiphytic flora are more abundant in Britain than elsewhere. Parklands and wood-pasture may also be of interest for bats and birds and may preserve indigenous tree genotypes. These areas are outstanding at a European level.

There are no reliable statistics on the extent of the overall resource, nor on historical and current rates of loss or degradation of this type of habitat. The figure of 10-20 000 ha 'currently in a working condition' given in the 'habitat statement' of the UK Biodiversity Steering Group report is the current best estimate.

Area of PHT in Cornwall (ha): 499 3% **National Total**

Number of polygons: 26

The habitat is: Fairly rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	1	5	5	3	7	5	26
Area (ha)	12	44	69	45	179	150	499

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	1	0	21	0	4	26
Area (ha)	12	0	400	0	87	499

For this habitat the threshold is 0.5 ha

WOOD-PASTURE AND PARKLAND: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
Aerial photos of the Fal & Helford SAC	Digital photographs taken in 2000	EN	Can be used to identify up-to-date boundaries.	ERCCIS	
An analysis of NVC Vegetation survey data. (JNCC Report No 272).	Report	EN	Details those NVC communities ands sub-communities that have been recorded in the county.	ERCCIS	Good quality information. Essential background.
Ancient Woodland Survey of Cornwall	A provisional inventory of Ancient Woodland in the county	EN	The main source of Peterken stand types throughout the county.	ERCCIS	High quality information, close to NVC
Broadleaved woodland landcover on GIS	Maps of Broadleaved woodland drawn from a combination of references and API (1996)	ERCCIS	Should be a useful start for digitising.	ERCCIS	Good quality information
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up toy the Broadleaved woodland Survey of Cornwall	ERCCIS	Good quality information
CWT Reserve Files	Management Reports	CWT	Contain compartment descriptions to NVC level.	CWT	Good quality information.
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Already incorporated into GIS	ERCCIS	Poor quality
Woodland Surveys in SW England using NVC (Heath & Oakes)	Report	EN	The main source of information relating to woodland NVC in the county	ERCCIS	Good quality information.

WOOD-PASTURE AND PARKLAND: Comments

Data Sources	Comment
Ancient Woodland Survey (AWS) County Wildlife Site (CWS) surveys Various National Trust (NT) surveys Phase 1	The AWS, carried out in 1983, usually gives the Peterken Stand Type for a woodland. It includes the results of about 3100 ha of semi-natural woodlands in the county from about 350 sites. It is the main source of detailed information relating to woodlands in the county and some of it refers to parkland, or to areas that are adjacent to parkland The CWS surveys mainly date from 1980-1987. They give little additional useful information relating to this PHT. The NT reports for some of their properties give detailed information relating to the nature of areas that might be considered to be this PHT. The Phase 1 Surveys show areas marked as parkland, which can be used as a basis for site selection in Cornwall, there being little wood pasture in the county.

The National Definition	Comment
Good	The definition of this PHT is rather imprecise and open to interpretation, but that is bound to be the case. Some more precise standard on what separates a wood pasture and parkland of PHT quality from one that does not would be useful.
	Local BAP Variation
	None
Reliability of PHT Interpretation	**Explanation**
Average	There is one method that may be reliably used to identify this PHT: Phase 1 maps in combination with a detailed site report. Unfortunately, not every area marked on a Phase 1 map as parkland is necessarily an area that would be considered to be PHT, nor do we have detailed information relating to some of the sites. We have adopted the approach that we would only use a combination of Phase 1, Ordnance Survey maps and site reports to map this PHT in Cornwall. Those that have been mapped for no other reason than they appear as parkland on a Phase 1 map have been accorded a Priority Qualifier of C. There are also small number of areas of open land with trees that are known to been in existence for over a century that have also been included if they were not already included on the Phase 1 maps (these may be referred to as parks or deer parks). They too have been accorded a Priority Qualifier of C. The Priority Qualifier has been upgraded to A where further information is available. Our method may give a biased result in that the Wood-pasture and Parklands PHT may be over-represented. On the other hand, the use of Phase 1 as the prime source has allowed us to produce results that are transparent. That is, the allocation to PHT follows a clear and simple method where the PHT arises from a direct correspondence with the original classification.
	Summary
	Definitely is: parklands which have documentation of significant features associated with this PHT. This would normally be in the form of evidence of veteran trees. Probably is: parklands without significant documentation.
Overall Assessment	**Comments**
Average	The map that has been produced will clearly show more PHT than further study would reveal. Nevertheless, there is a core of mainly large areas such as Lanhydrock and Boconnoc which are know to be of value, together with a raft of minor sites that require further study to clarify their importance.

HEDGEROWS PHT

General Description

Ancient hedgerows, which tend to be those which support the greatest diversity of plants and animals, may be defined as those which were in existence before the Enclosure Acts, passed mainly between 1720 and 1840 in Britain. Species-rich hedgerows may be taken as those which contain 5 or more native woody species on average in a 30 m length, or 4 or more in northern England, upland Wales and Scotland.

Hedges which consist only of an earth or stone bank or wall are not covered in this action plan, which is limited to boundary lines of trees or shrubs. Where such lines of trees of shrubs are associated with features such as banks, ditches, trees or verges, these features are considered to form part of the hedgerow.

National Context

In 1993 it was estimated that about 329 000 km of hedgerow remained in England and 49 000 km in Wales. In 1990 a similar estimate for Scotland was 33 000 km. The current British total, assuming a continued overall loss due to removal and neglect, may be estimated to be about 350 000 km (450 000 km UK).

On the assumption that most species-rich hedges are ancient, and *vice versa*, it may be surmised that some 42% of British hedges, or about 150 000 km, are ancient and/or species-rich. Such hedges are concentrated in southern England , especially in the south-west, and in southern Wales, and are relatively scarce in Scotland.

Length of PHT in Cornwall (km): *ca* 30 000

All hedgerows are eligible for selection

ARABLE FIELD MARGINS PHT

General Description

The term "arable field margin" refers to strips of land lying between arable crops and the field boundary, and extending for a limited distance into the crop, which are deliberately managed to create conditions which benefit key farmland species.

Arable field margins provide nesting and feeding sites for many birds. Species of butterflies, grasshoppers, and plant bugs are associated with such sites. Even excluding soil invertebrates, micro-organisms and transients, some 2000 species of invertebrate are commonly found in cereal fields alone.

Even more dependent on arable field margins are the rare arable flowers. Threatened and important species from these margins include pheasant's eye *Adonis annua*, cornflower *Centaurea cyanus*, broadleaved spurge *Euphorbia platyphyllos*, corn parsley *Petroselinum segetum*, shepherd's-needle *Scandix pecten-veneris* and narrow-fruited cornsalad *Valerianella dentata*.

National Context

Arable land covers about 60 000 km^2 in Great Britain (defined as total crops plus bare fallow plus grassland less than five years old).

The margins of arable fields could be managed in ways which would benefit wildlife, without having serious detrimental effects on the remaining cropped area. Estimating average national field size to be 12 ha suggests that there are about 800 000 km of arable field edge in the UK. If all such boundaries included a 6 m managed margin, some 400 000 ha of land would be brought into sensitive management.

The extent of this habitat in Cornwall is not currently known.

For this habitat we will take all areas

COASTAL AND FLOODPLAIN GRAZING MARSH PHT

General Description

Grazing marsh is defined as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities.

Grazing marshes are particularly important for the number of breeding waders such as snipe *Gallinago gallinago*, lapwing *Vanellus vanellus* and curlew *Numenius arquata* they support. Internationally important populations of wintering wildfowl also occur including Bewick's swans *Cygnus bewickii* and whooper swans *Cygnus cygnus.*

National Context

The exact extent of grazing marsh in the UK is not known but it is possible that there may be a total of 300 000 ha. England holds the largest proportion with an estimate in 1994 of 200 000 ha. However, only a small proportion of this grassland is semi-natural supporting a high diversity of native plant species (5000 ha in England, an estimated 10 000 ha in the UK).

Area of PHT in Cornwall (ha): 73 0.02% **National Total**

Number of Sites: 2

The habitat is: Very Rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	0	0	0	1	0	1	2
Area (ha)	0	0	0	10	0	63	73

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	0	2	0	0	2
Area (ha)	0	0	73	0	0	73

For this habitat we will take all areas

COASTAL AND FLOODPLAIN GRAZING MARSH: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Minimal	Held at CCC	
Phase 1 maps	Paper information	EN	Could be used where considered necessary	ERCCIS	In general, medium quality
A survey of CFPGM in Cornwall	Report (2003)	EN	Assessment of the whole county	ERCCIS	Covers the whole county: provisional.
A waterbirds survey of CFPGM in W Cornwall	Report (2005)	EN	Detailed assessment of W Cornwall	ERCCIS	Definitive.

COASTAL AND FLOODPLAIN GRAZING MARSH: Comments

Data Sources	**Comment**
Reports on the habitat produced in 2003-05.	The reports develop the definition and report in detail on the habitat in all parts of the county, omitting the Tamar catchment.
The Definition	**Comment**
Fair	The definition is not one of the clearest to interpret.
Reliability of PHT Interpretation	**Explanation**
Average	There appears to be general agreement that the interpretation that has been used in the reports is a sensible one.
Overall Assessment	**Comments**
Good	There appears to be very little of this habitat in the county. The Tamar catchment has not been assessed in detail, but it would appear unlikely that any significant areas have been overlooked.

LOWLAND MEADOWS PHT

General Description

Lowland meadows include most forms of unimproved neutral grassland across the enclosed lowland landscapes of Britain. In terms of National Vegetation Classification plant communities, they primarily embrace each type of *Cynosurus cristatus - Centaurea nigra* grassland, *Alopecurus pratensis - Sanguisorba officinalis* floodplain meadow and *Cynosurus cristatus - Caltha palustris* flood-pasture. The plan is not restricted to grasslands cut for hay, but also takes into account unimproved neutral pastures where livestock grazing is the main land use.

In non-agricultural settings, such grasslands are less frequent but additional examples may be found in recreational sites, church-yards, roadside verges and a variety of other localities.

National Context

Recent survey findings in Britain reveal an estimated extent of less than 15 000 ha of species-rich neutral grassland surviving today in Britain.

Recent estimates for cover in England and Wales of the *Cynosurus - Centaurea* grassland, indicate that there is between 5000-10 000 ha of this community in total. Scotland is estimated to have between 2000-3000 ha of this community.

Unimproved seasonally-flooded grasslands are less widely distributed. They have lower overall cover, but there are still a few quite large stands. *Alopecurus - Sanguisorba* flood-meadow has a total cover of <1500 ha and is found in scattered sites from the Thames valley through the Midlands and Welsh borders to the Ouse catchment in Yorkshire. *Cynosurus - Caltha* flood-pasture is also now scarce and localised, with probably <1000 ha cover in England and Wales. Scotland is estimated to have 600-800 ha of this community.

Area of PHT in Cornwall (ha): >45 >0.3% **National Total**

Number of polygons: >10

The habitat is: Rare – Very rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	0	0	8	0	>2	0	>10
Area (ha)	0	0	20	0	>4	0	>24

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	0	>10	0	0	>10
Area (ha)	0	0	>24	0	0	>24

For this habitat we will take all areas

LOWLAND MEADOWS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up to Phase 1 and does hold some additional information, but it is out-of-date.	ERCCIS	Fairly good quality information.
CWT Reserve files	Management Reports	CWT	Will hold good information, but will be very local.	CWT	
EN local team SSSI files	Paper information on SSSIs	EN	Will hold good information, but will be very local.	EN	
Grassland landcover on GIS	Maps of grassland drawn from a combination of references and API (1996)	ERCCIS	Tends to be a summary of other sources and is useful for that reason. It is also a useful basis to work from while digitising.	ERCCIS	Good quality information
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Will hold good information, but will be very local.	ERCCIS	
Phase 1 maps	Paper information	EN	Rather out-of-date and of variable quality, but does give an insight into where grasslands of conservation interest may be located.	ERCCIS	

LOWLAND MEADOWS: Comments

Data Sources	Comment
Phase 1 County Wildlife Site (CWS) surveys National Trust (NT) surveys Various NVC surveys	Phase 1 maps were produced in 1983 and the results are somewhat inconsistent, but their accuracy is sufficient to accord a grassland to this PHT with low probability. The CWS surveys mainly date from 1980-1987. They give some additional useful information relating to this PHT. The NT and other NVC surveys often produce useful insights into small areas, particularly on the coast.
The Definition	**Comment**
Good	Any NVC surveys produce clear and unequivocal results and Phase 1 surveys too should produce sufficient information, especially if accompanied by target notes.
Reliability of PHT Interpretation	**Explanation**
Average	There are two methods that may be reliably used to identify this PHT: Phase 1 habitat maps and NVC communities. The Phase 1 results are somewhat inconsistent, but their accuracy is usually sufficient to accord a grassland to this PHT with low probability. Unfortunately, the age of the Phase 1 maps and the fact that they are of uncertain accuracy (there is no way of separating MG1 from MG5 for example), eventually led us to abandon the use of Phase 1 maps by themselves. Where we did have access to NVC data then there was no problem. However, there are relatively few grasslands that have been assigned to an NVC community and it is extremely time consuming to try to derive one from what are usually limited species lists. The CWS surveys did have useful information because dry herb-rich neutral grasslands usually only are MG5 in this county, so there is little doubt over their identity. Nevertheless, the age of this source made it rather irrelevant.
Overall Assessment	**Comments**
Poor	We believe that there are a relatively large number of MG5 grasslands in the county that have either not been surveyed, or where the results are not publicly available. Some of them may be above the minimum mappable unit (MMU). We have insufficient information to map this PHT. Three areas have long been known and they have been mapped, but there are certainly more. At least 22 ha of MG5 grasslands on the Caradon coast have not been mapped and there are unquestionably other coastal areas in the county which also hold MG5 grasslands. We do not know the number and extent of those additional sites and considerable fieldwork would be needed to complete the inventory.

LOWLAND CALCAREOUS GRASSLAND PHT

General Description

Lowland calcareous grasslands are developed on shallow lime-rich soils generally overlying limestone rocks, including chalk. These grasslands are now largely found on distinct topographic features such as escarpments or dry valley slopes and sometimes on ancient earthworks in landscapes strongly influenced by the underlying limestone geology.

More rarely, remnant examples occur on flatter topography such as in Breckland and on Salisbury Plain. They are typically managed as components of pastoral or mixed farming systems, supporting sheep, cattle or sometimes horses; a few examples are cut for hay.

National Context

As defined here, lowland calcareous grassland only occurs in England and Wales. Current estimates put the amount of lowland calcareous grassland remaining in the United Kingdom around 33 000 to 41 000 ha with less than 1000 ha of this in Wales. The bulk of the resource is found on chalk (25 000 to 32 000 ha), with major concentrations in Wiltshire, Dorset and the South Downs.

The cover of lowland calcareous grassland has suffered a sharp decline in extent over the last 50 years. There are no comprehensive figures, but a sample of chalk sites in England surveyed in 1966 and 1980 showed a 20% loss in that period and an assessment of chalk grassland in Dorset found that over 50% had been lost between the mid-1950s and the early 1990s.

Area of PHT in Cornwall (ha): 135 0.4% **National Total**

Number of polygons: 21

The habitat is: Rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	1	0	14	3	0	3	21
Area (ha)	4	0	122	6	0	3	135

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	0	21	0	0	21
Area (ha)	0	0	135	0	0	135

For this habitat we will take all areas

LOWLAND CALCAREOUS GRASSLAND: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up to the Sand Dune Survey of Cornwall	ERCCIS	Good quality information
CWT Reserve files	Management Reports	CWT	Likely to provide habitat details to NVC level in a small number of cases	CWT	
Dune Grassland and Grassland landcover on GIS	Maps of these habitats drawn from a combination of references and API (1996)	ERCCIS	Should be a useful basis for the PHT.	ERCCIS	Good quality information
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Likely to provide habitat details to NVC level in a small number of cases.	ERCCIS	
Phase 1 maps	Paper information	EN	Already part of the GIS landcover.	ERCCIS	Poor quality
Sand Dune Survey of Cornwall	A map of all sand dunes in the county	EN	The main source of sand dune ID throughout the county.	ERCCIS	High quality information, close to NVC

LOWLAND CALCAREOUS GRASSLAND: Comments

Data Sources	**Comment**
National Sand Dune (NSD)Vegetation Survey County Wildlife Site (CWS) surveys Phase 1 National Trust (NT) and other surveys	All of the calcareous grasslands are found associated with sand dunes in the county. The NSD survey is a comprehensive overview of the sand dunes in Cornwall and does include a few calcareous grasslands. The CWS surveys also include a few of the calcareous grasslands that occur behind the dunes. We did not find any additional grasslands of this type on Phase 1 maps. Other surveys, including NT surveys, sometimes included information to NVC level.
The Definition	**Comment**
Good	There is a clear description of the PHT, which allows a consistent interpretation.
Reliability of PHT Interpretation	**Explanation**
Good	There are two methods that may be reliably used to identify PHT: simple maps such as Phase 1 and surveys which describe the NVC communities. We found that the majority of calcareous grasslands in the county were easy to identify from location and a simple description of the flora, even if details to NVC level were not available.
Overall Assessment	**Comments**
Good	We believe that this PHT is easy to interpret and map, and that the results we have produced fairly reflect the distribution of calcareous grasslands in Cornwall. There is one proviso. The definition leads us to include this habitat as a separate PHT within Cornwall when in fact the intention might be that the grasslands that occur in Cornwall should more properly be included as part of Coastal Sand Dunes PHT.

LOWLAND DRY ACID GRASSLAND PHT

General Description

Lowland acid grassland covers all acid grassland managed in functional enclosures. It often occurs as an integral part of lowland heath landscapes, in parklands and locally on coastal cliffs and shingle. It is normally managed as pasture. Lowland acid grassland typically occurs on nutrient-poor, generally free-draining soils overlying acid rocks or superficial deposits such as sands and gravels.

Acid grassland is characterised by a range of plant species such as heath bedstraw *Galium saxatile*, sheep`s-fescue *Festuca ovina*, common bent *Agrostis capillaris*, sheep`s sorrel *Rumex acetosella,* sand sedge *Carex arenaria*, wavy hair-grass *Deschampsia flexuosa,* bristle bent *Agrostis curtisii* and tormentil *Potentilla erecta.*

National Context

Landcover data for lowland acid grassland across Britain for the full altitudinal range are not currently available. Stands remote from the upland fringe, which are the primary focus of conservation attention, are now of restricted occurrence and it is estimated that less than 30 000 ha now remain in Britain. Important concentrations occur in the Breckland, the New Forest, Dorset, Suffolk Sandlings, the Weald, Dungeness, the coasts of SW England and the Welsh and English border hills of Powys and Shropshire. Scotland is estimated to have less than 5000 ha and much of this is likely to be on the upland fringe.

Area of PHT in Cornwall (ha): *estimated (est)* 472 1.6% **National Total**

Number of polygons: Not known

The habitat is: Fairly rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Area (ha)	*est* 53	*est* 47	*est* 21	*est* 5	*est* 233	*est* 113	*est* 472

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Area (ha)	*	*	*	*	*	*est* 472

For this habitat the threshold is 0.5 ha

We have not mapped the distribution of this PHT. However, it is certainly present within the county, mainly being found forming a mosaic with Lowland Heathland PHT.

LOWLAND DRY ACID GRASSLAND: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up toy the Saltmarsh Survey of Cornwall	ERCCIS	Good quality information
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
Heathland map of Cornwall on GIS	Produced for the Pilot Project in 2000.	EN	Especially useful for Bodmin Moor	ERCCIS	Corrupted, but may be recoverable.
Lowland heathland landcover on GIS (1996)	Maps of lowland heathland drawn from a combination of references and API.	ERCCIS	Should be close to the PHT in many parts of the county	ERCCIS	High quality information
NCC uplands Survey team	Paper information at a small scale; NVC or close to NVC detail	EN	Useful information	ERCCIS	Medium quality information at low resolution
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Some already incorporated into the GIS, but not all.	ERCCIS	Unreliable quality and also out-of-date.
Survey of Bodmin Moor (Drage, 1981)	A survey of the southern half of Bodmin Moor using Birks and Ratcliffe	EN	Very detailed survey of the southern moor.	ERCCIS	High quality
Survey of the Commons of Bodmin Moor Natural Area (1995)	A detailed survey of the commons of the moor to NVC standard.	EN	A very detailed survey of the commons of Bodmin Moor which builds on the Drage survey.	ERCCIS	High quality

LOWLAND DRY ACID GRASSLAND: Comments

Data Sources	**Comment**
Phase 1 County Wildlife Site (CWS) surveys	There is insufficient detail contained within these sources.
The Definition	**Comment**
Poor-Good	The definition of Lowland Dry Acid Grassland (LDAG) is clearly defined by both NVC communities and in the introductory general description. Accordingly, given detailed survey information, there should be little problem in identifying those areas which qualified. However, we believe that the definition is inadequate, for while it is precise, it is clearly biased against selection of the habitat. Moreover, it is incompatible with the Lowland Heathland definition, a habitat with which LDAG forms mosaics.
Reliability of PHT Interpretation	**Explanation**
Good	We believe that nearly all the areas where the NVC communities U1-4 and U20a are found in Cornwall are above the level of functional enclosure. Accordingly, there are only a relatively few small areas that may qualify and the majority of those will be found as mosaics of LDAG and Lowland Heathland (LH). However, there is a problem in those areas where the LH forms a mosaic with LDAG. We have not been able to clearly distinguish those areas from the information that we hold and so this PHT probably contains some areas that might be best represented as the LDAG PHT rather than as a heathland. Nevertheless, the best approach would probably be to include such areas as both LH and as LDAG.
Overall Assessment	**Comments**
Poor	The distribution of LDAG in Cornwall is not well-known and there are difficulties of interpretation in some areas, which are described above. We believe that there are some areas of LDAG in Cornwall, but at present they fall within some areas mapped as LH. We have not been able to distinguish them in a reliable way.

LOWLAND HEATHLAND PHT

General Description

Lowland heathland is characterised by the presence of plants such as heather, dwarf gorses, and cross-leaved heath and is generally found below 300 metres in altitude. Areas of good quality heathland should consist of an ericaceous layer of varying heights and structures, some areas of scattered trees and scrub, areas of bare ground, gorse, wet heaths, bogs and open water. The presence and numbers of characteristic birds, reptiles, invertebrates, vascular plants, bryophytes and lichens are important indicators of habitat quality.

National Context

Lowland heathland is a priority for nature conservation because it is a rare and threatened habitat. In England only one sixth of the heathland present in 1800 now remains. Britain has some 56 000 ha (58 000 ha UK)of lowland heathland of which the largest proportion (55%) is found in England. The most significant areas for lowland heathland include the counties of Hampshire, Cornwall, Dorset, Surrey, Devon, Staffordshire, Suffolk, Norfolk, Pembrokeshire, West Glamorgan and west Gwynedd. Britain has an important proportion (about 20%) of the international total of this habitat.

Area of PHT in Cornwall (ha): <6440

Number of polygons: <824

The habitat is: Fairly common

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	185	279	105	77	<66	<112	<824
Area (ha)	1980	2560	460	450	<520	<470	<6440

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number						<824
Area (ha)	1820	2290	1670	<570	90	<6440

For this habitat the threshold area is 3.0 ha

LOWLAND HEATHLAND: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
An audit of Culm Grassland in Cornwall (Hocking & McCartney, 1999)	An inventory of all the wet and dry semi-improved and unimproved grasslands in the Culm Natural Area of North Cornwall. Includes details to NVC level.	EA	Will provide information on all the wet heaths in the Culm Natural Area of North Cornwall.	ERCCIS	High quality summary
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up toy the Saltmarsh Survey of Cornwall	ERCCIS	Good quality information
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
Heathland map of Cornwall on GIS	Produced for the Pilot Project in 2000.	EN	Especially useful for Bodmin Moor	ERCCIS	Corrupted, but may be recoverable.
Lowland heathland landcover on GIS (1996)	Maps of lowland heathland drawn from a combination of references and API.	ERCCIS	Should be close to the PHT in many parts of the county	ERCCIS	High quality information
NCC uplands Survey team	Paper information at a small scale; NVC or close to NVC detail	EN	Useful information	ERCCIS	Medium quality information at low resolution
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Some already incorporated into the GIS, but not all.	ERCCIS	Unreliable quality and also out-of-date.
Soil maps	Maps of soil type on GIS	*via* EN	The peat depth will split wet heathland from blanket bog.	ERCCIS	
Survey of Bodmin Moor (Drage, 1981)	A survey of the southern half of Bodmin Moor using Birks and Ratcliffe	EN	Very detailed survey of the southern moor.	ERCCIS	High quality
Survey of part of The Lizard coast (*ca* 1990)	An NVC map of the south western coastal area	*N/known*	Could be used for a small part of The Lizard	ERCCIS	High quality
Survey of the Commons of Bodmin Moor Natural Area (1995)	A detailed survey of the commons of the moor to NVC standard.	EN	A very detailed survey of the commons of Bodmin Moor which builds on the Drage survey.	ERCCIS	High quality
Survey of the Lizard Peninsula (Hopkins, 1979)	A map of all lowland heathland on The Lizard Peninsula, similar to NVC	EN	The main source of lowland heathland for The Lizard	ERCCIS	High quality information
The status of Dorset Heath (*Erica ciliaris*) in Cornwall (Hocking, 1997)	A detailed survey of all the *ciliaris* heaths in Cornwall	EN	Source of reference for the *ciliaris* heaths.	ERCCIS	High quality summary

LOWLAND HEATHLAND: Comments

Data Sources	**Comment**
Phase 1 County Wildlife Site (CWS) surveys Various Surveys	All the information relating to Cornwall had already been digitised. The dry heathlands were clearly identified, but the wet heathlands needed further investigation.
The Definition	**Comment**
Good	The definition of Lowland Heathland (LH) is identical to that used in the Phase 1 system and accordingly there was little problem in identifying those areas which qualified.
Reliability of PHT Interpretation	**Explanation**
Good	The majority of areas have been surveyed to Phase 1 level, both during the Phase 1 mapping survey and during the CWS surveys. They often have inconsistent results, particularly where wet heaths are involved. There is a problem in those areas where the Lowland Heathland forms a mosaic with Lowland Dry Acid Grassland (LDAG). We have not been able to clearly distinguish those areas from the information that we hold and so this PHT probably contains some areas that might be best represented as the LDAG PHT rather than as a heathland. Nevertheless, the best approach at present would probably be to include such areas as both LH and as LDAG. There are some areas, particularly the wet heaths of Bodmin Moor, where NVC communities have been used to map LH. This is not a process for the unwary. The problems of using NVC are indicated in the following quote from report relating to NVC communities on Bodmin Moor (McCartney 2000): 'Again, those areas recorded as H4, or an NVC type that includes H4, are often so deficient in heather or other associated dwarf shrub species that they appear at a distance to be grassland. For example, the grazing index for all the areas recorded as H4, H4/H8 and H4/U3 range from 9.6 to 12.0 with a median of 11.2 and an interquartile range of 10.5-11.8. Not all the high scores come from those stands which include U3; indeed, there are 5 stands of H4 with grazing indices of 11.8-12.0, showing how lacking in heathy species these H4 areas are.' It would be good to reassess this NVC interpretation in the light of new guidance which indicates a return to Phase 1.
Overall Assessment	**Comments**
Good	The distribution of LH in Cornwall is well-known, but there are always some difficulties of interpretation in some areas, which are described above. We believe that the map of those polygons attributed a Priority Qualifier A gives an accurate picture of the distribution of LH in the county, apart from Bodmin Moor where a reassessment of at least 500 ha is needed.

UPLAND HEATHLAND PHT

General Description

Heathland vegetation occurs widely on mineral soils and thin peats (<0.5 m deep) throughout the uplands and moorlands of the UK. It is characterised by the presence of dwarf shrubs at a cover of at least 25%. For the purposes of this plan upland heathland is defined as lying below the alpine or montane zone (at about 600-750 m) and usually above the upper edge of enclosed agricultural land (generally at around 250-400 m, but descending to near sea-level in northern Scotland).

Upland heath in 'favourable condition' is typically dominated by a range of dwarf shrubs such as heather *Calluna vulgaris*, bilberry *Vaccinium myrtillus*, crowberry *Empetrum nigrum*, bell heather *Erica cinerea* and, in the south and west, western gorse *Ulex gallii*.

National Context

This habitat type is present on an estimated 270,000 ha in England, 80,000 ha in Wales, up to 69,500 ha in Northern Ireland and between 1,700,000 and 2,500,000 ha in Scotland. The total upland heath resource in the UK thus amounts to between 2 and 3 million hectares. Dwarf shrub heaths are recognised as being of international importance because they are largely confined within Europe to the British Isles and the western seaboard of mainland Europe.

Area of PHT in Cornwall (ha): 26 or more (0.02)% **National Total**

Number of polygons: 9 or more

The habitat is: Very rare – Fairly rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	0	0	0	0	6+	3+	9+
Area (ha)	0	0	0	0	25+	1+	26+

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	0	0	9+	0	9+
Area (ha)	0	0	0	26+	0	26+

For this habitat the threshold area is 0.5 ha

UPLAND HEATHLAND: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
EN local team SSSI files	Paper information on SSSIs	EN	Likely to hold significant information for some wet heaths in some areas (e.g. Culm)	EN	
Heathland map of Cornwall on GIS	Produced for the Pilot Project in 2000.	EN	Especially useful for Bodmin Moor	ERCCIS	
Lowland heathland landcover on GIS (1996)	Maps of lowland heathland drawn from a combination of references and API.	ERCCIS	Should be close to the PHT in many parts of the county	ERCCIS	High quality information
NCC uplands Survey team	Paper information at a small scale; NVC or close to NVC detail	EN	Useful information	ERCCIS	Medium quality information at low resolution
Phase 1 maps	Paper information	EN	Will be used where considered necessary	ERCCIS	In general, medium quality
Soil maps	Maps of soil type on GIS	*via* EN	The peat depth will split wet heathland from blanket bog.	ERCCIS	
Survey of Bodmin Moor (Drage, 1981)	A survey of the southern half of Bodmin Moor using Birks and Ratcliffe	EN	Very detailed survey of the southern moor.	ERCCIS	High quality
Survey of the Commons of Bodmin Moor Natural Area (1995)	A detailed survey of the commons of the moor to NVC standard.	EN	A very detailed survey of the commons of Bodmin Moor which builds on the Drage survey.	ERCCIS	High quality

UPLAND HEATHLAND: Comments

Data Sources	Comment
NCC Upland Vegetation Survey Drage, J (1981) Survey of Bodmin Moor	The Upland Vegetation Survey was carried out using a combination of NVC and the Birks and Ratcliffe classification, but there is no significant problem in converting Birks and Ratcliffe to NVC. The survey by Drage used only the Birks and Ratcliffe classification.
The Definition	**Comment**
Good	There is no problem using the definition.
Reliability of PHT Interpretation	**Explanation**
Good	Both of the surveys use some Birks and Ratcliffe classifications and there is some NVC information for the north of the Moor. There is no problem in converting the Birks and Ratcliffe classification to NVC, but in this case there is no need. The definition refers to Phase 1 methodology and the original work is adequate to identify those few small areas that might be considered to be classic Upland Heathland.
Overall Assessment	**Comments**
Good	Bodmin Moor is the only place in Cornwall where Upland Heathland may be found, because the majority of it lies above the limit of functional enclosure.. The NCC survey covers the north of the Moor and the Drage survey covers the south. We believe that the map of the small areas of characteristic Upland Heathland is accurate and that the other areas that lie within the zone judged to lie above the limit of functional enclosure allows an accurate assessmnet to be made.

LOWLAND FENS PHT

General Description

Fens are peatlands which receive water and nutrients from the soil, rock and ground water as well as from rainfall: they are minerotrophic.

Fens can also be described as `poor-fens` or `rich-fens`. Poor-fens, where the water is derived from base-poor rock such as granites occur mainly in the uplands, or are associated with lowland heaths. They are characterised by short vegetation with a high proportion of bog mosses *Sphagnum* spp.. Rich-fens, are fed by mineral-enriched calcareous waters (pH 5 or more) and are mainly confined to the lowlands.

Fen habitats support a diversity of plant and animal communities. Some can contain up to 550 species of higher plants, a third of our native plant species; up to and occasionally more than half the UK`s species of dragonflies, several thousand other insect species, as well as being an important habitat for a range of aquatic beetles.

National Context

In intensively farmed lowland areas fens occur less frequently, are smaller in size and more isolated than in other parts of Britain. There are, however, exceptions to this. Britain`s largest continuous area of base-poor fen, the Insh Marshes in the floodplain of the River Spey in Scotland, covers an area of 300 ha, the calcareous rich fen and the swamp of Broadland covers an area of 3000 ha.

Area of PHT in Cornwall (ha): *estimated (est)* 3110

Number of polygons: *est* 2200

The habitat is: Fairly common

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	249	371	265	393	*nk*	*nk*	*est* 2200
Area (ha)	350	420	210	580	*nk*	*nk*	*est* 3110

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	187	151	1445	*est* 136	281	*est* 2200
Area (ha)	270	200	1560	*est* 830	250	*est* 3110

nk=not known

For this habitat the threshold is 2.5 ha

LOWLAND FENS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
An audit of Culm Grassland in Cornwall	Paper Report	EN	Gives details of every Culm Grassland in the county, much of it to NVC level.	ERCCIS	High quality information, close to NVC
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up to Phase 1 and does hold some additional information, but it is out-of-date.	ERCCIS	Good quality information
EN local team SSSI files	Paper information on SSSIs	EN		EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	May hold significant information in some areas	ERCCIS	Good quality information
Phase 1 maps	Paper information	EN	Rather out-of-date and of variable quality, but does give an insight into where mires and swamps of conservation interest may be located.	ERCCIS	Poor quality
Wetland and grassland landcover on GIS	Maps of wetland, grassland and their mosaics drawn from a combination of references and API (1996)	ERCCIS	Useful as a way of locating possible PHT.	ERCCIS	Good quality information

LOWLAND FENS: Comments

Data Sources	**Comment**
Wetland and grassland landcover on GIS Phase 1 maps	A combination of these two e sources was used to generate the Fens layer. The GIS layer incorporates a wide range of the sources listed above.
The Definition	**Comment**
Poor	There are considerable problems. The separation of Fens PHT from both Purple Moor Grass and Rush Pastures PHT and wet Lowland Heathland PHT is complicated by the fact that the definitions are not compatible. Moreover, the definition is too woolly to be interpreted in a consistent way.
Reliability of PHT Interpretation	**Explanation**
Fair to Good	We have a reasonably clear idea of what constitutes a Fen. The interpretation is good so long as the problem of the overlap with the two other PHTs mentioned above is ignored.
Overall Assessment	**Comments**
Good	The map of the Fens PHT in the Culm NA we assess as very good, the rest of the county we assess as good, accepting the limitations discussed above.

PURPLE MOOR GRASS AND RUSH PASTURES PHT

General Description

Purple moor grass and rush pastures occur on poorly drained, usually acidic soils in lowland areas of high rainfall in western Europe. Their vegetation, which has a distinct character, consists of various species-rich types of fen meadow and rush pasture. Purple moor grass *Molinia caerulea,* and rushes, especially sharp-flowered rush *Juncus acutiflorus*, are usually abundant

National Context

In Britain, they are found in south-west England, particularly in Devon, southern Wales, south-west Scotland, perhaps extending as far north as northern Argyll.

In Wales it is estimated that there is now about 24 000 ha of lowland purple moor grass and rush pasture. In south west England 530 purple moor grass and rush pastures sites are known to survive on the Culm Measures, covering 3981 ha, 400 sites on Dartmoor covering 1000 ha with a further 90 sites covering about 300 ha on the Blackdowns. No area estimates are available for Scotland, but the total extent is thought likely to be in the region of 2000 ha. Thus it is probable that the total extent of the habitat in the UK is now about 31 000 ha (56 000 ha UK). This is thought to be considerably more than survives in the rest of Europe, with the possible exception of the Republic of Ireland.

Area of PHT in Cornwall (ha): 920 3% **National Total**

Number of polygons: 463

The habitat is: Fairly Rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	13	29	0	84	4	333	463
Area (ha)	25	75	0	400	10	410	920

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	13	0	127	2	321	463
Area (ha)	23	0	530	2	365	920

For this habitat the threshold is 1.0 ha

PURPLE MOOR GRASS AND RUSH PASTURES: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
An audit of Culm Grassland in Cornwall	Paper Report	EN	Gives details of every Culm Grassland in the county, much of it to NVC level.	ERCCIS	High quality information, close to NVC
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up to Phase 1 and does hold some additional information, but it is out-of-date.	ERCCIS	Good quality information
EN local team SSSI files	Paper information on SSSIs	EN	Much of the detailed information has been incorporated into the Culm Grassland Report	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Rather out-of-date and of variable quality, but does give an insight into where grasslands of conservation interest may be located.	ERCCIS	Poor quality
Wetland and grassland landcover on GIS	Maps of wetland, grassland and their mosaics drawn from a combination of references and API (1996)	ERCCIS	Useful as a way of locating possible PHT.	ERCCIS	Good quality information

PURPLE MOOR GRASS AND RUSH PASTURES: Comments

Data Sources	**Comment**
Aerial photos of Cornwall An audit of Culm Grassland in Cornwall County Wildlife Site files	A combination of these three sources was generally sufficient.
The Definition	**Comment**
Fair	There are some problems. The separation of PMGRP from both Fens PHT and wet Lowland Heathland PHT is complicated by the fact that the definitions are not compatible. Moreover, there is some question as to whether the definition properly reflects the habitat that was intended.
Reliability of PHT Interpretation	**Explanation**
Good	The wetlands of the Culm NA will have been recorded accurately. Elsewhere, we consider that the interpretation is good so long as the problem of the overlap with the two other PHTs mentioned above is ignored. In particular, there is often some difficulty with the separation of wet LH and this habitat. Certain problematic mires will have been recorded as the wrong PHT, but they will be PHT, which is the important point.
Overall Assessment	**Comments**
Good	The map of the PMGRP in the Culm NA we assess as very good, the rest of the county we assess as good, accepting the limitations discussed above.

REEDBEDS PHT

General Description

Reedbeds are wetlands dominated by stands of the common reed *Phragmites australis*, wherein the water table is at or above ground level for most of the year. They tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them. Reedbeds are amongst the most important habitats for birds in the UK. Five GB Red Data Book invertebrates are also closely associated with reedbeds.

National Context

There are about 5000 ha of reedbeds in the UK, but of the 900 or so sites contributing to this total, only about 50 are greater than 20 ha, and these make a large contribution to the total area.

Area of PHT in Cornwall (ha): 102 2% **National Total**

Number of polygons: 86

The habitat is: Rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	14	15	13	2	39	3	86
Area (ha)	26	33	7	8	23	5	102

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	1	8	75	0	2	86
Area (ha)	1	24	73	0	4	102

For this habitat we will take all areas

REEDBEDS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	The main source of reedbeds ID throughout the county.	ERCCIS	Good quality information
EN local team SSSI files	Paper information on SSSIs	EN	Could hold significant information	EN	Not a priority
EA reedbed survey	Paper maps (2001)	EA	Should hold some useful information	ERCCIS	Boundaries are poorly drawn.
EN SAC surveys on GIS	Carried out to NVC level. 2001. Fal & Helford and River Tamar SACs.	EN	May well have useful information. Used 1995 API for boundaries.	EN	Good quality information
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Could hold significant information	ERCCIS	Good quality information where it exists: e.g. Gunwalloe and Loe Pool
Phase 1 maps	Paper information	EN		ERCCIS	Poor quality
Wetlands landcover on GIS	Maps of wetlands drawn from a combination of references and API (1996)	ERCCIS	Individual polygons which may be shown to be reeds should be accurate.	ERCCIS	Good quality information

REEDBEDS: Comments

Data Sources	**Comment**
EN SAC surveys on GIS County Wildlife Site files Aerial photos of Cornwall	A combination of these three sources was generally sufficient.
The Definition	**Comment**
Good	There is no problem using the definition.
Reliability of PHT Interpretation	**Explanation**
Good	The definition is sufficiently general that interpretation is relatively straightforward.
Overall Assessment	**Comments**
Good	There are few possible sites to examine in the county, so that only a few simple judgements are needed to produce an inventory of sites. There is some doubt relating to a small number of sites, but there are no significant areas of doubt. We believe that the map of reedbeds to be reasonably accurate.

UPLAND FLUSHES, FENS AND SWAMPS PHT

General Description

These areas are wetlands found above the limit of permanent enclosure that receive water and nutrients from groundwater sources as well as rainfall. It includes a wide range of mires and swamps, excluding the species-poor *Molinia* and *Juncus* swards. It is typically dominated by sedges, rushes and grasses together with occasional wetland herbs, together with a carpet of bryophytes.

National Context

This is a widespread habitat found across the uplands of Britain that does not appear to have been properly assessed.

Area of PHT in Cornwall (ha): *estimated (est)* 560

Number of polygons: not known

The habitat is: Fairly rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	0	0	0	0	*nk*	*nk*	*nk*
Area (ha)	0	0	0	0	*nk*	*nk*	*est* 560

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	0	0	*nk*	0	*nk*
Area (ha)	0	0	0	*est* 560	0	*est* 560

nk = not known

For this habitat we will take all areas

UPLAND FLUSHES, FENS AND SWAMPS: possible Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
EN local team SSSI files	Paper information on SSSIs	EN	Likely to hold information for some wet heaths	EN	
Wetland landcover on GIS (1996)	Maps of wetlands drawn from a combination of references and API.	ERCCIS	Should be close to the PHT in many parts of the county	ERCCIS	Good quality information
NCC uplands Survey team	Paper information at a small scale; NVC or close to NVC detail	EN	Very useful information	ERCCIS	Medium quality information at low resolution
Phase 1 maps	Paper information	EN	Will be used where considered necessary	ERCCIS	In general, medium quality
Soil maps	Maps of soil type on GIS	*via* EN	The peat depth could be informative	ERCCIS	
Survey of Bodmin Moor (Drage, 1981)	A survey of the southern half of Bodmin Moor using Birks and Ratcliffe	EN	Very detailed survey of the southern moor.	ERCCIS	High quality
Survey of the Commons of Bodmin Moor Natural Area (1995)	A detailed survey of the commons of the moor to NVC standard.	EN	A very detailed survey of the commons of Bodmin Moor which builds on the Drage survey.	ERCCIS	High quality

BLANKET BOG PHT

General Description

Blanket bog peat accumulates in response to the very slow rate at which plant material decomposes under conditions of waterlogging. Peat depth is very variable, with an average of 0.5-3 m being fairly typical but depths in excess of 5 m not unusual.

Many of the typical blanket mire species, such as heather *Calluna vulgaris*, cross-leaved heath *Erica tetralix*, deer grass *Trichophorum cespitosum*, cotton grass *Eriophorum* species and several of the bog moss *Sphagnum* species, occur throughout much of the range of the habitat, although their relative proportions vary across the country.

National Context

Blanket bog is one of the most extensive semi-natural habitats in the UK and ranges from Devon in the south to Shetland in the north. Although most widespread in the wetter west and north, blanket bog also occurs in eastern upland areas.

The total extent of blanket peat in the UK amounts to just under 1.5 million ha. There is no agreed figure for the extent of blanket bog vegetation. In terms of national cover of blanket peat soil (in the main >0.5 m deep) England supports some 215 000 ha, Scotland approximately 1 060 000 ha, and Wales has around 70 000 ha.

Area of PHT in Cornwall (ha): 330 0.02% **National Total**

Number of polygons: 20

The habitat is: Rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	0	0	0	0	5	15	20
Area (ha)	0	0	0	0	120	210	330

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	0	0	20	0	20
Area (ha)	0	0	0	330	0	330

For this habitat the threshold is 0.3 ha

BLANKET BOG: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Minimal	Held at CCC	
Phase 1 maps	Paper information	EN	Could be used where considered necessary	ERCCIS	In general, medium quality
Lowland heathland landcover on GIS (1996)	Maps of lowland heathland drawn from a combination of references and API.	ERCCIS	Should be close to the PHT in many parts of the county	ERCCIS	High quality information
Heathland map of Cornwall on GIS	Produced for the Pilot Project in 2000.	EN	This is especially useful for Bodmin Moor	ERCCIS	
NCC uplands Survey team	Paper information at a small scale; NVC or close to NVC detail	EN	Useful information	ERCCIS	Medium quality information at low resolution
Survey of Bodmin Moor (Drage, 1981)	A survey of the southern half of Bodmin Moor using Birks and Ratcliffe	EN	Very detailed survey of the southern moor.	ERCCIS	High quality
Survey of the Commons of Bodmin Moor Natural Area (1995)	A detailed survey of the commons of the moor to NVC standard.	EN	A very detailed survey of the commons of Bodmin Moor which builds on the Drage survey.	ERCCIS	High quality
Soil maps	Maps of soil type on GIS	*via* EN	The peat depth will split wet heathland from blanket bog.	ERCCIS	
EN local team SSSI files	Paper information on SSSIs	EN	Likely to hold significant information for some wet heaths in some areas (e.g. Culm)	EN	

BLANKET BOG: Comments

Data Sources	**Comment**
Soil data for SW England NCC Upland Vegetation Survey	The soil data is held as a dataset on GIS. The Upland Vegetation Survey was carried out using a combination of NVC and the Birks and Ratcliffe classification, but there is no significant problem in converting Birks and Ratcliffe to NVC.
The Definition	**Comment**
Good	There is a clear definition that is easy to understand.
Reliability of PHT Interpretation	**Explanation**
Average	If there are any blanket bogs in Cornwall they are severely degraded. They depend for their identification on a combination of peat depth and NVC community to separate them from wet Lowland Heath. The NVC community must overlie peat with a depth of more than 50cm to qualify as Blanket Bog rather than wet heath
Overall Assessment	**Comments**
Poor	We decided to map the extent of this PHT by using a combination of the peat depth of more than 80cm and the M15 NVC community. This may mark out the areas of severely degraded blanket bog or it might be better considered to be some form of wet heath. As there is doubt whether any of these areas even qualify as wet heath, it seems reasonable to doubt whether any of the selected areas can really be considered to be Blanket Bog PHT.

EUTROPHIC STANDING WATER PHT

General Description

Eutrophic standing waters are highly productive because plant nutrients are plentiful, either naturally or as a result of artificial enrichment.

In their natural state eutrophic waters have high biodiversity. Planktonic algae and zooplankton are abundant in the water column, submerged vegetation is diverse and numerous species of invertebrate and fish are present. Plant assemblages differ according to geographical area but common floating-leaved plants include yellow water lily *Nuphar lutea* and there is often a marginal fringe of reedswamp, which is an important component of the aquatic ecosystems.

National Context

Eutrophic waters are most typical of hard water areas of the lowlands of southern and eastern Britain, but they also occur in the north and west, especially near the coast.

There are no accurate estimates of the amount of eutrophic standing water in Great Britain. The total area of still inland water is estimated as 67 500 ha in England, 12 500 ha in Wales and 160 000 ha in Scotland. Current work suggests that over 80% of this resource in England, some 40% in Wales and approximately 15% in Scotland is eutrophic. On this assumption, the area of eutrophic standing water in Britain would be about 84 500 ha (178 500 ha UK).

Area of PHT in Cornwall (ha): 280 0.3% **National Total**

For this habitat the threshold is 0.3 ha

We have not mapped the distribution of this PHT.

EUTROPHIC STANDING WATER: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
A Study of the Trophic Status of Standing Freshwater in Cornwall	A report which gives an assessment of the trophic state of freshwater in Cornwall (McCartney 2006)	EN	Gives details of the Trophic Ranking Score (TRS) of every tetrad in the county	ERCCIS	Good quality Trophic Ranking Score (TRS) information which corresponds to the trophic state of freshwater n the county.
An estimate of the extent of dystrophic, oligotrophic, mesotrophic and eutrophic standing freeshwater in Gresat Britain	A report which gives an assessment of the trophic state of freshwater in Britain (Palmer & Roy 2001)	JNCC	Contains details of methodology	JNCC website	The trophic status data is not relevant at a local level

EUTROPHIC STANDING WATER: Comments

Data Sources	Comment
A Study of the Trophic Status of Standing Freshwater in Cornwall	This source is the only reference available.
The Definition	**Comment**
Fair	There are considerable problems. The definition does not clearly specify how the trophic status should be decided. We have followed one suggestion and used the plant communities, but this refers to a tetrad and not to individual water bodies.
Reliability of PHT Interpretation	**Explanation**
Good	In general, the use of the TRS approach is a good one. It is clear and unambiguous, follows some of the guidance within the definition and corresponds to the trophic status. It is particularly good at picking out the dystrophic and oligotrophic waters in Cornwall and is assumed to select the majority of those that are eutrophic, but there is a considerable overlap of oligotrophic, mesotrophic and eutrophic around TRS values of 7.0-7.9 (TRS runs from 3.0-10.0).
Overall Assessment	**Comments**
Good	Maps of the trophic state of waters in Cornwall exist at tetrad level and estimates of the areas of waters of varying trophic status have been made. It is likely that the distribution of eutrophic standing waters in Cornwall is well known and that the estimate for the total area is reasonably precise and unbiased.

MESOTROPHIC LAKES PHT

General Description

Mesotrophic lakes (i.e. those in the middle of the trophic range) are relatively infrequent in the UK and largely confined to the margins of upland areas in the north and west. They are characterised by having a narrow range of nutrients, the main indicative ones being inorganic nitrogen (N) and total phosphorus (P). Typically, mesotrophic lakes have nutrient levels of 0.3-0.65mgNl-1 and 0.01-0.03mgPl-1.

Mesotrophic lakes potentially have the highest macrophyte diversity of any lake type. Furthermore, relative to other lake types, they contain a higher proportion of nationally scarce and rare aquatic plants. Macroinvertebrates are well represented, with particularly important groups being dragonflies, water beetles, stoneflies and mayflies.

Area of PHT in Cornwall (ha): *estimated (est)* 90

For this habitat we will take all areas

We have not mapped the distribution of this PHT.

MESOTROPHIC LAKES: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
A Study of the Trophic Status of Standing Freshwater in Cornwall	A report which gives an assessment of the trophic state of freshwater in Cornwall (McCartney 2006)	EN	Gives details of the Trophic Ranking Score (TRS) of every tetrad in the county	ERCCIS	Good quality Trophic Ranking Score (TRS) information which corresponds to the trophic state of freshwater n the county.
An estimate of the extent of dystrophic, oligotrophic, mesotrophic and eutrophic standing freeshwater in Gresat Britain	A report which gives an assessment of the trophic state of freshwater in Britain (Palmer & Roy 2001)	JNCC	Contains details of methodology	JNCC website	The trophic status data is not relevant at a local level

MESOTROPHIC LAKES: Comments

Data Sources	**Comment**
A Study of the Trophic Status of Standing Freshwater in Cornwall	This source is the only reference available.
The Definition	**Comment**
Fair	There are considerable problems. The definition does not clearly specify how the trophic status should be decided. We have followed one suggestion and used the plant communities, but these results refer to a tetrad and not to individual water bodies. Further fieldwork would be needed to clarify the trophic status of mesotrophic waters.
Reliability of PHT Interpretation	**Explanation**
Fair	In general, the use of the TRS approach is a good one. It is clear and unambiguous, follows some of the guidance within the definition and corresponds to the trophic status. It is particularly good at picking out the dystrophic and oligotrophic waters in Cornwall and is assumed to select the majority of those that are eutrophic, but there is a considerable overlap of oligotrophic, mesotrophic and eutrophic around TRS values of 7.0-7.9 (TRS runs from 3.0-10.0). It is, accordingly, rather uncertain how well it will have selected this PHT.
Overall Assessment	**Comments**
Good	Maps of the trophic state of waters in Cornwall exist at tetrad level and estimates of the areas of waters of varying trophic status have been made. It is likely that the distribution of mesotrophic lakes in Cornwall is rather poorly known and that the estimate for the total area is likely to be either imprecise or biased or both.

OLIGOTROPHIC AND DYSTROPHIC LAKES PHT

General Description

Oligotrophic and Dystrophic lakes are water bodies which are caharacterised by low nutrient levels. They are usually found on hard acidic rocks, mosy oftem in the uplands The shore are usually stony with sparse vegetation such as shoreweed *Littorella uniflora.* In this PHT, the majority of selected sites will be more than 2 ha.

Area of PHT in Cornwall (ha): *estimated (est)* 820

For this habitat we will take all areas

We have not mapped the distribution of this PHT.

OLIGOTROPHIC AND DYSTROPHIC LAKES: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
A Study of the Trophic Status of Standing Freshwater in Cornwall	A report which gives an assessment of the trophic state of freshwater in Cornwall (McCartney 2006)	EN	Gives details of the Trophic Ranking Score (TRS) of every tetrad in the county	ERCCIS	Good quality Trophic Ranking Score (TRS) information which corresponds to the trophic state of freshwater n the county.
An estimate of the extent of dystrophic, oligotrophic, mesotrophic and eutrophic standing freeshwater in Gresat Britain	A report which gives an assessment of the trophic state of freshwater in Britain (Palmer & Roy 2001)	JNCC	Contains details of methodology	JNCC website	The trophic status data is not relevant at a local level

OLIGOTROPHIC AND DYSTROPHIC LAKES: Comments

Data Sources	Comment
A Study of the Trophic Status of Standing Freshwater in Cornwall	This source is the only reference available.
The Definition	**Comment**
Fair	There are considerable problems. The definition does not clearly specify how the trophic status should be decided. We have followed one suggestion and used the plant communities, but these results refer to a tetrad and not to individual water bodies. Further fieldwork would be needed to clarify the trophic status of these waters.
Reliability of PHT Interpretation	**Explanation**
Fair	In general, the use of the TRS approach is a good one. It is clear and unambiguous, follows some of the guidance within the definition and corresponds to the trophic status. It is particularly good at picking out the dystrophic and oligotrophic waters in Cornwall and is assumed to select the majority of those that are eutrophic, but there is a considerable overlap of oligotrophic, mesotrophic and eutrophic around TRS values of 7.0-7.9 (TRS runs from 3.0-10.0).
Overall Assessment	**Comments**
Good	Maps of the trophic state of waters in Cornwall exist at tetrad level and estimates of the areas of waters of varying trophic status have been made. It is likely that the distribution of mesotrophic lakes in Cornwall is rather poorly known and that the estimate for the total area is likely to be either imprecise or biased or both.

PONDS PHT

General Description

This PHT is intended to select only the more important examples. The criteria are various, but concentrate on smaller freshwater bodies (<2 ha) that contain significant species. The word 'significant' can mean that there are rare species present or tha there are a suite of species that meet some accepted guideline. For example, the pond may support a Red Data Book or UK BAP species.

National Context

Ponds are widespread throughout Britain, but high quality examples are localised. It is thought that about 20% of the 400 000 ponds outside curtilage might qualify as this PHT. There appears to have been a loss of about 70% of the ponds that existed in 1880, much of the loss taking place in the second half of the twentieth century.

Area of PHT in Cornwall (ha): *estimated (est)* 250

Number of polygons: *est* 1500-2000

The habitat is: Rare

For this habitat we will take all areas

We have not mapped the distribution of this PHT.

PONDS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
A Study of the Trophic Status of Standing Freshwater in Cornwall	A report which gives an assessment of the trophic state of freshwater in Cornwall (McCartney 2006)	EN	Gives details of the Trophic Ranking Score (TRS) of every tetrad in the county	ERCCIS	Good quality Trophic Ranking Score (TRS) information which corresponds to the trophic state of freshwater n the county.
One other					
Open water landcover on GIS (1996)	Maps of open water drawn from a combination of references and API.	ERCCIS	Should be close to the PHT in many parts of the county	ERCCIS	Good quality information

PONDS: Comments

Data Sources	**Comment**
A Study of the Trophic Status of Standing Freshwater in Cornwall *One other* Open water landcover on GIS (1996)	A combination of these sources.
The Definition	**Comment**
Probably Good	There are no particular problems. The definition is clear, but work needs to be done to identify which ponds are eligible for selection.
Reliability of PHT Interpretation	**Explanation**
Probably Good	The interpretation should cause no problems
Overall Assessment	**Comments**
Probably Good	There are maps of te majority of the larger bodies of standoing freshwater, but many bodies of <0.1 ha will be missing and they are often the ponds that may be of high ecological value.

RIVERS PHT

General Description

The Rivers priority habitat is based around three broad features:

- Habitats Directive Annex I habitat type Rivers *with Ranunculion fluitantis and Callitricho-Batrachion* vegetation;
- Headwaters; and
- Exposed river sediments.

The important features of a river system vary from the nutrient-poor headwaters with few higher plants to the richer lowland systems. The headwaters support stoneflies, mayflies and caddisflies together with salmon and brown trout. the lowland rivers are more likely to hold fish such as chub and roach.

Area of PHT in Cornwall (ha): *estimated (est)* 300-600

For this habitat we will take all areas

We have not mapped the distribution of this PHT.

CALAMINARIAN GRASSLANDS PHT

General Description

The Calaminarian grasslands are associated with:

- near-natural substrates such as serpentine;
- river gravels rich in heavy metals; as well as
- artificial mine workings and spoil heaps.

The plant community is typically open-structured, composed of weedy or metallophyte species of lichens, bryophytes and vascular plants such as spring sandwort *Minuartia verna*, *thrift Armeria maritima* and bladder campion *Silene maritima*. There are also rarer bryophyte species such as Cornish path moss *Ditrichum cornubicum*, lead path moss *Ditrichum plumbicola*, western rustwort *Marsupella profunda* and the liverwort *Cephaloziella nicholsonii* – all of which are found in Cornwall.

National Context

The majority of this community is found in certain mining areas of northern England North Wales. There are outliers in the highlands of Scotland and probably on the Lizard peninsula in Cornwall. It is a decidedly scarce community which is declining.

The extent of this habitat in Cornwall is not currently known.

For this habitat we will take all areas

OPEN MOSAIC HABITATS ON PREVIOUSLY DEVELOPED LAND PHT

General Description

This habitat specifically excludes the Calaminarian Grassland PHT. The habitat is efined in terms of structure, rather than specific vegetation communities. It comprises mosaics of bare ground, open grassland, scrub and other fragmentary habitats. High quality examples may be characterised as unmanaged flower-rich grasslands with sparsely-vegetated areas on poor substrates.

Invertebrate faunas can be species-rich and include many uncommon species. Between 12 and 15% of all nationally rare and nationally scarce insects are recorded from brownfield sites.

These sites mostly enjoy little recognition, their early successional communities and spearsely vegetated areas being commonly mistaken as being of no nature conservation interest. Morover, it is rare today for such sites to survive lon enough to to acquire any value, which means those that do exist are effectively irreplaceable.

The extent of this habitat in Cornwall is not currently known.

For this habitat we will take all areas

Appendix 5

Information Relating to Local Habitat Types

This appendix provides a more detailed description of and provides data about habitats for which CWS selection criteria have been prepared. The following is a list of those Local Habitat Types (LHTs) that have been selected within Cornwall.

Maritime and Coastal Habitats BHT
None

Broadleaved, mixed and yew woodland BHT
Local ancient woodlands
Local mixed ashwoods
Local parkland

Boundary and linear features BHT
Local boundaries

Arable and horticultural BHT
None

Improved grassland BHT
None

Neutral grassland BHT
Local floodplain grasslands
Local lowland meadows

Calcareous grassland BHT
None

Acid grassland BHT
Upland dry acid grassland

Dwarf shrub heath BHT
None

Fen, marsh and swamp BHT
None

Bog BHT
None

Standing water and canals BHT
Local Ponds

Each LHT account opens with a general description and a statement which attempts to provide a National overview. There follows a figure for the area of the habitat for the county, the number of polygons which either have or would be drawn for that area and a standard description of how common the habitat is in the county.

Two tables follow within which the area and number of polygons is listed for each Administrative District and Natural Area. Within those tables the following abbreviations are used:

Acronyms used in the 'Distribution' tables

Administrative District		Natural Area	
P	Penwith	Pe	Penwith
K	Kerrier	Lz	Lizard
CK	Carrick	CKG	Cornwall Killas & Granite
R	Restormel	BM	Bodmin Moor
CN	Caradon	Cu	Culm
NC	North Cornwall		

The final figure is the habitat threshold – that area which makes a block eligible to be considered as a County Wildlife Site. More details on the derivation of the threshold can be found in a separate document.

After the initial figures there are two tables which parallel those used for the PHTs. The first, sources, gives details of what sources we would consider using before we began the LHT mapping exercise. The second, comments, gives a succinct overview of the how successful we believe the mapping process would be.

Acronyms used in the 'Sources' tables

CCC	Cornwall County Council
CWT	Cornwall Wildlife Trust
ERCCIS	Environmental Records Centre for Cornwall and the Isles of Scilly
EN	English Nature (now Natural England)
NT	National Trust
OS	Ordnance Survey

LOCAL ANCIENT WOODLANDS

General Description

Ancient woodlands are those woodlands which have had a continuous history of tree cover since at least 1600 and have only been cleared for underwood or timber production.

The Cornwall inventory of Ancient Woodlands has always been described as provisional. This is because some of the woodlands that were mapped in that report have never been properly assessed. The intention was to map all ancient woodland over 2 ha, but there were inevitably a few that were overlooked. The majority of these were likely to be small. It follows that there are probably a number of small ancient woodlands that are missing from the Inventory. Moreover, there will also be ancient woodlands with an area of less than 2 ha that could be considered to be of significant nature conservation and historical importance.

The Local Ancient Woodlands will include these overlooked woodlands. Accordingly, in addition to the woodlands in the Inventory, we will consider all woodlands that can be shown to be ancient and some part of them is still ancient semi-natural.

This local habitat will also include some woodlands that have been replanted on ancient woodland sites that had previously been cleared. Ancient woodlands are important for their ground flora, not just for the trees. Accordingly, even when a woodland has been cleared and replanted, there are often rides - and perhaps clearings - that retain the original ancient ground flora. These woodlands too will be considered for selection.

National Context

There are thought to be about 300 000 ha of ancient semi-natural woodlands, each with an area of at least 2 ha, in Britain. There is no knowledge of what number of ancient woodlands have been missed from the Inventory, nor of the number of smaller ancient woodlands that are excluded because they are too small.

Cornwall Context

There are about 3100 of ancient semi-natural woodland in Cornwall. The majority of the sites are small, about 70% of them being less than 10 ha in area and about half of them are 5 ha or less. Some of the blocks are only about 1 ha in area, being part of a larger woodland block.

Area of LHT in Cornwall (ha): *estimated (est)* 50 (small sites*)

Number of polygons: *not known (nk)**

*The area of the replanted woodlands is not relevant. The number of sites is, but there is no idea of that number, though very few are expected to qualify.

The habitat is: Very Rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	0	*nk*	*nk*	*nk*	*nk*	*nk*	*nk*
Area (ha) est.	0	5	6	4	17	18	50

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	*nk*	*nk*	*nk*	*nk*	*nk*
Area (ha) est.	0	1	41	2	6	50

For this habitat we will take all areas

LOCAL ANCIENT WOODLANDS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	Aerial photos of Cornwall
Aerial photos of the Fal & Helford SAC	Digital photographs taken in 2000	EN	Can be used to identify up-to-date boundaries.	ERCCIS	Aerial photos of the Fal & Helford SAC
An analysis of NVC Vegetation survey data. (JNCC Report No 272).	Report	EN	Details those NVC communities and sub-communities that have been recorded in the county.	ERCCIS	An analysis of NVC Vegetation survey data. (JNCC Report No 272).
Ancient Woodland Survey of Cornwall	A provisional inventory of Ancient Woodland in the county	EN	The main source of Peterken stand types throughout the county.	ERCCIS	Ancient Woodland Survey of Cornwall
Broadleaved woodland landcover on GIS	Maps of Broadleaved woodland drawn from a combination of references and API (1996)	ERCCIS	Should be a useful start for digitising.	ERCCIS	Broadleaved woodland landcover on GIS
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up toy the Broadleaved woodland Survey of Cornwall	ERCCIS	County Wildlife Site files
CWT Reserve Files	Management Reports	CWT	Contain compartment descriptions to NVC level.	CWT	CWT Reserve Files
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	EN local team SSSI files
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Already incorporated into GIS	ERCCIS	Poor quality
Woodland Surveys in SW England using NVC (Heath & Oakes)	Report	EN	The main source of information relating to woodland NVC in the county	ERCCIS	Good quality information.

LOCAL ANCIENT WOODLANDS: Comments

Data Sources	**Comment**
Expected to be: Ancient Woodland Survey of Cornwall County Wildlife Site (CWS) surveys.	These sources can be of use because ERCCIS stores all the Ancient Woodland Survey data, including those woodlands that were rejected.
The Definition	**Comment**
Good	The definition is clear.
Reliability of LHT Interpretation	**Explanation**
Expected to be: Good	The definition of Local Ancient Woodland is clear and there is adequate detailed information for the whole county. Moreover, the identification of the boundaries of these woodlands is relatively easy from aerial photographs and Ordnance Survey maps.
Overall Assessment	**Comments**
Expected to be: Good	We consider that the LHT interpretation for Cornwall is likely to be precise and that any map will show the distribution with a good degree of accuracy.

LOCAL MIXED ASHWOODS

General Description

The upland mixed ashwoods PHT are woods on base-rich soils in the north and west, in most of which ash is a major species, although locally oak, birch, elm, small-leaved lime and even hazel may be the most abundant species. Upland in the name reflects the abundance of this type of woodland on base-rich soils in upland Britain rather than to the altitude at which individual sites occur. Most upland mixed ashwoods are probably ancient, but they cannot be considered as PHT if the canopy is composed of 50% or more site-native species of trees or shrubs. Site native trees include sycamore *Acer pseudoplatanus*, a relatively common component of ashwoods in Cornwall.

These local mixed ashwoods are often, generally speaking, nothing more than sycamore invaded upland mixed ashwoods PHT. Mixed ashwoods are amongst the richest habitats for wildlife, notable for bright displays of flowers such as bluebell *Hyacinthoides non-scripta*, primrose *Primula vulgaris*, wood cranesbill *Geranium sylvaticum* and wild garlic *Allium ursinum*. In a county such as Cornwall, these woodlands are especially valuable, particularly in the west of the county where woodlands of any kind are so thin on the ground.

National Context

The PHT is found throughout upland Britain and in Northern Ireland, though they are limited in the north-west Highlands. A crude estimate places the total area of upland mixed ashwoods at 67 500 ha.

There is no way of knowing the total area of sycamore invaded woodlands of this kind.

Cornwall Context

There are about 1740 of upland mixed ashwoods in Cornwall. It is probable that the number of local mixed ashwoods is small., but significant – the majority of them probably being found in the west of the county.

Area of LHT in Cornwall (ha): *est* 100

Number of polygons: *not known (nk)*

The habitat is: Very Rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	*nk*	*nk*	*nk*	*nk*	*nk*	*nk*	*nk*
Area (ha) est.	6	10	15	10	30	40	111

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	0	*nk*	*nk*	*nk*	*nk*	*nk*
Area (ha) est.	0	4	90	0	17	111

For this habitat we will take all areas

LOCAL MIXED ASHWOODS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	Aerial photos of Cornwall
Aerial photos of the Fal & Helford SAC	Digital photographs taken in 2000	EN	Can be used to identify up-to-date boundaries.	ERCCIS	Aerial photos of the Fal & Helford SAC
An analysis of NVC Vegetation survey data. (JNCC Report No 272).	Report	EN	Details those NVC communities and sub-communities that have been recorded in the county.	ERCCIS	An analysis of NVC Vegetation survey data. (JNCC Report No 272).
Ancient Woodland Survey of Cornwall	A provisional inventory of Ancient Woodland in the county	EN	The main source of Peterken stand types throughout the county.	ERCCIS	Ancient Woodland Survey of Cornwall
Broadleaved woodland landcover on GIS	Maps of Broadleaved woodland drawn from a combination of references and API (1996)	ERCCIS	Should be a useful start for digitising.	ERCCIS	Broadleaved woodland landcover on GIS
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up toy the Broadleaved woodland Survey of Cornwall	ERCCIS	County Wildlife Site files
CWT Reserve Files	Management Reports	CWT	Contain compartment descriptions to NVC level.	CWT	CWT Reserve Files
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	EN local team SSSI files
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Already incorporated into GIS	ERCCIS	Poor quality
Woodland Surveys in SW England using NVC (Heath & Oakes)	Report	EN	The main source of information relating to woodland NVC in the county	ERCCIS	Good quality information.

LOCAL MIXED ASHWOODS: Comments

Data Sources	Comment
Expected to be: Ancient Woodland Survey (AWS) County Wildlife Site (CWS) surveys Various NVC surveys of woodlands in Cornwall	The AWS, carried out in 1983, usually gives the Peterken Stand Type for the woodland. It includes the results of about 3100 ha of semi-natural woodlands in the county from about 350 sites. It is the main source of detailed information relating to woodlands in the county. The CWS surveys mainly date from 1980-1987. They give little additional useful information relating to this PHT. The various NVC surveys in the county are summarised in JNCC Report No. 272 *An Analysis of National Vegetation*

	Classification Survey Data. More detail is given in Heath and Oakes (1990) *Woodland Surveys in South West England using the National Vegetation Classification.*
The Definition	**Comment**
Average	The definition of this LHT does not cause major problems in this county because there appears to be no differences in the result if either Peterken Stand Type or NVC communities are used.
Reliability of PHT Interpretation	**Explanation**
Expected to be: Average	There are two methods that may be reliably used to identify this LHT: Peterken Stand Type and NVC communities. Phase 1 is too broad and other classifications do not exist within Cornwall, except where they have been derived from Peterken or NVC. There is only one Peterken Stand Type (3D) in Cornwall that leads to this LHT. Unlike the case with some other LHT woodlands, the NVC and the Peterken systems do not appear to conflict. When using NVC communities we are usually considering W8 or W9 woodlands. In Cornwall there are no known W9 woodlands and the majority of the W8 woodlands are of sub-community W8e. It appears reasonable to consider W8e woodlands as this LHT. In practice however, we have used Peterken Stand Type for this LHT, in just the same way that we have for the PHT woodlands. We have adopted the approach that we would only use Peterken Stand Types. This is for two main reasons. Firstly, the majority of the woodland studies in Cornwall have used the Peterken Stand Type system while there are relatively few woodlands that have been assigned to a NVC community. Secondly, it is relatively easy to derive a Peterken Stand Type from simple fieldwork whereas it is extremely time consuming to try to derive an NVC community from limited species lists. Moreover, the results may be open to question. Our method should give unbiased results that are transparent. That is, the allocation to LHT follows a clear and simple method where the LHT usually shows a direct correspondence to the original classification.
Overall Assessment	**Comments**
Expected to be: Average	The map should give a reasonable picture of the distribution of this LHT in Cornwall.

LOCAL PARKLANDS

General Description

The lowland wood-pastures and parkland PHT is the result of historic land management systems, and represents a vegetation structure rather than being a particular plant community. Typically this structure consists of large, open-grown or high forest trees (often pollards) at various densities, in a matrix of grazed grassland, heathland and/or woodland floras. These sites are frequently of national historic, cultural and landscape importance.

The national PHT is restrictive in that there are seven attributes that can be used to create a score towards the habitat. These are listed below with the criteria for local parklands highlighted in bold.

- Old maps/records indicative of wood-pasture treatment. Change to: **Old maps/records indicative of parkland.**
- **Old trees**, particularly veteran trees.
- **Large herbivores; particularly livestock**.
- Tree/woodland structure showing impact of large herbivores
- **Vegetation mosaic of open & woodland communities.**
- Historical/archaeological features typical of wood-pastures.
- Oral evidence/tradition indicative of wood-pasture.

The four attributes in bold will be used to score towards the local habitat.

National Context

There are no reliable statistics on the extent of the overall PHT resource, nor on historical and current rates of loss or degradation of this type of habitat. The figure of 10-20 000 ha 'currently in a working condition' given in the 'habitat statement' of the UK Biodiversity Steering Group report is the current best estimate. Accordingly, it is impossible to give a figure for this kind of habitat.

Cornwall Context

There are about 500 ha of parklands in Cornwall. It is probable that somewhere between 150 and 300 ha might qualify as the PHT, while the rest of them would be considered to be of local importance

Area of PHT in Cornwall (ha): *est* 200-350

Number of polygons: *not known (nk)*

The habitat is: Fairly Rare to Rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	1	*nk*	*nk*	*nk*	*nk*	*nk*	*nk*
Area (ha)	10	20	50	20	50	120	270

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	1	0	*nk*	*nk*	*nk*	*nk*
Area (ha)	10	0	200	0	50	270

For this habitat the threshold is 0.3 ha

LOCAL PARKLANDS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
Aerial photos of the Fal & Helford SAC	Digital photographs taken in 2000	EN	Can be used to identify up-to-date boundaries.	ERCCIS	
An analysis of NVC Vegetation survey data. (JNCC Report No 272).	Report	EN	Details those NVC communities ands sub-communities that have been recorded in the county.	ERCCIS	Good quality information. Essential background.
Ancient Woodland Survey of Cornwall	A provisional inventory of Ancient Woodland in the county	EN	The main source of Peterken stand types throughout the county.	ERCCIS	High quality information, close to NVC
Broadleaved woodland landcover on GIS	Maps of Broadleaved woodland drawn from a combination of references and API (1996)	ERCCIS	Should be a useful start for digitising.	ERCCIS	Good quality information
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up toy the Broadleaved woodland Survey of Cornwall	ERCCIS	Good quality information
CWT Reserve Files	Management Reports	CWT	Contain compartment descriptions to NVC level.	CWT	Good quality information.
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Already incorporated into GIS	ERCCIS	Poor quality
Woodland Surveys in SW England using NVC (Heath & Oakes)	Report	EN	The main source of information relating to woodland NVC in the county	ERCCIS	Good quality information.

LOCAL PARKLANDS: Comments

Data Sources	Comment
Ancient Woodland Survey (AWS) County Wildlife Site (CWS) surveys Various National Trust (NT) surveys Phase 1	The AWS, carried out in 1983, usually gives the Peterken Stand Type for a woodland. It includes the results of about 3100 ha of semi-natural woodlands in the county from about 350 sites. It is the main source of detailed information relating to woodlands in the county and some of it refers to parkland, or to areas that are adjacent to parkland The CWS surveys mainly date from 1980-1987. They give little additional useful information relating to this LHT. The NT reports for some of their properties give detailed information relating to the nature of areas that might be considered to be this LHT. The Phase 1 Surveys show areas marked as parkland, which can

	be used as a basis for site selection in Cornwall, there being little wood pasture in the county.
The National Definition	**Comment**
Good	The definition of this LHT is rather imprecise and open to interpretation, but that is bound to be the case. Some more precise standard on what separates a wood pasture and parkland of LHT quality from one that does not would be useful.
	Local BAP Variation
	None
Reliability of PHT Interpretation	**Explanation**
Average	There is one method that may be reliably used to identify this LHT: Phase 1 maps in combination with a detailed site report. We have adopted the approach that we would only use a combination of Phase 1, Ordnance Survey maps and site reports to map this PHT in Cornwall. Those that have been mapped for no other reason than they appear as parkland on a Phase 1 map have been accorded a Priority Qualifier of C. There are also small number of areas of open land with trees that are known to been in existence for over a century that have also been included if they were not already included on the Phase 1 maps (these may be referred to as parks or deer parks). They too have been accorded a Priority Qualifier of C. The Priority Qualifier has been upgraded to A where further information is available. Our method may give a biased result in that the Wood Pasture and Parklands PHT may be over-represented. On the other hand, the use of Phase 1 as the prime source has allowed us to produce results that are transparent. That is, the allocation to PHT follows a clear and simple method where the PHT arises from a direct correspondence with the original classification.
	Summary
	Definitely is: parklands which have documentation of significant features associated with this PHT. This would normally be in the form of evidence of veteran trees. Probably is: parklands without significant documentation.
Overall Assessment	**Comments**
Average	The map that has been produced will clearly show more PHT than further study would reveal. Nevertheless, there is a core of mainly large areas such as Lanhydrock and Boconnoc which are know to be of value, together with a raft of minor sites that require further study to clarify their importance.

LOCAL BOUNDARIES

General Description

The typical Cornish hedge is sometimes referred to as a kind of 'field bank'. These traditional boundaries are formed of earthen banks faced with stone. There may or may not be shrubby vegetation or trees growing along the top. The vegetation along the top of and earth bank is considered to be a hedgerow and can be considered for inclusion within the ancient and/or species-rich hedgerow PHT. However, the earth bank itself has received no such recognition.

The Cornish Hedge is a characteristic feature of the landscape that affords habitat for a wide range of plants and animals, some of which are priority species in their own right.

National Context

Earth banks are most common in those parts of the country where hedgerows would suffer from most exposure. It is for that reason that the y are found so commonly in Cornwall and western Wales. There would appear to be no figure for the national resource of this habitat.

Cornwall Context

While it is evident that the majority of boundaries in the county are Cornish Hedges, there has been no estimate of the size of this habitat. It is known that the total length of the boundary system within Cornwall is about 50 000 km and that the majority of it is made up of Cornish hedges. However, there does not appear to have been any detailed systematic work carried out on the nature conservation value of this habitat.

Length of field Banks in Cornwall (km): *ca* 40 000 (at least 4000 ha)

All local boundaries are eligible for selection

Nb. It's most likely that boundaries will be included as an integral part of a mosaic of other locally/nationally important habitats, but outstanding examples will be eligible for selection in their own right. This will need to be judged case-by-case using expert judgement.

LOCAL BOUNDARIES: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
Aerial photos of the Fal & Helford SAC	Digital photographs taken in 2000	EN	Can be used to identify up-to-date boundaries where the tide allows.	ERCCIS	
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Presence/absence	ERCCIS	Poor quality

LOCAL BOUNDARIES: Comments

Data Sources	**Comment**
Aerial photos of Cornwall) Phase 1	Comprehensive.
Definition	**Comment**
Good	The definition is clear.
Reliability of LHT Interpretation47	**Explanation**
Expected to be: Good	Reason: The definition of Local Boundaries is clear and there is adequate detailed information for the whole county. Moreover, the identification of Local Boundaries is relatively easy from aerial photographs and Ordnance Survey maps.
Overall Assessment	**Comments**
Not mapped	Not mapped

LOCAL FLOODPLAIN GRASSLANDS

General Description

This set of grasslands are those characterised as MG11, MG12 and MG13 in the NVC. Here we have three grasslands which are subject to periodic flooding, the first two are often found where the water is brackish. It is probable that some of these may be found within the Coastal Floodplain and Grazing Marsh PHT, but here we have decided to place them within this LHT because the PHT has proved to be rather scarce and fragmented in Cornwall. Moreover, because the PHT is primarily defined on physiographic grounds and the vegetation communities are not clearly detailed, there is grounds for confusion in trying to deal with specific grasslands under that heading. Once again we have grasslands which are often found in those areas where they may be found adjacent to or in transition with other semi-natural communities. And again, while they are not the of the highest botanical interest, they do hold significantly more interest than the general meadows and pastures and other agricultural grasslands that typify the farming countryside of Cornwall.

National Context

There appears to be no understanding of the total area of this suite of grassland vegetation communities in Britain.

Cornwall Context

The grasslands that are subject to periodic inundation, the vegetation communities MG11-13 are known to be very rare and local. It is probable that there are only about 100 ha in Cornwall, most of which will lie adjacent to the Coastal Saltmarshes.

Area of PHT in Cornwall (ha): 60

For this habitat we will take all areas

LOCAL FLOODPLAIN GRASSLANDS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up to Phase 1 and does hold some additional information, but it is out-of-date.	ERCCIS	Fairly good quality information.
CWT Reserve files	Management Reports	CWT	Will hold good information, but will be very local.	CWT	
EN local team SSSI files	Paper information on SSSIs	EN	Will hold good information, but will be very local.	EN	
Grassland landcover on GIS	Maps of grassland drawn from a combination of references and API (1996)	ERCCIS	Tends to be a summary of other sources and is useful for that reason. It is also a useful basis to work from while digitising.	ERCCIS	Good quality information
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Will hold good information, but will be very local.	ERCCIS	
Phase 1 maps	Paper information	EN	Rather out-of-date and of variable quality, but does give an insight into where grasslands of conservation interest may be located.	ERCCIS	

LOCAL FLOODPLAIN GRASSLANDS: Comments

Data Sources	**Comment**
Phase 1 County Wildlife Site (CWS) surveys National Trust (NT) surveys Various NVC surveys	Phase 1 maps were produced in 1983 and the results are somewhat inconsistent, but their accuracy is sufficient to accord a grassland to this LHT with low probability. The CWS surveys mainly date from 1980-1987. They give some additional useful information relating to this PHT. The NT and other NVC surveys often produce useful insights into small areas, particularly on the coast.
The Definition	**Comment**
Good	Any NVC surveys produce clear and unequivocal results and Phase 1 surveys too should produce sufficient information, especially if accompanied by target notes.
Reliability of PHT Interpretation	**Explanation**
Average	There are two methods that may be reliably used to identify this LHT: Phase 1 habitat maps and NVC communities. The Phase 1 results are somewhat inconsistent, but their accuracy is usually sufficient to accord a grassland to this PHT with low probability. Unfortunately, the age of the Phase 1 maps and the fact that they are of uncertain accuracy (there is no way of separating MG1 from MG5 for example), eventually led us to abandon the use of Phase 1 maps by themselves. Where we did have access to NVC data then there was no problem. However, there are relatively few grasslands that have been assigned to an NVC community and it is extremely time consuming to try to derive one from what are usually limited species lists. The CWS surveys did have useful information because dry herb-rich neutral grasslands usually only are MG5 in this county, so there is little doubt over their identity. Nevertheless, the age of this source made it rather irrelevant.
Overall Assessment	**Comments**
Poor	We believe that there are a relatively large number of mesotrophic grasslands grasslands in the county that have either not been surveyed, or where the results are not publicly available. Some of them may be above the minimum mappable unit (MMU). We have insufficient information to map this PHT. Three areas have long been known and they have been mapped, but there are certainly more. At least 22 ha of MG5 grasslands on the Caradon coast have not been mapped and there are unquestionably other coastal areas in the county which also hold MG5 grasslands. We do not know the number and extent of those additional sites and considerable fieldwork would be needed to complete the inventory.

LOCAL LOWLAND MEADOWS

General Description

The lowland meadows that are considered to be of particular conservation importance in Britain are a very small sample of all the grasslands that are found in Cornwall. Of course, the greater part of the farmland landscape is dominated by stands that might be characterised as MG7 or the floristically impoverished forms of MG6. There has traditionally been widespread agreement that neither of these are of any particular nature conservation interest, but that view is now challenged. Certainly at a local level we should consider the richer elements of MG6 such as the *Iris pseudacorus* variant that so enriches the damper bottoms of so much of our farmland. So too should we look at the richer variants of MG7e. Both of these have been highlighted at a national level in a recent report on the European context of British Lowland grasslands (Rodwell *et al* 2007).

Moreover, there has also been an historical and deeply rooted opinion that many grasslands that are clearly more diverse and hold a range of flora and fauna which is of some significance should not be accorded much significance. We may particularly think of the MG1 *Arrhenatherum* grasslands that typically occupy so many roadside verges. They have added floristic interest together with enhanced numbers of butterflies, other invertebrates and small mammals.

This LHT also brings together other grasslands such as the floristically impoverished mesotrophic grasslands classified as MG9 and MG10 which are both typical of permanently moist sites most often found throughout the lowlands. Neither of them is often viewed as much more than unproductive agricultural land, but their position in the landscape often makes them part of a transition between grassland to swamp. More than that, they may hold conspicuous stands of buttercups with smaller numbers of other flowers such as ladies smock. Though these are not rare or scarce species of high botanical interest, they clearly mark the grasslands as of wildlife interest and they clearly of enhanced the character of the local landscape.

National Context

Relatively recent survey findings in Britain reveal an estimated extent of less than 15 000 ha of species-rich neutral grassland surviving today in Britain. But that figure only refers to a restricted range of grasslands and it is clear that a review of what lowland meadows are of some national significance needs to be reviewed. In particular, a review of the importance of wetter pastures and meadows is urgently required.

There appears to be no understanding of the total area of this suite of grassland vegetation communities in Britain.

Cornwall Context

There are a large number of stretches of MG1 in roadside verges and there must be thousands of small patches of this grassland scattered throughout the county. A review of this resource is needed before any proper assessment of its wildlife importance can be made. In particular we need to understand the number of sub-communities that occur here, where they are found and what the history and management of these grasslands has been. A provisional estimate is that there may be 500 - 1000 ha of MG1 in the county.

The valley bottoms of many farms contain wet areas that may be a MG6 variant or perhaps the grassland vegetation communities of MG9 and MG10. Once again, a review of the resource is needed before a considered assessment can be made, but there may something like 100 - 500 ha in the county.

Area of PHT in Cornwall (ha): *estimated* 600-1500

For this habitat we will take all areas

LOCAL LOWLAND MEADOWS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Useful as a back-up to Phase 1 and does hold some additional information, but it is out-of-date.	ERCCIS	Fairly good quality information.
CWT Reserve files	Management Reports	CWT	Will hold good information, but will be very local.	CWT	
EN local team SSSI files	Paper information on SSSIs	EN	Will hold good information, but will be very local.	EN	
Grassland landcover on GIS	Maps of grassland drawn from a combination of references and API (1996)	ERCCIS	Tends to be a summary of other sources and is useful for that reason. It is also a useful basis to work from while digitising.	ERCCIS	Good quality information
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Will hold good information, but will be very local.	ERCCIS	
Phase 1 maps	Paper information	EN	Rather out-of-date and of variable quality, but does give an insight into where grasslands of conservation interest may be located.	ERCCIS	

LOCAL LOWLAND MEADOWS: Comments

Data Sources	**Comment**
Phase 1 County Wildlife Site (CWS) surveys National Trust (NT) surveys Various NVC surveys	Phase 1 maps were produced in 1983 and the results are somewhat inconsistent, but their accuracy is sufficient to accord a grassland to this LHT with low probability. The CWS surveys mainly date from 1980-1987. They give some additional useful information relating to this PHT. The NT and other NVC surveys often produce useful insights into small areas, particularly on the coast.
The Definition	**Comment**
Good	Any NVC surveys produce clear and unequivocal results and Phase 1 surveys too should produce sufficient information, especially if accompanied by target notes.
Reliability of PHT Interpretation	**Explanation**
Average	There are two methods that may be reliably used to identify this LHT: Phase 1 habitat maps and NVC communities. The Phase 1 results are somewhat inconsistent, but their accuracy is usually sufficient to accord a grassland to this PHT with low probability. Unfortunately, the age of the Phase 1 maps and the fact that they are of uncertain accuracy (there is no way of separating MG1 from MG5 for example), eventually led us to abandon the use of Phase 1 maps by themselves. Where we did have access to NVC data then there was no problem. However, there are relatively few grasslands that have been assigned to an NVC community and it is extremely time consuming to try to derive one from what are usually limited species lists. The CWS surveys did have useful information because dry herb-rich neutral grasslands usually only are MG5 in this county, so there is little doubt over their identity. Nevertheless, the age of this source made it rather irrelevant.
Overall Assessment	**Comments**
Poor	We believe that there are a relatively large number of mesotrophic grasslands grasslands in the county that have either not been surveyed, or where the results are not publicly available. Some of them may be above the minimum mappable unit (MMU). We have insufficient information to map this PHT. Three areas have long been known and they have been mapped, but there are certainly more. At least 22 ha of MG5 grasslands on the Caradon coast have not been mapped and there are unquestionably other coastal areas in the county which also hold MG5 grasslands. We do not know the number and extent of those additional sites and considerable fieldwork would be needed to complete the inventory.

UPLAND DRY ACID GRASSLAND

General Description

Upland dry acid grassland typically occurs as extensive unenclosed pastures or rough grazing at intermediate altitudes. It typically includes the National Vegetation Classification grassland plant communities U3 – U5, particularly the *Festuca - Agrostis – Galium* U4 grassland. . Much of the particular character of these particular upland grasslands, especially U4, derives form the fact that they are grazed.

This habitat includes the unenclosed acid grassland throughout the UK uplands (normally above c. 300m) including all acid grassland swards in old and non-functional enclosures in the upland fringes.

Acid grassland is characterised by a range of plant species such as heath bedstraw *Galium saxatile*, sheep`s-fescue *Festuca ovina*, common bent *Agrostis capillaris*, sheep`s sorrel *Rumex acetosella*, wavy hair-grass *Deschampsia flexuosa,* bristle bent *Agrostis curtisii* and tormentil *Potentilla erecta,* with presence and abundance depending on community type and locality. Dwarf shrubs such as heather *Calluna vulgaris* and bilberry *Vaccinium myrtillus* can also occur but at low abundance.

National *Context*

Upland dry acid grassland is widespread throughout much of the sub-montane zone of Britain, being strongly concentrated between 150 m and 500 m altitude. It is found in much of the uplands of Scotland, the Lake District, the Pennines, Wales and SW England.

Local Context

Upland dry acid grassland is characteristic of large parts of Bodmin Moor. The total area would appear to be about 4500 ha. There may be smaller areas on the uplands of Hensbarrow, Carnmenellis and West Penwith, but whether they are more properly classed as Lowland Dry Acid Grassland – or some other habitat – needs investigation. In the north of the Moor, in the area of Brown Willy and Rough Tor the wide expanses of semi-natural grazing are dominated by the U4 community, whereas in the south of the Moor it is the U3 *Agrostis curtisii* community that is dominant.

Area of PHT in Cornwall (ha): 4500

Number of polygons: *not known (nk)*

The habitat is: Fairly Common

Selection Criteria

For this habitat the threshold is 3.0 ha

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	nk	nk	nk	nk	nk	nk	nk
Area (ha)	10	1	62	17	158	41	289

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	nk	0	nk	nk	0	nk
Area (ha)	100	0	100	4300	0	289

For this habitat the threshold is 0.3 ha

UPLAND DRY ACID GRASSLAND: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries where the tide allows.	Held at CCC	
EN local team SSSI files	Paper information on SSSIs	EN	Likely to hold significant information for some wet heaths in some areas (e.g. Culm)	EN	
Heathland map of Cornwall on GIS	Produced for the Pilot Project in 2000.	EN	Especially useful for Bodmin Moor	ERCCIS	
Lowland heathland landcover on GIS (1996)	Maps of lowland heathland drawn from a combination of references and API.	ERCCIS	Should be close to the PHT in many parts of the county	ERCCIS	High quality information
NCC uplands Survey team	Paper information at a small scale; NVC or close to NVC detail	EN	Useful information	ERCCIS	Medium quality information at low resolution
Phase 1 maps	Paper information	EN	Will be used where considered necessary	ERCCIS	In general, medium quality
Soil maps	Maps of soil type on GIS	*via* EN	The peat depth will split wet heathland from blanket bog.	ERCCIS	
Survey of Bodmin Moor (Drage, 1981)	A survey of the southern half of Bodmin Moor using Birks and Ratcliffe	EN	Very detailed survey of the southern moor.	ERCCIS	High quality
Survey of the Commons of Bodmin Moor Natural Area (1995)	A detailed survey of the commons of the moor to NVC standard.	EN	A very detailed survey of the commons of Bodmin Moor which builds on the Drage survey.	ERCCIS	High quality

UPLAND DRY ACID GRASSLAND: Comments

Data Sources	**Comment**
NCC Upland Vegetation Survey Drage, J (1981) Survey of Bodmin Moor	The Upland Vegetation Survey was carried out using a combination of NVC and the Birks and Ratcliffe classification, but there is no significant problem in converting Birks and Ratcliffe to NVC. The survey by Drage used only the Birks and Ratcliffe classification.
The Definition	**Comment**
Good	There is no problem using the definition.
Reliability of PHT Interpretation	**Explanation**
Good	Both of the surveys use some Birks and Ratcliffe classifications and there is some NVC information for the north of the Moor. There is no problem in converting the Birks and Ratcliffe classification to NVC, but in this case there is no need. The definition refers to Phase 1 methodology and the original work is adequate to identify those few small areas that might be considered to be Upland Heathland.
Overall Assessment	**Comments**
Good	Bodmin Moor is the only place in Cornwall where Upland Heathland may be found. The NCC survey covers the north of the Moor and the Drage survey covers the south. We believe that the map of the small areas of Upland Heathland is accurate.

LOCAL PONDS

General Description

The national PHT is tightly defined in that there are five broad attributes that can be used to justify selection, none of which allow easy qualification. The Local Ponds category is intended to both include a wider range of ponds and to use less restrictive criteria.

These criteria are designed to select smaller freshwater bodies (<2 ha) that are both significant refuges for wildlife and established features in the landscape.

Listed below are the general criteria for the selection of Local Ponds:

- Old maps show that the pond is long-standing.
- The pond is isolated from neighbouring ponds.
- Significant populations of certain species (such as amphibians and Odonata) are found there.
- Occurrence of species of local importance.

Generally speaking, any three of these four attributes may be used to justify selection.

National Context

Only about 20% of the ponds in the British countryside are expected to qualify for inclusion within the Ponds BAP which means that there are thought to be about 300 000 ha ponds in Britain that will not be of sufficient nature conservation importance to qualify as BAP priority habitat.

Cornwall Context

There were nearly 3000 ponds in the county in 2005 with a total area of about 300 ha. In Cornwall this will in general mean much smaller ponds, as three quarters of the ponds under 2 ha are no more than 0.1 ha in area. Very few of them have had their nature conservation importance assessed, but there is a large amount of data relating to certain groups of flora and fauna connected with freshwater that could be brought together to clarify some of these issues.

Area of LHT in Cornwall (ha): *estimated* 330

Number of polygons: *estimated* 3000

The habitat is: Rare

Distribution by Administrative District							
District	**P**	**K**	**CK**	**R**	**CN**	**NC**	**Σ**
Number	250	350	350	350	600	1100	3000
Area (ha) est.	30	40	40	40	60	120	330

Distribution by Natural Area						
District	**Pe**	**Lz**	**CKG**	**BM**	**Cu**	**Σ**
Number	200	200	2000	200	400	3000
Area (ha) est.	20	20	220	20	50	330

For this habitat we will take all areas

LOCAL PONDS: Sources

Dataset	Description	Owner	Role in Inventory	Access	Notes
Aerial photos of Cornwall	Digital photographs taken in 2000, together with prints taken in 1995/6	CCC	Can be used to identify up-to-date boundaries.	Held at CCC	Aerial photos of Cornwall
OS Landline and 1:10 000 raster maps of Cornwall		OS	The basis of the digitised boundary		
County Wildlife Site files	Reports held in paper files. (1980-1988)	ERCCIS	Limited value	ERCCIS	County Wildlife Site files
CWT Reserve Files	Management Reports	CWT	Limited value	CWT	CWT Reserve Files
EN local team SSSI files	Paper information on SSSIs	EN	Unlikely to hold significant information	EN	EN local team SSSI files
NT site survey reports	Reports on surveys of NT land. (1979-2001)	NT	Unlikely to hold significant information	ERCCIS	
Phase 1 maps	Paper information	EN	Already incorporated into GIS	ERCCIS	Poor quality

LOCAL PONDS: Comments

Data Sources	**Comment**
OS Landline and 1:10 000 raster maps of Cornwall Aerial photos of Cornwall	These sources can be used to produce the background layer, but smaller ponds and ponds not visible on aerial photographs will have been missed.
The Definition	**Comment**
Good	The definition is simple and flexible
Reliability of LHT Interpretation	**Explanation**
Expected to be: Good	The definition of Local Ponds is expected to be easy to enact
Overall Assessment	**Comments**
Expected to be: Good	We consider that the LHT interpretation for Cornwall is likely to produce a sensible interpretation of the ponds of some quality that would not qualify as Ponds habitat.

Appendix 6

Information Relating to Species Groups

The species group sections below list species of some conservation concern that, when present at a significant population, make a site eligible for selection as a County Wildlife Site. **Judgement of a 'significant population' needs to be justified case-by-case, referring to expert judgement**.

Some species groups have more detailed criteria than others due to factors such as availability of data and the specific nature of that species group.

BAP lists are based on the Cornwall BAP Priority species list. The latest version of this list is available at www.cornwallwildlifetrust.org.uk/conservation (the version used in this document is dated 3rd November 2010). It is envisioned that this document will be updated to reflect any changes to the BAP lists.

VASCULAR PLANTS

There should be a presumption for selecting vascular plant sites where they support the following species:

Cornwall BAP Priority species

A site is eligible for selection if it supports a significant population of any of the following species:

Adonis annua	Pheasants-eye
Asparagus prostratus	Wild Asparagus
Blysmus compressus	Flat-sedge
Bupleurum rotundifolium	Thorow-wax
Carex divisa	Divided Sedge
Centaurea calcitrapa	Red Star-thistle
Centaurea cyanus	Cornflower
Chamaemelum nobile	Chamomile
Chenopodium vulvaria	Stinking Goosefoot
Cicendia filiformis	Yellow Centaury
Clinopodium acinos	Basil Thyme
Coeloglossum viride	Frog Orchid
Corrigiola litoralis	Strapwort
Dianthus armeria	Deptford Pink
Eryngium campestre	Field Eryngo
Euphrasia anglica	Glandular Eyebright
Euphrasia vigursii	An Eyebright
Fumaria purpurea	Purple Ramping-fumitory
Galeopsis angustifolia	Red Hemp-nettle
Galium pumilum	Slender Bedstraw
Gentianella anglica	Early Gentian
Gentianella campestris	Field Gentian
Hordeum marinum	Sea Barley
Illecebrum verticillatum	Coral-necklace
Juncus pygmaeus	Pygmy Rush
Juniperus communis hemisphaerica	A Juniper
Lactuca saligna	Least Lettuce
Lobelia urens	Heath Lobelia
Lolium temulentum	Darnel
Lycopodiella inundata	Marsh Clubmoss
Melittis melissophyllum	Bastard Balm
Mentha pulegium	Pennyroyal
Minuartia hybrida	Fine-leaved Sandwort

Monotropa hypopitys	Yellow Bird`s-nest
Muscari neglectum	Grape-hyacinth
Oenanthe fistulosa	Tubular Water-dropwort
Pilularia globulifera	Pillwort
Platanthera bifolia	Lesser Butterfly-orchid
Puccinellia fasciculata	Borrer`s Saltmarsh-grass
Pyrus cordata	Plymouth Pear
Ranunculus arvensis	Corn Buttercup
Ranunculus tripartitus	Three-lobed Water-crowfoot
Rumex rupestris	Shore Dock
Salsola kali kali	Prickly Saltwort
Scandix pecten-veneris	Shepherd's Needle
Schoenoplectus triqueter	Triangular Club-rush
Scleranthus annuus	Annual Knawel
Silene gallica	Small-flowered Catchfly
Valerianella rimosa	Broad-Fruited Corn Salad
Viola lactea	Pale Dog-violet

Species listed on Schedule 8 of the Wildlife & Countryside Act 1981 (as amended)

A site is eligible for selection if it supports a significant population of any of the following species:

Dianthus armeria	Deptford Pink
Eryngium campestre	Field Eryngo
Fumaria reuteri	Martin's Ramping-fumitory
Gentianella anglica	Early Gentian
Lectuca saligna	Least Lettuce
Mentha pulegium	Pennyroyal
Polygonum maritimum	Sea Knotgrass
Pyrus cordata	Plymouth Pear
Romulea columnae	Sand Crocus
Rumex rupestris	Shore Dock
Trichomanes speciosum	Killarney Fern
Veronica triphyllos	Fingered Speedwell

Species listed on Schedule 5 of the Conservation of Habitats and Species Regulations 2010

A site is eligible for selection if it supports a significant population of any of the following species:

Gentianella anglica	Early Gentian
Rumex rupestris	Shore Dock
Trichomanes speciosum	Killarney Fern

Red Data Book (RDB) Species

A site is eligible for selection if it supports a significant population of a RDB species (see Wigginton, 1999 and Cheffings & Farrell, 2005; as updated and consolidated by Leach & Rusbridge, 2006).

Nationally Scarce Species

A site is eligible for selection if it supports a significant population of a Nationally Scarce species (see Stewart *et al*., 1994; as updated by Preston, Pearman & Dines, 2002; and consolidated by Leach & Rusbridge, 2006).

Species of county importance
A site is eligible for selection if it supports a significant population of a species of county importance, or if it supports two species of county importance.

Data on locally important vascular plants is available within the Red Data Book for Cornwall and the Isles of Scilly (CISFBR, 2009), and the Rare Plant Register for Cornwall (developed by the Botanical Cornwall Group and due for publication). These documents list plants that are 'Cornwall Rare' (in 3 or less sites in Cornwall), 'Cornwall Scarce' (in 4-10 sites in Cornwall) and 'Cornwall Local' (in 11-20 sites in Cornwall). "A 'site' is a discrete area within a moveable kilometre square, which seems at first glance to be slightly vague but in general is fairly easy to apply in practice" (Lockton, Whild, Ellis & Pearman, 2005).

'Species of county importance' is difficult to define for vascular plants. Some plants on the Rare Plant Register for Cornwall may be common elsewhere in Britain; for example *Alopecurus myosuroides* is Cornwall Scarce (found in 9 sites) but is a pernicious weed upcountry. Therefore, although a site may be 'eligible' based on these criteria, it is essential that the selection of sites based on presence of species of county importance is justified case-by-case by reference to expert judgement, and reasoning behind selection is clearly documented.

FRESHWATER ALGAE, FUNGI AND LICHENS

This group is very heterogeneous; therefore it is not easy to produce simple criteria for site selection. The British non-vascular flora comprises about 1000 bryophytes, 1500 lichens, 10000 fungi and many thousands of species of marine and freshwater algae. Bryophytes are considered in the next section.

There should be a presumption for selecting sites where they support the following species:

Cornwall BAP Priority species

A site is eligible for selection if it supports a significant population of any of the following species:

Stoneworts
Chara canescens Bearded Stonewort

Fungi
Cantharellus friesii Orange Chanterelle
Cotylidia pannosa Wooly Rosette
Entoloma bloxamii Big Blue Pinkgill
Geastrum minimum Tiny Earthstar
Geoglossum atropurpureum Dark-purple Earthtongue
Hydnellum concrescens A Tooth Fungus
Hydnellum ferrugineum A Tooth Fungus
Hydnellum spongiosipes Velvet Tooth
Hygrocybe spadicea Date-Coloured Waxcap
Hypocreopsis rhododendri Hazel Gloves
Microglossum olivaceum Earth-Tongue
Phellodon confluens Fused Tooth
Phellodon melaleucus Grey Tooth
Podoscypha multizonata Zoned Rosette
Sarcodon squamosus Scaly Tooth
Sarcodontia crocea Orchard Tooth

Lichens
Acarospora subrufula A Lichen
Anaptychia ciliaris ciliaris A Lichen
Arthonia anglica A Lichen
Arthonia atlantica A Lichen
Arthonia invadens A Lichen
Bacidia incompta A Lichen
Blarneya hibernica A Lichen
Caloplaca aractina A Lichen
Cladonia mediterranea Reindeer Lichen
Collema latzelii A Lichen
Cryptolechia carneolutea A Lichen
Enterographa sorediata A Lichen
Fulgensia fulgens A Lichen
Graphina pauciloculata A Lichen
Heterodermia leucomela Ciliate Strap-Lichen
Heterodermia speciosa A Lichen
Lecania chlorotiza A Lichen
Lecanographa amylacea A Lichen

Lecidea erythrophaea A Lichen
Leptogium cochleatum A Lichen
Megalospora tuberculosa A Lichen
Melaspilea lentiginosa A Lichen
Opegrapha prosodea A Lichen
Parmotrema robustum A Lichen
Physcia tribacioides Southern Grey Physcia
Porina hibernica A Lichen
Porina sudetica A Lichen
Pyrenula nitida A Lichen
Ramonia dictyospora A Lichen
Solenopsora liparina Serpentine Solenopsora
Teloschistes flavicans Golden Hair Lichen
Usnea articulata A Lichen
Usnea florida A Lichen
Wadeana dendrographa A Lichen

Species listed on Schedule 8 of the Wildlife & Countryside Act 1981 (as amended)
A site is eligible for selection if it supports a significant population of a listed species.

Species listed on Annex II of the EC Habitats Directive (1992, as amended)
A site is eligible for selection if it supports a significant population of a listed species.

Red Data Book (RDB) Species
A site is eligible for selection if it supports a significant population of a RDB species (for lichens see Church *et al*., 1996; for stoneworts see Stewart & Church, 1992).

Nationally Scarce Species
A site is eligible for selection if it supports a significant population of a Nationally Scarce species.

Species of county importance
A site is eligible for selection if it supports a significant population of a species of county importance, or if it supports two species of county importance. Some data on locally important freshwater algae, fungi and lichens is available within the Red Data Book for Cornwall and the Isles of Scilly (CISFBR, 2009). The selection of sites based on presence of species of county importance will need to be justified case-by-case by reference to expert judgement, utilising the references above.

BRYOPHYTES

These criteria are directly derived from the JNCC guidelines for selection of biological SSSIs for lower plants (available at http://www.jncc.gov.uk/page-2303 *accessed 14 October 2010*). Some deviations from the JNCC criteria have been made to update information on species status and to simplify scoring of species for the purposes of this document.

To qualify as a prospective County Wildlife Site on grounds of bryophyte interest alone, a site must have post-1949 records for species (or infraspecific taxa) adding up to a total score of 100. This is lower than the threshold used for SSSI selection for lower plants (bryophytes plus lichens), which was set at 300.

Species should be scored using the list on the following pages, which is arranged alphabetically. Note recent name changes are accounted for by cross-referencing.

Cornwall BAP Priority species

A site is eligible for selection if it supports a significant population of any of the following species (BAP Priority species automatically score 200):
Cephaloziella calyculata Entire Threadwort
Cephaloziella dentata Toothed Threadwort
Cephaloziella integerrima Lobed Threadwort
Cephaloziella nicholsonii Greater Copperwort
Cryphaea lamyana Multi-fruited River Moss
Cyclodictyon laetevirens Bright-green Cave-moss
Ditrichum cornubicum Cornish Path Moss
Ditrichum plumbicola Lead-moss
Ditrichum subulatum Awl-leaved Ditrichum
Dumortiera hirsuta Dumortier's Liverwort
Fissidens curvatus Portuguese Pocket-moss
Fissidens serrulatus Large Atlantic Pocket-moss
Fossombronia foveolata Pitted Frillwort
Funaria pulchella Pretty Cord-moss
Grimmia crinita Hedgehog Grimmia
Jamesoniella undulifolia Marsh Earwort
Lejeunea mandonii Atlantic Lejeunea
Marsupella profunda Western Rustwort
Petalophyllum ralfsii Petalwort
Riccia bifurca Lizard Crystalwort
Riccia nigrella Black Crystalwort
Scopelophila cataractae Tongue-leaf Copper-moss
Telaranea nematodes Irish Threadwort
Tortula cuneifolia Wedge-leaved Screw-moss
Tortula wilsonii Wilson's Pottia
Weissia multicapsularis Spreading-leaved Beardless-moss

Species listed on Schedule 8 of the Wildlife & Countryside Act 1981 (as amended)

A site is eligible for selection if it supports a significant population of a listed species (these species automatically score 200).

Species listed on Annex II of the EC Habitats Directive (1992, as amended)

A site is eligible for selection if it supports a significant population of a listed species (these species automatically score 200).

Red Data Book (RDB) Species, Nationally Scarce Species and Species of county importance

Some Nationally Rare species (see Church *et al.,* 2001) that currently occur in fewer than ten British sites score 200. Other Nationally Rare taxa score 100, as do the rarest of the 'Nationally Scarce' category. Certain species showing widespread or long-term declines also score 100; however *Fossombronia husnotii* scores only 50 because it is found on many Cornish sites.

Nationally Scarce species (see Preston, 2006) score 50 (*Aloina ambigua* and *Fissidens limbatus* are excluded because both are under-recorded and taxonomically weak).

Any additional species (or taxa) that are rare in Cornwall (4 or fewer post-1949 records) score 50. However, those that are relatively common elsewhere across at least parts of southern or central England are ignored.

A few species that are both rare in Cornwall and otherwise unknown in southern Britain (or with only one or two other localities) score100 if they do not otherwise qualify for such a high score.

Tortula acaulon var. *papillosum* (syn. *Phascum cuspidatum* subsp. *papillosum*) and *Tortella flavovirens* var. *glareicola* are both ignored because taxonomy is uncertain and intermediates are very common.

Acaulon minus var. *mediterraneum* appears to be a Nationally Rare taxon with spiculose spores. An account of its characters and British records is in preparation. The score of 100 assumes it to be somewhat under-recorded.

For a few dioicous species the presence of both sexes together or of just the rarest sex is used to justify a higher score (100 not 50).

♣	indicates Nationally Scarce
**	indicates County Important (italicised if uncertain)
*	indicates rare in Cornwall and otherwise unknown in S England

Acaulon muticum var. mediterraneum	100
Adelanthus decipiens	100
Amblystegium radicale	200
Ambystegium saxatile = A. radicale	
Anomobryum filiforme = A. julaceum	
**Anomobryum julaceum	50
Antitrichia curtipendula	100
♣Atrichum tenellum	50
**Barbilophozia barbata	50
**Barbilophozia floerkei	50
**Bartramia ithyphylla	50
**Blepharostoma trichophyllum	50
♣Brachydontium trichodes	50
Bruchia vogesiaca	200
Bryum apiculatum	100
♣Bryum intermedium	50
Bryum torquescens	100
Bryum valparaisense	100
**Calliergon giganteum	50

*Calliergon sarmentosum	50
**Calypogeia sphagnicola	50
**Campyliadelphus elodes	50
Campylium elodes = Campyliadelphus elodes	
Campylopus pilifer	100
Campylopus polytrichoides = C. pilifer	
♣Cephalozia catenulata	50
♣Cephalozia macrostachya	50
♣Cephalozia pleniceps	50
Cephaloziella calyculata	100
Cephaloziella dentata	200
Cephaloziella integerrima	200
Cephaloziella massalongi	100
Cephaloziella nicholsonii	200
Cephaloziella spinigera	100
Cephaloziella turneri	100
Chenia rhizophylla	200
Coscinodon cribrosus	100
Cryphaea lamyana	200
♣Cryptothallus mirabilis	50
**Ctenidium molluscum var. condensatum	50
Cyclodictyon laetevirens	200
Dicranella crispa	100
**Dicranodontium denudatum	50
Discelium nudum	50
Distichium capillaceum	100
Distichium inclinatum	100
Ditrichum cornubicum	200
Ditrichum lineare	100
Ditrichum plumbicola	200
Ditrichum pusillum	50
Ditrichum subulatum	100
**Drepanocladus cossonii	50
Drepanocladus lycopodioides	100
♣Drepanocladus sendtneri	50
Drepanolejeunea hamatifolia	100
Dryptodon patens = Grimmia curvata	
Dumortiera hirsuta	100
Ephemerum sessile	100
Fissidens algarvicus = F. curvatus	
Fissidens curvatus	100
Fissidens polyphyllus	100
♣Fissidens rivularis	50
Fissidens serrulatus	200
**Fontinalis antipyretica var. gigantea	50
**Fontinalis antipyretica var. gracilis	50
Fontinalis squamosa var. curnowii	200
Fossombronia angulosa	100
Fossombronia caespitiformis	100
♣Fossombronia husnotii	50
Fossombronia maritima	100
Fossombronia pusilla var maritima = F. maritima	
Funaria pulchella	100
Gongylanthus ericetorum	100

Grimmia crinita	200
**Grimmia curvata	50
Grimmia decipiens	100
Grimmia laevigata	100
♣Grimmia orbicularis	50
Gymnomitrion concinnatum	100
Gymnomitrion obtusum	100
**Gymnostomum aeruginosum	50
♣Gymnostomum viridulum	50 (but 100 at 2 sites where sporophytes known)
**Harpalejeunea molleri	50
Harpalejeunea ovata = H. molleri	
**Harpanthus scutatus	50
**Isothecium holtii	50
♣Jamesoniella autumnalis	50
Jamesoniella undulifolia	200
**Jubula hutchinsiae	50
*Jungermannia atrovirens	50
Jungermannia caespiticia	100
♣Jungermannia subelliptica	50
**Kurzia trichoclados	50
**Leiocolea badensis	50
Lejeunea mandonii	200
**Lejeunea patens	50
♣Leptobarbula berica	50 (but 100 for male plants)
**Leptodon smithii	50
**Leptodontium flexifolium	50
Leucodon sciuroides var. morensis	100
**Lophozia sudetica	50
**Marchantia polymorpha subsp. polymorpha	50
**Marsupella funckii	50
Marsupella profunda	200
**Microbryum curvicolle	50
**Mylia taylorii	50
**Nardia compressa	50
Octodiceras fontanum	100
Orthotrichum rupestre	100
♣Orthotrichum sprucei	50
Petalophyllum ralfsii	200
Phaeoceros carolinianus	200
Phaeoceros laevis subsp. carolinianus = P. carolinianus	
Phascum cuspidatum var. piliferum = Tortula acaulon var. pilifera	
Phascum curvicolle = Microbryum curvicolle	
**Philonotis calcarea	50
♣Philonotis rigida	50
**Plagiochila spinulosa	50
**Plagiomnium ellipticum	50
Plagiothecium denticulatum var. obtusifolium	100
Pohlia andalusica	100
**Pohlia elongata subsp. elongata	50
Pohlia filum	100
♣Pohlia lescuriana	50
**Polytrichum alpinum	50
**Porella cordaeana	50
Pottia caespitosa = Pottiopsis caespitosa	

Pottia commutata = Microbryum davallianum (score 0)	
Pottia lanceolata = Tortula lanceola	
Pottia wilsonii = Tortula wilsonii	
Pottiopsis caespitosa	100
**Racomitrium elongatum	50
**Rhabdoweisia crispata	50
**Rhodobryum roseum	50
♣Riccardia incurvata	50
**Riccardia palmata	50
Riccia bifurca	200
♣Riccia cavernosa	50
Riccia crozalsii	100
Riccia huebeneriana	200
Riccia nigrella	200
Riccia rhenana	100
♣Rhynchostegiella curviseta	50
Scapania curta	100
Scapania paludicola	100
**Scapania umbrosa	50
**Scapania subalpina	50
Scopelophila cataractae	100
Southbya tophacea	200
**Sphagnum magellanicum	50
**Sphagnum molle	50
**Splachnum ampullaceum	50
♣Targionia hypophylla	50
Telaranea nematodes	200
♣Thuidium abietinum subsp. Abietinum	50
♣Tortula acaulon var. pilifera	50
Tortula canescens	100
Tortula cuneifolia	200
**Tortula lanceola	50
Tortula rhizophylla = Chenia rhizophylla	
Tortula solmsii	100
Tortula wilsonii	100
♣Weissia brachycarpa var. brachycarpa	50
Weissia controversa var. crispata	100
♣Weissia controversa var. densifolia	50
**Weissia longifolia var. angustifolia	50
Weissia microstoma var. brachycarpa = W. brachycarpa var. brachycarpa	
Weissia multicapsularis	200

INVERTEBRATES (EXCLUDING BUTTERFLIES, DRAGONFLIES AND DAMSELFLIES)

There should be a presumption for selecting invertebrate sites where they support the following species:

Cornwall BAP Priority species

A site is eligible for selection if it supports a significant population of any of the following species:

Molluscs:
Margaritifera margaritifera Freshwater Pearl Mussel
Omphiscola glabra Mud Snail
Truncatellina cylindrica Cylindrical Whorl Snail
Vertigo moulinsiana Desmoulin's Whorl Snail

Spiders:
Agroeca cuprea Golden Lantern-spider
Centromerus serratus A Money Spider
Dictyna pusilla Small Mesh-weaver
Dipoena inornata Silky Gallows-spider
Eresus sandaliatus Ladybird Spider
Haplodrassus dalmatensis Heath Grasper
Meioneta mollis Thin Weblet
Monocephalus castaneipes Broad Groove-head Spider
Sitticus caricis Sedge Jumper
Tapinocyba mitis Gentle Groove-head Spider

Beetles:
Agabus brunneus Sharp's Diving Beetle
Carabus intricatus Blue Ground Beetle
Harpalus melancholicus A Seed-eater Ground Beetle
Hydrochus nitidicollis Gravel Water Beetle
Melanapion minimum Sallow Guest Weevil
Meloe proscarabaeus Black Oil Beetle
Meloe violaceus Violet Oil Beetle
Pogonus luridipennis Yellow Pogonus

Flies:
Asilus crabroniformis Hornet Robberfly
Eristalis cryptarum Bog Hoverfly
Lipsothrix nervosa Southern Yellow Splinter
Salticella fasciata Dune Snail-killing Fly

Bees:
Bombus humilis Brown-Banded Carder Bee
Bombus muscorum Moss Carder Bee
Bombus sylvarum Shrill Carder Bee
Eucera longicornis Long-horned Bee

Wasps:
Cerceris quinquefasciata 5-Banded Tailed Digger Wasp

Moths:
Acronicta psi Grey Dagger
Acronicta rumicis Knot Grass
Agrochola helvola Flounced Chestnut
Agrochola lychnidis Beaded Chestnut
Allophyes oxyacanthae Green-brindled Crescent
Amphipoea oculea Ear Moth
Amphipyra tragopoginis Mouse Moth
Apamea anceps Large Nutmeg
Apamea remissa Dusky Brocade
Aporophyla lutulenta Deep-brown Dart
Arctia caja Garden Tiger
Atethmia centrago Centre-barred Sallow
Brachylomia viminalis Minor Shoulder Knot
Caradrina morpheus Mottled Rustic
Celaena haworthii Haworth's Minor
Celaena leucostigma Crescent
Chesias legatella Streak
Chesias rufata Broom-tip
Cosmia diffinis White-Spotted Pinion
Cossus cossus Goat Moth
Cyclophora porata False Mocha
Dasypolia templi Brindled Ochre
Diarsia rubi Small Square-spot
Ecliptopera silaceata Small Pheonix
Ennomos erosaria September Thorn
Ennomos fuscantaria Dusky Thorn
Ennomos quercinaria August Thorn
Epirrhoe galiata Galium Carpet
Eugnorisma glareosa Autumnal Rustic
Eulithis mellinata Spinach
Euxoa nigricans Garden Dart
Euxoa tritici White-line Dart
Hemaris tityus Narrow-bordered Bee Hawk-moth
Hemistola chrysoprasaria Small Emerald
Hepialus humuli Ghost Moth
Hoplodrina blanda Rustic
Hydraecia micacea Rosy Rustic
Jodia croceago Orange Upperwing
Luperina nickerlii leechi Sandhill Rustic
Lycia hirtaria Brindled Beauty
Malacosoma neustria Lackey
Melanchra persicariae Dot Moth
Melanchra pisi Broom Moth
Melanthia procellata Pretty Chalk Carpet
Mesoligia literosa Rosy Minor
Mythimna comma Shoulder-striped Wainscot
Noctua orbona Lunar Yellow Underwing
Orthonama vittata Oblique Carpet
Orthosia gracilis Powdered Quaker
Pelurga comitata Dark Spinach
Perizoma albulata albulata Grass Rivulet
Rheumaptera hastata Argent and Sable
Scopula marginepunctata Mullein Wave

Scotopteryx bipunctaria Chalk Carpet
Scotopteryx chenopodiata Shaded Broad-bar
Spilosoma lubricipeda White Ermine
Spilosoma luteum Buff Ermine
Stilbia anomala Anomalous
Syncopacma suecicella Western Sober Moth
Tholera cespitis Hedge Rustic
Tholera decimalis Feathered Gothic
Timandra comae Blood Vein
Trichiura crataegi Pale Eggar
Tyria jacobaeae Cinnabar
Watsonalla binaria Oak Hook-tip
Xanthia icteritia Sallow
Xanthorhoe ferrugata Dark-barred Twin-Spot Carpet
Xestia agathina Heath Rustic
Xestia castanea Neglected Rustic

Stoneflies:
Brachyptera putata A Stonefly

Species listed on Schedule 5 of the Wildlife & Countryside Act 1981 (as amended)
A site is eligible for selection if it supports a significant population of a listed species.

Species listed on Annex II of the EC Habitats Directive (1992, as amended)
A site is eligible for selection if it supports a significant population of a listed species.

Red Data Book (RDB) Species
A site is eligible for selection if it supports a significant population of a RDB species (see Bratton, 1991 and Shirt, 1987)

Nationally Scarce Species
A site is eligible for selection if it supports a significant population of a Nationally Scarce species.

Species of county importance
A site is eligible for selection if it supports a significant population of a species of county importance, or if it supports two species of county importance. Some data on locally important invertebrates is available within the Red Data Book for Cornwall and the Isles of Scilly (CISFBR, 2009). The selection of sites based on presence of species of county importance will need to be justified case-by-case by reference to expert judgement, utilising the references above.

BUTTERFLIES

BAP species and butterflies local in Cornwall will be considered for the selection of sites. Wildlife & Countryside Act Schedule 5 species are particularly important and are listed first.

Species listed on Schedule 5 of the Wildlife & Countryside Act 1981 (as amended)

Any sites with natural colonies of the following species should be considered to be of County importance:
Maculinea arion Large Blue Butterfly *(extinct and reintroduced)*
Melitaea athalia Heath Fritillary
Argynnis adippe High Brown Fritillary
Euphydryas aurinia Marsh Fritillary

Cornwall BAP Priority species

Any sites with natural colonies of the following species should be considered to be of County importance:
Boloria euphrosyne Pearl-bordered Fritillary
Boloria selene Small Pearl-bordered Fritillary
Erynnis tages Dingy Skipper
Leptidea sinapis Wood White
Plebejus argus Silver-studded Blue
Pyrgus malvae Grizzled Skipper

Significant populations of the remaining BAP priority species may be considered to be of county importance (refer to expert judgement):
Hipparchia semele Grayling
Limenitis camilla White Admiral
Satyrium w-album White Letter Hairstreak
Thecla betulae Brown Hairstreak

Two BAP species are not included above; small heath (*Coenonympha pamphilus*) and wall (*Lasiommata megera*). These species are still widespread and their conservation is unlikely to be enhanced by designation of county wildlife sites.

Species listed on Annex II of the EC Habitats Directive (1992, as amended)

A site is eligible for selection if it supports a significant population of a listed species.

Red Data Book (RDB) Species

A site is eligible for selection if it supports a significant population of a RDB species (see Shirt, 1987 and Fox *et al*., 2010).

Nationally Scarce Species

A site is eligible for selection if it supports a significant population of a Nationally Scarce species.

Species of county importance

A site is eligible for selection if it supports a significant population of a species of county importance, or if it supports two species of county importance. Some data on locally important butterflies is available within the Red Data Book for Cornwall and the Isles of Scilly (CISFBR, 2009). Any site that contains one or more of the following species will be eligible to be considered of County importance. Because we are dealing here with species

not considered to be of any national significance only 'significant', or the 'most significant' colonies will be selected (refer to expert judgement).
Brown Argus *Plebeius agestis*
Dark Green Fritillary *Argynnis aglaja*
Green Hairstreak *Callophrys rubi*

DRAGONFLIES AND DAMSELFLIES (ODONATA)

There should be a presumption for selecting Odonata sites where they support the following species:

Cornwall BAP Priority species

A site is eligible for selection if it supports a significant population of the Southern Damselfly (*Coenagrion mercuriale*).

Species listed on Schedule 5 of the Wildlife & Countryside Act 1981 (as amended)

A site is eligible for selection if it supports a significant population of a listed species.

Species listed on Annex II of the EC Habitats Directive (1992, as amended)

A site is eligible for selection if it supports a significant population of a listed species.

Red Data Book (RDB) Species

A site is eligible for selection if it supports a significant population of a RDB species (see Shirt, 1987 and Daguet *et al*., 2008).

Nationally Scarce Species

Any site that contains a colony of these species is eligible to be considered of county importance. The status of the species in the county and the size of the colony are factors to be considered together. A site qualifies for selection if it contains a Nationally Scarce species that is:

- a strong population of the species
- a population that has been established for more than 20 years
- a population outside its normal range.

The exact meaning of the terms 'strong' and 'normal range' need to be established for each species on a site by site basis and the reasons for each judgement included in the site evaluation.

Ischnura pumilio and *Ceriagrion tenellum*
The largest colonies will certainly be of county importance, but a review of its status (distribution and population) will be required before detailed assessments can be made.

Sympetrum sanguineum
Any site of this migratory species that is shown to hold a self-sustaining breeding population will be of county importance.

Species of county importance

A further three species known or presumed to occur in 101-150 10 km squares in Great Britain are thought to be so nationally uncommon that any site that holds them should be considered for CWS status. These species are listed below:

Aeshna mixta
Orthetrum coerulescens
Orthetrum cancellatum
Platycnemis pennipes

A site qualifies for selection if it contains a species of county importance that is:

- a strong population of the species that is known to be long established; or
- a strong population outside its normal range.

Outstanding assemblages
All sites with at least 14 breeding species should be considered for selection.

Further guidelines
All records should be within three years of the selection date. Only confirmed breeding records should be considered. Transient populations should not be considered.

If possible, every breeding species firmly established within Cornwall should be present in at least one CWS.

In the definition of site boundaries, semi-natural terrestrial habitats used for feeding and resting should be included, as well as the breeding sites themselves. It may also be necessary to include part of the catchment in order to protect water quality or quantity.

Those species that have not been mentioned so far include several that are rare, uncommon or localised in Cornwall. They add to the value of a site and can be taken account of in the process of evaluation. Of particular note are the following:
Calopteryx splendens
Sympetrum danae

FISH

Gainey, in CISFBR (2009), states that of the 55 species and about 10 hybrids of native or introduced freshwater fish known in the British Isles, 35 have been recorded in Cornwall. None are rare, but several can be considered Locally Scarce, provisionally Nationally Scarce or a species of conservation concern. Many more marine and estuarine species have been recorded, which range from Locally Scarce / species of conservation concern to RDB species.

There should be a presumption for selecting fish sites because they support the following:

Cornwall BAP Priority species
All sites with significant populations of the following species qualify for selection:
Acipenser sturio Common Sturgeon
Alosa alosa Allis Shad
Alosa fallax Twaite Shad
Anguilla anguilla European Eel
Salmo salar Atlantic Salmon
Salmo trutta Brown/Sea Trout
Lampetra fluviatilis River Lamprey

Species listed on Schedule 5 of the Wildlife & Countryside Act 1981 (as amended)
A site is eligible for selection if it supports a significant population of a listed species.

Species listed on Annex II of the EC Habitats Directive (1992, as amended)
A site is eligible for selection if it supports a significant population of a listed species.

Red Data Book (RDB) Species
A site is eligible for selection if it supports a significant population of a RDB species.

Nationally Scarce Species
A site is eligible for selection if it supports a significant population of a Nationally Scarce species.

Species of county importance
A site is eligible for selection if it supports a significant population of a species of county importance, or if it supports two species of county importance. Some data on locally important fish is available within the Red Data Book for Cornwall and the Isles of Scilly (CISFBR, 2009). The selection of sites based on presence of species of county importance will need to be justified case-by-case by reference to expert judgement, utilising the references above.

REPTILES AND AMPHIBIANS (HERPTILES)

There should be a presumption for selecting reptile and amphibian sites because they support the following species:

Cornwall BAP Priority species

A site is eligible for selection if it supports a significant population of the following species:
Anguis fragilis Slow-worm
Bufo bufo Common Toad
Lacerta agilis Sand Lizard (*reintroduced*)
Lacerta vivipara Common Lizard
Natrix natrix Grass Snake
Vipera berus Adder

Species listed on Schedule 5 of the Wildlife & Countryside Act 1981 (as amended)

All species above are also listed on Schedule 5 and therefore a site is eligible for selection if it supports a significant population of any of the above species.

Species listed on Schedule 5 of the Conservation of Habitats and Species Regulations 2010

A site is eligible for selection if it supports a significant population of the following species:
Lacerta agilis Sand Lizard (*reintroduced*)

Sites with significant Reptile assemblages

Foster & Gent (1996) put forward the following criteria for selection of 'Key Reptile Sites', which should be considered for designation:

- All sites with three or more reptile species
- All sites with two snake species
- Sites with exceptional populations of one species (see table below)
- Assemblage sites with a score of four or more (see table below)

	Population		
Species	Low	Good	Exceptional
Adder	<5	5-10	>10
Grass snake	<5	5-10	>10
Common lizard	<5	5-20	>20
Slow-worm	<5	5-20	>20
Score	**1**	**2**	**3**

The figures refer to maximum numbers of reptiles recorded by one person in one day, by observation and/or by checking under 'tins' placed at a density of up to 10 per hectare. The 'tinning' survey method is described in Gent & Gibson (1998).

Sites with significant Amphibian assemblages

Sites may be scored both for the number of amphibian species that are present and for the size of the population(s) present. A score of **7 or higher** means that a site is eligible for selection. Where an Area of Search (AOS) has been well surveyed and no site qualifies, the site with the highest score is eligible for selection. The scores are produced by scoring one for each species recorded at the site and adding the scores for the populations given in the table below.

		Population		
Species		Low	Good	Exceptional
Palmate Newt	Netted in day/counted at night	<10	10-100	>100
Common Toad	Estimated	<500	500-5000	>5000
	Counted	<100	100-1000	>1000
Common Frog	Spawn clumps counted	<50	50-500	>500
Score		**1**	**2**	**3**

Survey methods are described in Gent & Gibson (1998).

BIRDS

We have an in-depth understanding of the distribution, population and trends of many of the bird species in Cornwall, sometimes at a seasonal or even monthly level. The approach to site selection for birds therefore may involve looking at all bird species that use a site, the range of species and their populations within the site, along with presence of certain listed species. There should be a presumption for selecting bird sites because they support the following species:

Cornwall BAP Priority species

There are a number of BAP priority species that are not site specific: song thrush and bullfinch are two obvious examples. There are others like aquatic warbler and nightjar that are. Where a species is site specific and the site supports a significant population, site notification might be appropriate:

Acrocephalus paludicola Aquatic Warbler
Alauda arvensis arvensis Sky Lark
Anser albifrons albifrons European Greater White-fronted Goose
Anthus trivialis trivialis Tree Pipit
Aythya marila Greater Scaup
Botaurus stellaris stellaris Bittern
Branta bernicla bernicla Dark-bellied Brent Goose
Caprimulgus europaeus europaeus Nightjar
Carduelis cabaret Lesser Redpoll
Carduelis cannabina autochthona/cannabina Linnet
Carduelis flavirostris bensonorum/pipilans Twite
Circus cyaneus Hen Harrier
Coccothraustes coccothraustes Hawfinch
Cuculus canorus canorus Common Cuckoo
Cygnus columbianus bewickii Bewick's Swan (Tundra Swan)
Dendrocopos minor comminutus Lesser Spotted Woodpecker
Emberiza cirlus Cirl Bunting
Emberiza citrinella citrinella Yellowhammer
Emberiza schoeniclus schoeniclus Reed Bunting
Larus argentatus argenteus Herring Gull
Limosa limosa limosa Black-tailed Godwit
Locustella luscinioides luscinioides Savi`s Warbler
Locustella naevia naevia Grasshopper Warbler
Lullula arborea arborea Wood Lark
Miliaria calandra calandra Corn Bunting
Motacilla flava flavissima Yellow Wagtail
Muscicapa striata striata Spotted Flycatcher
Numenius arquata arquata Curlew
Parus montanus kleinschimdti Willow Tit
Parus palustris palustris/dresseri Marsh Tit
Passer domesticus domesticus House Sparrow
Passer montanus montanus Tree Sparrow
Phylloscopus sibilatrix Wood Warbler
Prunella modularis occidentalis Dunnock (Hedge Accentor)
Puffinus mauretanicus Balearic Shearwater
Pyrrhula pyrrhula pileata Bullfinch
Sterna dougallii dougallii Roseate Tern
Sturnus vulgaris vulgaris Starling
Turdus philomelos clarkei Song Thrush

Turdus torquatus torquatus Ring Ouzel
Vanellus vanellus Lapwing

Species listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)
Species listed on Schedule 1 are generally rare breeding species. County Wildlife Site notification is unlikely to increase the protection for the majority of species. Moreover, with certain species it would be impractical to keep any site system up-to-date. For example, there are about 400 pairs of barn owls in the county. Unless sites were continually monitored, the site system would soon have sites without barn owls and a number of breeding sites which were undesignated. Listing on Schedule 1 is therefore not a primary reason for designation of CWS.

Species listed on Annex I of the EC Birds Directive (2009)
As for BAP species, there are a number of Annex I species that are not site specific and others that are. Where a species is site specific and a significant population is present, site notification would be sensible.

Birds of Conservation Concern (Eaton *et al*., 2009)
As for BAP species, there are a number of species of conservation concern that are not site specific and others that are. Where a species is site specific and a significant population is present, site notification may be an appropriate way to aid the species' conservation.

Significant populations at the county level (based on wintering waterbird criteria)
These criteria were initially developed to allow a site of county importance for birds to be identified by taking into account the national and local populations of species, along with the range and number of species present. Detailed thresholds for designating sites have been developed as a result of work undertaken on wintering waterbirds on coastal floodplain and grazing marsh (McCartney, P., 2005). This reference contains full information on the background and rationale behind the thresholds summarised here.

<u>Thresholds</u>
For each bird species we propose that there should be a population (a threshold) which will automatically afford any site the status of county importance. This will be derived both from the national and from the Cornwall population.

A wetland site in Britain is considered to be nationally important if it regularly holds 1% of the estimated British population of one species or subspecies of waterbirds. In the production of thresholds for Cornwall we will provisionally take the threshold for the county to be 20% of the national threshold (i.e. 0.2% of the national population). However, we also wish to take into account that there are some species that are scarce within Cornwall. We therefore provisionally take a second threshold to be 20% of the county population.

We will take whichever is the lower (0.2% of the national population or 20% of the county population), to be the A threshold. We propose that any species that reaches the A threshold at any site in the county should make the site of county importance.

The derivation of the threshold used in Cornwall is laid out in the table below. The figure used for qualification (the A threshold) is in bold.

Table of National and County Thresholds for Wintering Waterbirds

	National threshold (1% of the national population)	20% of the national threshold (0.2% of the national population)	County population	20% of the county population
Little Egret	20*est?*	**4***est?*	350	70
Grey Heron	400*est?*	**80***est?*	500	100
Mute Swan	260	**52**	350	70
Wigeon	2800	**560**	3500	700
Teal	1400	**280**	3000	600
Mallard	5000	1000	3000	**600**
Pintail	280	56	35	**8**
Shoveler	100	**20**	100	**20**
Moorhen	2150	430	1800	**360**
Coot	1100	220	400	**80**
Oystercatcher	3600	720	1500	**300**
Golden Plover	2500	**500**	15 000	3000
Lapwing	20 000	**4000**	20 000	**4000**
Snipe	?	?	20 000	**4000**
Black-tailed Godwit	150	**30**	250	50
Curlew	1500	**300**	2500	500
Redshank	1100	220	1000	**200**
Green Sandpiper	?	?	20	**4**
Common Sandpiper	?	?	10	**2**
Black-headed Gull	19 000	**3800**	45 000	9000
Herring Gull	4500	**900**	20 000	4000

? indicates that the population size is not accurately known.
est indicates that we have estimated the national figures for Little Egret and Grey Heron

Combinations of species on one site

There is rarely just one species on a site and it might be that there are several species present in moderate numbers that do not meet the A threshold, but are nevertheless present in such numbers that the site is clearly of significant nature conservation importance. To accommodate this view we propose further B, C and D thresholds which are related in a fixed way to the A threshold.

- B threshold: 50% of the A threshold
- C threshold: 20% of the A threshold
- D threshold: 10% of the A threshold

Table of Thresholds for wintering waterbrids in Cornwall

	A	B	C	D
Little Egret	4	2	1	
Grey Heron	80	40	16	8
Mute Swan	52	26	10	5
Wigeon	560	280	112	56
Teal	280	140	56	28
Mallard	600	300	120	60
Pintail	8	4	2	1
Shoveler	20	10	4	2
Moorhen	360	180	72	36
Coot	80	40	16	8
Oystercatcher	300	150	60	30
Golden Plover	500	250	100	50
Lapwing	400	4000	20000	4000
Snipe	4000	2000	800	400
Black-tailed Godwit	30	15	6	3
Curlew	300	150	60	30
Redshank	200	100	40	20
Green Sandpiper	4	2	1	
Common Sandpiper	2	1		
Black-headed Gull	3800	1900	760	380
Herring Gull	900	450	180	90

Table to enable assessment of combinations of species on any one site

No of species	Minimum Qualifying Threshold	
One	A	
Two	B+D	2C
Three	C+2D	
Four	4D	
Five or more	Refer to expert judgement if any of the above are not met	

The table should be used only as a guide. The final assessment on how the wintering waterbirds inform us of the importance any site inevitably comes down to expert judgement.

MAMMALS

Only terrestrial species are considered. There should be a presumption for selecting mammal sites on the following grounds:

Bats

Cornwall BAP Priority species
A site is eligible for selection if it supports a significant population of any of the following species:

Barbastellus barbastellus	Barbastelle
Nyctalus noctula	Noctule
Pipistrellus pygmaeus	Soprano Pipistrelle
Plecotus auritus	Brown long-eared
Rhinolophus ferrumequinum	Greater Horseshoe
Rhinolophus hipposideros	Lesser Horseshoe

Species listed on Schedule 5 of the Wildlife & Countryside Act 1981 (as amended)
A site is eligible for selection if it supports a significant population of any bat species, as all are listed on Schedule 5.

Species listed on Schedule 5 of the Conservation of Habitats and Species Regulations 2010
A site is eligible for selection if it supports a significant population of any bat species, as all are listed on Schedule 5.

Criteria for selection as a county wildlife site
Significant maternity roosts, autumn mating roosts and hibernacula will be eligible for selection. Where a significant roost site is identified, the County Wildlife Site boundary should be drawn to include the features and foraging areas of value nearby; such as pasture, woodland and/or water bodies. The site should also include linear features that connect the roost to foraging areas or other associated roosts. When a significant roost is identified, a priority will be to identify any associated roosts nearby (e.g. lesser horseshoe satellite maternity roosts). Below is a guide to help determine significant maternity roost sites; each case will be considered individually, referring to expert judgement. Sites will be designated where it is considered that this will aid the conservation of the species in Cornwall.

Table to aid determination of a significant bat maternity roost in Cornwall

Species	**Maternity roosts eligible for selection***
Barbastelle	Any maternity roost
Greater horsehoe	Any maternity roost
Lesser horseshoe	Any maternity roost
Daubentons	Any maternity roost
Whiskered	Any maternity roost
Brandt's	Any maternity roost
Nathusius' pipistrelle	Any maternity roost
Common pipistrelle	Maternity roosts of 50+ adults
Soprano pipistrelle	Maternity roosts of 100+ adults
Noctule	Maternity roosts of 20+ adults
Natterer's	Maternity roosts of 20+ adults
Brown long-eared	Maternity roosts of 15+ adults

** Nb. Significant autumn mating roosts and hibernacula are also eligible for selection*

Other Mammals

Cornwall BAP Priority species

A site is eligible for selection if it supports a significant population of any of the following species (except those that are the result of recent deliberate introductions that do not form part of a recognised species recovery programme):
Lepus europaeus Brown Hare
Lutra lutra Otter
Micromys minutus Harvest Mouse
Muscardinus avellanarius Dormouse
(Nb. Yellow-necked mouse *Apoldemus flavicollis* is included in the UK BAP but not in the Cornwall BAP)

Site selection is based primarily on regularly used breeding territories and should include foraging habitat drawn to logical land boundaries. However, consideration should be given to identifying areas utilised at other times of the year where these contribute to the essential habitat requirements of the species.

Species listed on Schedule 5 of the Wildlife & Countryside Act 1981 (as amended)

A site is eligible for selection if it supports a significant population of any of the following species:
Lutra lutra Otter
Muscardinus avellanarius Dormouse

Species listed on Schedule 5 of the Conservation of Habitats and Species Regulations 2010

A site is eligible for selection if it supports a significant population of any of the following species:
Lutra lutra Common Otter
Muscardinus avellanarius Dormouse

<u>Otters</u>
Any breeding holt and surrounding habitat of value connecting animals to their feeding areas should be considered.

<u>Dormice</u>
Sites would meet the criteria where there is confirmed presence of dormice (known records up to 5 years old; older records may qualify if habitat remains). Priorities for county wildlife site selection should be:

- those monitored for the National Dormouse Monitoring Programme
- atypical habitats
- habitats chosen as good examples of management as part of the LBAP targets

Sites should include any semi-natural habitat of value to dormice which is contiguous with the record, including any connecting habitat such as a hedge between two sites.

References for Appendix 6

The main references for information on Red Data Book and Nationally Scarce species are included below, but these lists are updated frequently and selection based on these criteria must be undertaken based on the latest information and references. Several updates to the lists are available on the JNCC website at http://www.jncc.gov.uk/page-3352 (accessed 14 October 2010).

Bratton, J.H. (Ed.) (1991) *British Red Data Books: 3. Invertebrates Other Than Insects*. JNCC, Peterborough.

Cheffings, C. & Farrell, L. (2005) *The Vascular Plant Red Data List for Great Britain*. JNCC, Peterborough.

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Church, J. M., Hodgetts, Preston, C. D. and Stewart, N. F. (2001). *British Red Data Books: Mosses and Liverworts*. JNCC, Peterborough.

CISFBR [Cornwall and the Isles of Scilly Federation of Biological Recorders] (2009) *Red Data Book for Cornwall and the Isles of Scilly. 2nd Edition.* Croceago Press. Praze-an-Beeble.

Daguet, C., French, G., Taylor, P. (eds) (2008) *The Odonata Red Data List for Great Britain*. JNCC, Peterborough.

Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) *Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man*. British Birds 102, pp296-341.

Foster, J. & Gent, A. (1996) *Reptile survey methods*: proceedings of a seminar held on 7 November 1995 at the Zoological Society of London's meeting rooms, Regent's Park, London. English Nature Science Series No. 27.

Fox, R., Warren, M. S. & Brereton, T. M. (2010) *The Butterfly Red List for Great Britain*. JNCC, Peterborough.

Gent, A.H. & Gibson, S.D. (1998) *Herpetofauna Worker's Manual*. JNCC, Peterborough.

Leach, S. J., & Rusbridge, D. J. 2006. A tool for assessing the current conservation status of vascular plants on SSSIs in England: May 2006. *English Nature Research Reports*, No 690.

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Perston, C. D. (2006) A revised list of nationally scarce bryophytes. *Field Bryology* **90**: 22-30.

Preston, C. D., Pearman, D. A. & Dines, T. D. (2002) *New Atlas of the British and Irish Flora*. Oxford Unity Press Inc., New York

Shirt, D.B. (Ed.) (1987) *British Red Data Books: 2. Insects*. JNCC, Peterborough.

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Wiggington, M.J. (1999) British Red Data Book. *Vascular Plants*. 3rd Edition. JNCC, Peterborough.

Appendix 7

Protocol for Amending County Wildlife Site Boundaries (DRAFT)

Tick when Process Complete	

Protocol for Amending Local Site Boundaries - County Wildlife Sites (DRAFT)

Cornwall

Site name:			**Site code:**		
Grid ref. (site centroid):			**Site area:**		
Type of assessment. (tick as appropriate)					
Boundary update		Extension (go to page 2)		Contraction (go to page 3)	
New Site		(Go to page 2)			
Site Deletion		(Go to page 3)			
County Wildlife Site Technical Group.					
Name of assessors:					
Date of assessment:					

Assessment summary

DRAFT

Site Extension/New Site

Details of any relevant survey information. (complete if relevant)			
Surveyor:		Survey Date:	
Type of survey:			
Survey Report attached:		Y/N	
Landowner:			

Site extension/new site rationale:	
Relevant Habitat Criteria:	
Notes:	
Relevant Species Criteria:	
Notes:	
Additional significant interest:	
Notes:	
Details of how combined value of additional interest adds further justification for designation:	
Site eligible for selection	Y/N
Summary of Justification for selection:	
Landowner comments/observations:	

Go to page 4

DRAFT

Site Contraction/Deletion

Details of any relevant survey information. (complete if relevant)			
Surveyor:		Survey Date:	
Type of survey:			
Survey Report attached:		Y/N	
Landowner:			

Site contraction/deletion rationale:
Relevant Habitat Criteria:
Notes:
Relevant Species Criteria:
Notes:
Any other relevant factors:
Reasons for deletion:
Landowner comments/observations:

Proceed to next page

DRAFT

Local Sites Partnership Approval of Boundary Amendment

<table>
<tr><td colspan="4">Date of meeting:</td><td rowspan="8">List of those present:</td></tr>
<tr><td>Site amendment approved:</td><td>Y/N</td><td>Date of approval:</td><td></td></tr>
<tr><td colspan="4">If amendment not approved, details of any further work needed:</td></tr>
<tr><td colspan="3">Date Summary sheet prepared/ updated:</td><td></td></tr>
<tr><td colspan="3">Date boundary drawn/updated on GIS:</td><td></td></tr>
<tr><td colspan="3">Date GIS layer updated:</td><td></td></tr>
<tr><td colspan="3">Date web database updated:</td><td></td></tr>
<tr><td colspan="3">Date of layer re-issue to partners:</td><td></td></tr>
<tr><td colspan="3">Landowner informed:</td><td></td></tr>
<tr><td colspan="5">Landowner comments:</td></tr>
</table>

DRAFT