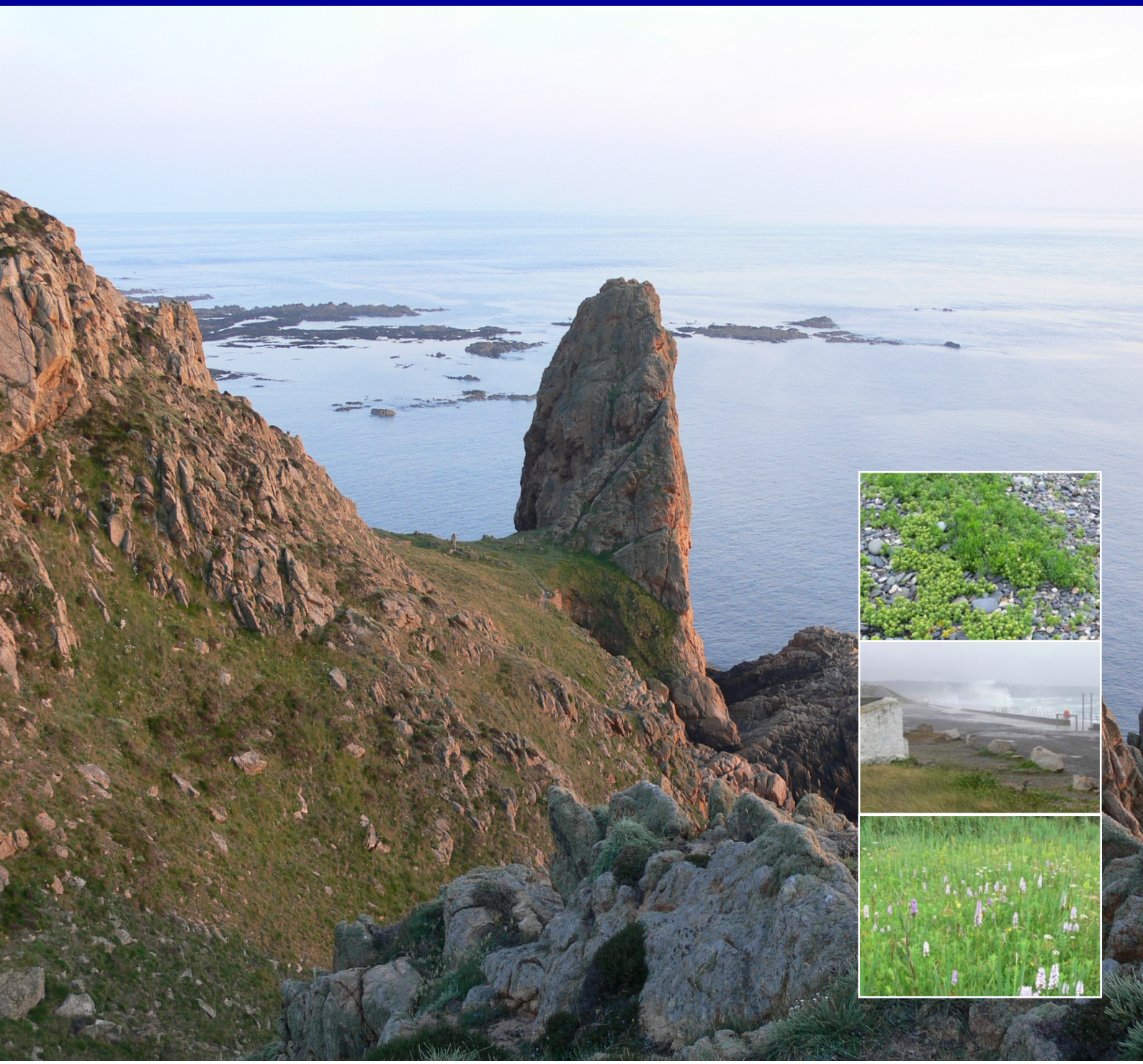
Department of the Environment—Jersey

Preparation of New Habitat Condition Monitoring Objectives

July 2013



Penny Anderson Associates Ltd
Consultant Ecologists

DEPARTMENT OF THE ENVIRONMENT - JERSEY

PREPARATION OF NEW HABITAT CONDITION MONITORING OBJECTIVES

Penny Anderson Associates Limited
'Park Lea'
60 Park Road
Buxton
Derbyshire
SK17 6SN

Project Manager
Penny Anderson

July 2013

This report has been undertaken in accordance with PAA policies and procedures on quality assurance.

Signed: 

CONTENTS

TABLES

FIGURES

APPENDICES

1. INTRODUCTION

1.1 Jersey Department of the Environment has commissioned Penny Anderson Associates Ltd (PAA) to prepare new Habitat Condition Monitoring Objectives and assessment procedures for;

- wet meadows;
- maritime cliffs and slopes;
- marsh and freshwater; and
- salt marsh.

1.2 This report sets out the approach taken in developing these objectives and presents the rationale for, background to and the detailed Condition Monitoring Objectives for each of these habitats. Each is given a separate chapter below.

2. METHODOLOGY

2.1 The Habitat Condition Monitoring Objectives have been developed by:

- understanding the type of standards required by reviewing nine other Objectives already set out by the States of Jersey DoE;
- having a wide appreciation of the character and nature of the habitats in general and in Jersey through previous field surveys undertaken by PAA;
- reference to the JNCC Common Standards Monitoring (2004) as guidance on the key features used for condition monitoring in the UK;
- reference to the Agri-Environment schemes in England (Natural England 2010) where Farm Environment Plans and condition assessment of the habitats on any farm form part of the application and subsequent monitoring process;
- an understanding of the nature conservation issues, objectives and needs in Jersey.

2.2 The key requirements are to generate Habitat Condition Monitoring Objectives that are relatively simple, do not require detailed specialist botanical or ecological knowledge, that can be completed by adequately trained but not necessarily specialist ecologists in the field but which balance these requirements out by being adequately robust and repeatable. They need to be able to fulfil their function of measuring condition in the field and thus provide adequate data for the DoE's reporting and site management processes.

2.3 The different condition assessment schemes mentioned above that are used in the UK or England are useful in providing ideas and identifying what might be key features of interest for consideration within the Jersey context. The surveys already carried out by PAA on Jersey identified key features and species within the Jersey context at the time and it is assumed that little has changed in some of these habitats since these surveys were undertaken. This information is being used in preparing these Habitat Condition Monitoring Objectives.

2.4 It will be necessary to try out the new Habitat Condition Monitoring Objectives on site to ensure that the features and species are still present and worthy of inclusion in the objectives.

3. WET MEADOW

Location and Approach

3.1 The development of site condition objectives for wet meadows has been based on the surveys carried out by PAA on various sites and then amalgamating the data for the sites that lie within the SSIs. The sites and their surveys are as follows:

- Grouville Marsh – a suite of three meadows, numbered 213, 236 and 7, surveyed 2000;
- St Ouen's pond SSI, meadows 6, 9, 10, 11, 13, 14, 18, 19, 21 and 23 (this includes some wet meadows that are not as rich as the better ones); surveyed 1996;
- St Peter's Valley, meadows 26a-e, 26g, a meadow between 26e and g, and 25c; surveyed 2003,
- Rue de Près, meadows 20a, 20b/l, 20d, e & h grazed, 20d, e & h ungrazed, 20f, g & k, 20m, 20j and 20i, all surveyed in 2004;
- Below Hamptone, meadows 19a & b, 19c and 19g, surveyed in 2004 (not SSI but of high value)
- Trinity, site 11 in the 2003 wet meadows survey.
- Ferny Valley, NT field north of St Helier.

3.2 This collection of 35 meadows includes 17 that have been assessed as of high or quite high value within the different surveys (although the earlier surveys were not evaluated in the same way as the wet meadows surveys in 2003/4), all bar one of the remainder being assessed as of medium or medium to high value. Just one on Rue de Près (meadow 20f/g/k) was regarded as of low value. The tabulation of the species found in these meadows (provided as Appendix 3.1) and their site descriptions presented in the different reports have been used to identify the desirable features, characteristic species as wet meadow desirables or undesirables and other criteria in the site condition objectives.

3.3 Not all the sites selected are within SSIs, although there will be some protection for the NT meadows, However, those selected are of generally high value, so they were felt to be representative of the general character of the best meadows and therefore useful for generating condition objectives. Not all the sites with the highest number of wetland species or overall high value are included within this list, there being other sites in La Vallée des Vaux, Trinity, west of St Lawrence, the NT's Ferny Valley site and the upper end of St Catherine's Valley. The site condition objectives may be suitable for these meadows as well if they were to be restored and managed for nature conservation, but they have not been examined in detail to prepare the criteria.

3.4 The high value wet meadows tend to be:

- rich in plant species typical of wet meadows (i.e. there is a long list of species); there may be a wide range of additional species in each site as well, but these are often characteristic of drier ground;

- diverse in that each species is spread throughout the wet communities, not just restricted e.g. to stream edges;
- support some important Jersey specialities;
- are of medium height;
- often have diverse habitat conditions such as a small stream with water-edge species, springs or oozes thus providing greater variation in wetness, often fringed with drier ground with diverse dry ground vegetation;
- are managed by hay cutting and aftermath grazing, or just by light grazing without poaching.

3.5 Negative features of wet meadows are:

- low numbers of plant species, with little overall diversity and dominance by a limited range of species;
- tall and vigorous species often dominated by hemlock water dropwort, often with beds of nettles in drier spots;
- invasion by bracken, Yorkshire fog or other vigorous species where unmanaged, drained and diversity lost;
- dominated by grasses where herbicides and fertilisers have been used or grazing has been prolonged and at too high a level;
- the presence of non-native invasive species like Japanese knotweed;
- polluted water in the streams.

3.6 The number of species characteristic of wet meadows is more relevant than the total plant list, although where there are other habitats such as dry ground within the site, additional species are desirable. Twenty or more wetland species in a site would indicate good condition provided they were also spread out well and not confined to a few plants on site edges. If there are less than 10 wetland species, the site is not of high value for its wet meadow species on the whole. Work done in the Trinity meadow shows that restoration management with hay cutting and aftermath grazing can result in significant improvements in wetland species numbers on neglected and unmanaged sites, but restoration of drained or herbicided land may be more difficult.

3.7 Since the number of wetland species is a reflection of the character and value of the wet meadows, most emphasis has been placed on this character. If the numbers are low, and lower than they were when the fields were systematically surveyed, then changes in management can be suspected and appropriate measures taken to rectify or explore this. However, using a representative list of wetland species also requires identification. Compromises have been made by combining some species such as the jointed rushes, the wetland forget-me-nots and the amphibious bistort/water pepper (although taste is all that is needed to separate these).

3.8 The list that has been generated includes those species that occur most widely. Those that are found more in water rather than as a wet meadow community component have been excluded. In addition, those that occur in too few meadows or are rare in the Island have been omitted from the list to make identification less onerous. Nevertheless, some skills will be needed as wet meadows are defined by the number and diversity of the wetland species more than any other botanical feature.

3.9 The need for a diverse vegetation and structure is dependent on species being well represented, so species will need to be occasional to frequent rather than dominant in each field.

3.10 It is not possible to use most of the rarer plant species in Jersey as part of the criteria since no site supports more than three and most only one or none. It would be possible to highlight these for each site (see Table 3.1) for each survey and thus incorporate them for individual sites. The only ones that are fairly widespread are marsh pennywort and galingale which are already on the wetland species list of desirable attributes. Because of the difficulty in identifying the different wetland forget-me-nots, these have been combined as one in the list. Since the rare and special species are an important part of the wet meadows where they occur, specialist botanists should be used to check out the more difficult to identify species on a regular basis (e.g. every six years) in the sites where they occur.

3.11 The key features of a wet meadow are that it is a meadow and it is wet. Therefore, important characters to assess are the lack of trees/scrub that would otherwise shade out some of the wetland flora and the wetness of the ground. These have been included in the form.

3.12 Finally, since many of the wet areas within a meadow are limited in extent, it has been decided that the whole area should be assessed as a single unit, rather than to record separate quadrats. This would also make the task easier, but it does require a zig-zag walk through the area to find all the species listed.

3.13 The condition assessment form has been developed based on the principles set out above and is presented in Appendix 3.2.

Table 3.1 The wet meadow species in each meadow

		Grouville, 2000			St Ouen's Pond SSI										St Peter's Valley								Rue de Pres							Below Hamptone			St Catherine's	NT Meadow	Trinity
Scientific name	**Common name**	**213**	**236**	**7**	**6**	**9**	**10**	**11**	**13**	**14**	**18**	**19**	**21**	**23**	**26d**	**26c**	**26b**	**26a**	**26e**	**26 between e&g**	**26g**	**25c**	**20a**	**20b& l**	**20d,e&h**	**20f,g&k**	**20m**	**20j**	**20i**	**19 a&b**	**19c**	**19g**			
Agrostis canina	Velvet bent								lo		la	f		lo																					
Agrostis stolonifera	Creeping bent	a	a E	la		f		a	a	f	f	lf		a	lo	f	r-o S	a	f	a	a		o	a	o-a-f	f-a		o	f	f	f	f	a	o	f
Alisma plantago aquatica	Water plantain	lo	o													f			lo					lr	lr										
Alopecurus geniculatus	Marsh foxtail	a	a-f E						o					r					lo	f	r		o	lf	lf										
Anagallis tenella	Bog Pimpernel							r		o				lo																					
Angelica sylvestris	Wild angelica																				r									lf	r	o			lf
Apium nodiflorum	**Fool's water-cress**	**o**	**lf**	**la**			**f**	**f**				**lo**		**lf**	**r-lo**	**r**		**r SE**	**lo**		**lf**	**r-o S**	**ld**	**la**	**la-lo**	**lf-la**				**o**	**o-lf**	**o**	**f**	**o-lf**	**la**
Athyrium filix-femina	Lady-fern		r E													o			lr	o E	lo E	o E								r		lo	r	lo E	o
Callitriche sp	Water-starwort species																r S					r S													
Callitriche stagnalis	Common water-starwort	la W		lr								o		o																					
Cardamine flexuosa	Wavy bitter-cress																		lr	lf		o												lr	lo
Cardamine pratensis	Cuckooflower	lo																			r										o				
Carex flacca	Glaucous sedge											f		r																					
Carex hirta	**Hairy sedge**	**lo**		**f**	**lf**	**f**	**o-lf**	**o**	**r**	**f-la**	**o**	**f**	**f-la**	**f/r**	**r-lo**	**f**			**lo**		**lf**		**o**	**f**	**f**					**lf**	**r**		**r**	**lf**	**f**
Carex laevitgata	Smooth-stalked sedge													r																lf					
Carex nigra	Common sedge							o		r			r												f-o										
Carex otrubae	False fox-sedge											r		r																					
Carex leporina	Oval sedge									r		r												o	f-o				lr					
Carex pendula	Pendulous sedge															r			lr	lr												r			
Carex pseudocyperus	Cyperus sedge																																		o
Carex sp.	Sedge species						a	a		f				lf		r																			lo
Carex viridula ssp. Oedocarpa	Yellow Sedge													r																					
Chamaemelum nobile	Chamomile											o																							
Chrysosplenium oppositifolium	Opposite-leaved golden saxifrage									r						lo				lr	la	r -lf SE								lf	o	lf			
Cirsium palustre	**Marsh thistle**	**r**	**r E**			**f**		**lo**	**lf**	**o-lf**	**o**	**o**		**o**	**o**	**o**	**r-o S**	**o SE**	**r**		**r**	**r E**		**lo**	**lo**					**lf**	**o**	**o**	**o**	**o**	**f**
Cladium mariscus	Great fen-sedge								lo																										
Cyperus longus	**Galingale**	**r E**		**o-lf**	**lo**		**lo**	**o**		**r**	**la**	**lo**	**a-d**	**a**									**f**	**o**	**o-lo**	**r-lo**	**o**	**r**	**r**			**lo**			
Dactylorhiza praetermissa	Southern marsh orchid											r		lo																					
Dactylorhiza sp.	Orchid species							r				lo																							
Eleocharis palustris	**Common spike-rush**	**lf W**	**la-ld**	**o**	**lo**		**o**	**o**		**o**				**o**							**lr**			**la**	**la-r**							**lo**			
Epilobium hirsutum	Great willowherb		r H	o	r-o	o		r	o	r	la	lo	lo	lo									o	o	o		o		o	r	a	r	o	lo	
Epilobium parviflorum	Hoary willowherb									r		lo												o	o										
Equisetum fluviatile	**Water horsetail**	**lo W**	**o**		**lf**				**r**			**o**		**lo-f/r**										**la**	**la SE**					**lf**	**f**			**r**	**a**
Equisetum palustre	Marsh horsetail			r					o					o																			la	lf	
Eupatorium cannabinum	Hemp-agrimony			lf E										r	lo E			r SE	lo				o	o	r	lo			r-o	lf	f	f		o-lf	o
Galium palustre	**Common Marsh-bedstraw**	**lf**	**o**			**o**		**o**	**o**	**r**	**o**	**lo**		**la**		**r**			**lo**		**lo**			**o**	**o-r**					**lo**	**r**	**r**	**o**	**lr**	**la**
Glyceria declinata	Small sweet-grass													r																					
Glyceria fluitans	Floating Sweet-grass	a	a	f-la			o	o				lf		lo					lr	o													f	lf-r	f
Hydrocotyle vulgaris	**Marsh pennywort**	**lf**		**lf E**		**f**	**lo/a**	**lf**	**lo**	**la**	**lf**	**la**	**lo**	**f-la**	**r-lo**	**lf**					**lf**		**o-f**	**la**	**la-f**					**lo**	**r**			**lf**	**la**
Hypericum tetrapterum	Square-stalked St John's-wort		r E											o																	r-o				
Iris pseudacorus	**Yellow Iris**	**r**	**lf**		**o**	**f**	**lf**	**la**	**f**	**o**	**o**	**lo-lf**	**lo**	**la**	**a-lf**		**a-ld S**		**lf**	**o**	**r**	**o**	**o**	**lo**	**o-lo**	**ld**	**r-o**			**lr**	**o**	**r-o**	**lf**		
Juncus acutiflorus	**Sharp-flowered rush**	**f**	**o-f**	**f-la**	**lo**	**o**	**o**	**a**	**f**	**a**	**a**	**f-a**	**lf**	**f-la**	**f**	**a**			**lf**	**o**	**f**	**o-lf SE**	**o**	**la**	**la-o**	**lo**		**r**		**la**	**r-o**		**a**	**la**	**la**
Juncus articulatus	**Jointed rush**	**f**	**o f-la E**	**la**		**o**	**a**	**a/r**	**lo**	**f**		**f**		**r/f**							**lo**		**o**	**o**	**o**									**lo**		
Juncus bufonius	**Toad rush**	**lf**	**lf**	**lo**				**r/f**	**lo**	**o**		**o**		**r**	**o-f**		**r-o**		**lo**		**lo SE**		**lf**	**r**	**r**									**r**	**lf**
Juncus conglomeratus	Compact rush					o																													
Juncus effusus	Soft rush	la	o	la	o	o	o	o	f	r	r			r	o	o	r E		lf	o	r		o	la	la-o	o		r-lo	o	lf	f	o	o		a
Juncus inflexus	Hard rush											lo		lf																					
Juncus subnodulosus	Blunt-flowered rush					o	o	o				o		f																					
Lemna minor	Duckweed	lo																																	
Lotus pedunculatus	**Large bird's-foot-trefoil**	**la**		**la**		f		o-lf	o	o-lf	f	f	lo	o-f	lo		r-lo E	lo	lf	f	f	r E	**f**	**la**	**la-lf-f-o**	**f**		**r**		**f**	**r**	**r**	**f**	**lf**	la
Lychnis flos-cuculi	**Ragged-robin**				**r-o**		**o**	**r**	**r**	**o**	**o**	**lo**		**o**	**o**	**lf**							**o**		**lf-o**	**r**				**o**		**r**	**lo**	**lo**	**o**
Lycopus europaeus	**Gypsywort**		**r H**						**f**								**r S**	**lo**	**o**		**r**			**o**	**o**					**o**	**o**	**o**			**f**
Lythrum portula	Water purslane	lf																																	
Lythrum salicaria	**Purple loosestrife**					**lo**		**f**	**a**	**lf**	**f**	**lo**	**lo**	**lo**	**r**	**lo**	**r S**		**lf**	**o**	**r**											**r**			
Mentha aquatica	**Water mint**	**r**								**r**			**lo**	**f**	**o-f**	**o**	**o-f S**	**f SE**	**la**	**f**	**f**	**o-f S**		**o**	**lf-o**					**f**	**f**	**f-la**	**o**	**f**	**f**	**a**
Mimulus guttatus	**Monkeyflower**														**r-lo**	**o**	**lo S**	**o SE**	**lf**		**lo**	**o SE**														
Molinia caerulea	Pruple moor-grass								f																										
Myosotis laxa	**Tufted forget-me-not**	**lf**	**o-lf E**			**o**		**r**	**o**	**r**		**lf**		**lf**	**r-o**									**o**	**o**					**o**					
Myosotis scorpioides	**Water forget-me-not**						**o**	**o**						**r**	**o**		**lo S**		**lf**	**lf SE**	**lf**	**o SE**											**r**	**r**	
Oenanthe crocata	Hemlock Water-dropwort	o	o-r E	lo E		a		o	a	lf	o-lf	lo-lf		lf	d	o	d S	a SE	la	a	lf	f E	la	o	o-r	la	o	o	o-f	a	f-la	ld	o	o	lf
Oenanthe fistulosa	Tubular Water-dropwort	o	lr-o				r	r		r		o		r																					
Oenanthe lachenalii	parsley Water-dropwort													lo																					
Orchis laxiflora	Jersey or loose-flowered orchid							lo				lo		f											o										
Parentucellia viscosa	Yellow bartsia				lo	o		lf		o		f-la		f-la																					
Peplis portula	Water purslane		o																																
Persicaria amphibia	**Amphibious bistort**	**f-la**	**lf-la E**	**f**		**f**	**f**	**f**		**f**		**f**		**f**	**o**			**o SE**	**lf**		**lf**	**lf**	**o**	**o**	**o-r**	**lo**				**f**	**o**				
Persicaria hydropiper	**Water-pepper**	**o**												**f**	**lo**	**o**	**o-lf S**	**o**					**o**	**o-lf**	**lf-o**				**r-lo**			**lf**		**lf**	**o**
Phalaris arundinacea	Reed canary-grass																												r						
Phragmites australis	Common Reed			lf E	a	f	o	o-f	a	o-lf	lf	lf-ld		la										la	la-lf		d	lr							
Poa trivialis	Rough meadow-grass	o	o E	f				f	f	o	o	f		o	o		r-o S		a	f	a			f	f-o	o				?f	o		o	f
Potentilla anserina	Silverweed	r E					f	lo	lf	o-lf		f	lo	lf					lf					lo	lo-r										
Pulicaria dysenterica	**Common fleabane**	**r**	**lo E**	**o**	**lf**	**o**	**o**	**lo**		**f**	**o**	**lf**	**f**	**f**				**o SE**	**r**		**r**			**o-lf**	**f-lf-o**								**lf**	**lo**
Ranunculus flammula	**Lesser spearwort**	**f**	**o**			**lf**	**lf**	**lo**	**o**	**lf**		**f-la**		**lo**	**o-f**	**r**			**lo**		**o**		**o**	**o-lf**	**f-o-r**	**r**					**r**				**r**	**lf**
Ranunculus repens	Creeping buttercup	a	o-lf	a	f	f		f	o	f-a	a	f-a	f	f	a-lf	f	a	f SE	f	a	a	a	f	a	a-f	a		f	a-d	f	o-f	o	a	o-lf	
Ranunculus sceleratus	Celery-leaved buttercup	lo			f							lo		o										r	r									
Ranunculus x segretii	Hybrid water-crowfoot													r																					
Rorippa nasturtium-aquaticum	Water-cress	lo W				o								o		lf SE					lo			la	la-lf W				lo					
Solanum dulcamara	**Bittersweet**	**r**			**lo**	**o**			**o**		**o**				**lo**	**r**	**r-lo E**		**r**		**o SE**		**r**	**o**			**o**								**r**
Sparganium erectum	Branched bur-reed	r										r		lo					lf	r	o										lr	o	f		
Stellaria uliginosa	**Bog stitchwort**	**lf S**	**r**									**r**			**r-o**		**r S**		**lf**	**f**	**f**		**r**							**lo**	**o-lf**		**o-lf**	**r**	**o**
Typha latifolia	Bulrush			lr		f						o		o										r	lo-r		o							
Veronica beccabunga	**Brooklime**	**lo S**	**lf-d**	**lo**		**f**						**la**			**r**	**lf SE**	**o S**	**o SE**	**lo**		**r S**			**lf**	**lf-lo**								**lo**		
Number of Wetland Species		40	28	25	15	25	20	33	26	32	20	42	12	51	26	21	17	13	31	16	31	11	23	40	22	14	7	8	10	29	24	19	23	29	26
Number on condition form		20	15	11	9	13	12	16	14	16	11	18	8	18	17	14	12	9	18	6	20	8	14	20		8	3	3	3	16	13	9	14	17	15
Value		M-H	M-H	M?	M	H?	M	H?	M	M	H	H	H tiny area	H	M-H	H	M	M	qH	M-H no manag	qH	M?	H	M		L	H reedbed HH	M unmanag	M	H?	H?	M	H	H	H

Key:

Bold text — **Wet Meadow Species used in the condition assessment**

E= Edge
H= Hedge
S= Stream
SE = Stream Edge
W = Water
Wa = On Wall
NW= Near Wood
Red coloured are rare or special in Jersey
Grey filled are species that are amalgamated in the condition assessment list

4. MARITIME CLIFF AND SLOPE

Location and Communities

4.1 This is taken as the zone between the coastal grassland or other vegetation and the sea. It is a feature of the cliff edges on the rocky coasts on the north, west (Les Landes) and south coast of Jersey. The key feature of this vegetation is that it is close to salt spray influences and contains a high proportion of exposed rocks, often, in Jersey, covered in lichens. The amount of vegetation relates to the presence of rock crevices, narrow ledges and friable rock surfaces. The salt levels in the soils is high, and indeed some species like rock samphire (*Crithmum maritimum*) and rock spurrey (*Spergularia rupicola*) have been found to germinate and grow adequately only in soils of high salinity. The soil pH is consistently high independently of the rock types owing to the input of sodium ions from salt spray. The soils are usually free-draining and may suffer from summer parchment, particularly on the south coast.

4.2 Below this maritime cliff zone there is the lichen-rich supra-littoral zone between this and the edge of the tidal zone. Salt spray and splashing waves are more extreme in this zone than in the cliff zone where waves rarely reach. The main area of cliff vegetation is therefore where there is maximum exposure to salt spray plus suitable cliff topography. Those on Les Landes are the best developed on the Island, but shorter and more restricted cliff vegetation also occurs on the south coast on La Landes du Ouest, with some also on Portelet (eastern end, although this is quite gently sloping and rather trampled). There is very little on the north coast due to the lower salt spray exposure.

4.3 The main maritime cliff communities in Jersey are those in which the constant species are rock samphire, rock spurrey, red fescue (*Festuca rubra*) and thrift (*Armeria maritima*). Other species that might be present include sea lavender (the common species in Jersey is Alderney sea lavender, *Limonium normannicum*) and various ferns such as polypody (*Polypodium interjectum*), sea spleenwort and black spleenwort (*Asplenium marinum* and *A. adiantum-nigrum*).

4.4 Depending on where the sites are, there tends to be more scrub in the more sheltered spots in this cliff-edge vegetation on the north coast than where the full force of the wind is more prevalent.

4.5 Maritime cliff vegetation can be mixed with coastal grassland – this occurring where there are more soils and less rock outcrops, or with scrub (also in sheltered locations).

4.6 There are a number of different vegetation types that can interrupt the maritime cliff, particularly along the north coast where there are deep wooded gullies, flushed areas or springs that emerge on the cliffs. These habitats have been omitted from the maritime cliffs in this assessment.

Approach

4.7 The nature and species in the maritime cliffs of Jersey have been assessed using the north coast, Les Landes and south coast surveys undertaken since 1986. However, the cliff vegetation was not always separated out clearly in the earlier surveys in particular. These have been set against the maritime rock crevice vegetation described in the National Vegetation Classification (Rodwell 2000) to understand more about its condition. In many instances, the

areas mapped as maritime cliff are based more on the morphology of the cliff than the vegetation, with neutral grassland, flushes, and other vegetation types also included at the scale of mapping undertaken. This means that there is a wide variety of grassland and some shrub plants recorded on the cliffs that are not characteristic species of the grasslands that match the NVC maritime cliff types. The site condition objectives for maritime cliff and slopes have therefore focused more on the botanical definition of maritime cliff than the physical one, and have excluded the non-cliff vegetation component. This may need to be changed if the more restricted definition is less useful on the ground.

4.8 An additional challenge is that much of the maritime cliff is inaccessible owing to steep slopes, so assessments will need to be done from vantage points and with binoculars. This adds an additional dimension to the need for readily recognisable criteria. It may be possible to undertake some of the assessments from the cliff bottoms at low tide provided great care is taken.

4.9 The criteria are set out on a recording form in Appendix 4.1.

The Condition Assessment Criteria

4.10 The same approach to defining the lower limit of extent has been adopted as in other Objectives, but the date of the aerial photographs has not been entered in case a more recent set are to be used. It is assumed that the patches have been mapped as this has been done for the north coast sites by PAA in 2008 but not the other habitats.

4.11 The level of 80% of all patches to meet the criteria has been adopted as similar to other habitat objectives. In addition, there are not many reasons why maritime cliff should not be in favourable condition except where there is excessive invasion of non-native species such as Hottentot fig, so the target is generally achievable.

4.12 The maritime cliff vegetation will need to be divided into patches that can be seen with binoculars or visited in part along the cliffs on each site. These will then form the patches which will be the basis of the assessment.

4.13 The criteria are based on the vegetation and degree of higher plant cover. It is expected, but will need to be trialled in the field, that there will be more than 50% rock exposed without higher plants on most sites. Much of this rock should be covered by lichens and perhaps some mosses as well. This is the main feature of maritime cliff habitats. The rest of the patch should then be vegetation on ledges and in crevices or small sheltered patches.

4.14 The next criterion then lists the main species of this rock assemblage that occurs across all or most of the sites. Maritime cliff vegetation is very limited on the Bouley Bay to Jardin d'Olivet SSI, so fewer species have been recorded there. All those species present should be forming the bulk of the vegetation and therefore occur more than rarely in the assemblage. Not all will be easy to identify using binoculars, but the fact that they have already been recorded on the sites shows that they are accessible to surveyors.

4.15 A few species have been separated out to provide more distinctiveness for the south or north coast sites. The list for the north coast sites shows how these are generally not maritime specialists, but favour the rock outcrops in these more sheltered areas. A more important feature of the south coast and Les Landes are the number and extent of annuals – only a few are listed, and there should be many more but PAA has not recorded this detail. Hopefully, more can be added that are both distinctive and easy to recognize, possibly form a distance.

Some of these annuals also occur on sites on the north coast. Scientific names for all those species on the list are given in the following table:

English Name	**Scientific Name**	**English Name**	**Scientific Name**
Thrift	*Armeria maritima*	Sweet vernal grass	*Anthoxanthum odoratum*
Fine leaved fescues	*Festuca* spp	Sheep's bit	*Jasione montana*
Buck's horn plantain	*Plantago coronopus*	Sea plantain	*Plantago maritima*
Navelwort	*Umbilicus rupestris*	Rock samphire	*Crithmum maritimum*
Sea campion	*Silene uniflora*	Wild carrot	*Daucus carota*
Portland spurge	*Euphorbia portlandica*	Ox-eye daisy	*Leucanthemum vulgare*
English stonecrop	*Sedum anglicum*	Danish scurvy-grass	*Cochlearia danica*
Rock spurrey	*Spergularia rupicola*	Intermediate polypody	*Polypodium interjectum*
Foxglove	*Digitalis purpurea*	Ivy	*Hedera helix*
Honeysuckle	*Lonicera periclymenum*	Bird's-foot trefoil	*Lotus corniculatus*
Early sand-grass	*Aira praecox*	Soft brome	*Bromus hordeaceus*
Sea fern-grass	*Catapodium marinum*		

4.16 There are also special species that need to be relocated, mapped and their populations assessed - in terms of e.g. five plants or 50-100 or >100 plants – so that this can be compared in the future assessments. At the moment, only sea spleenwort has been identified, but there should be other species that are not registered in PAA's surveys that could be added to this short-list.

4.17 The presence of any damaging features forms the last criterion. This would include the invasion of Hottentot fig or its relatives or any other non-native invasive species. It is the southern coast e.g. on Portelet and La Lande du Ouest where this was more widespread in the past. The criterion also tries to cover possible future damage such as cliff climbing or scrambling that could become popular and therefore pose a future threat to the cliff vegetation.

5. MARSH AND FRESHWATER

The Locations

5.1 There are a number of marshes, fens, swamps, ponds and reed beds in the SSI system in Jersey. These include reed beds at St. Ouen's Pond, on Rue de Prés, around Ouaisné pond, and at Grouville Marsh (where there are several reed bed patches); fen/marshes border the reed bed and the North Canal at St. Ouen's Pond, occur in several patches at Grouville Marsh, and merge into the reed bed at Ouaisné. Ponds are varied in origin, size and form. There are the ends of the canal (North and South Canal) at St. Ouen's Pond, plus another pond. There are small ponds on Les Landes (north end) plus a concrete tank that supports amphibian breeding, a very important pond on Noirmont and a small one on La Lande du Ouest. There are numerous ponds of different kinds at Grouville and the large and a very small pond at Ouaisné with inundation hollows in the dunes in wet springs so important for the agile frog. There are ditches on Grouville and Rue de Prés which are not flowing and support wetland species. Finally there are swamps of tall marsh or aquatic species that have colonised shallow water as ponds close in, or have established in shallow water in flooded areas. Swamps are mostly at Grouville.

5.2 There are no marshes, fens, reed beds or ponds on the north coast sites or on Portelet, nor in the wooded valleys or wet meadows, although there are streams in some of these, excluded from this set of objectives. The *Molinia* patches are excluded as a different habitat (acid bog), some of which merges into wet heath (as at Ouaisné and on Les Landes).

Approach

5.3 The approach has been to identify common features to all vegetation types which are based on extent, quality, soils and structure. However, as each habitat is quite different in terms of the species it supports, they have had to be separated for the rest of the criteria. In order to assess the features, all accounts and the accompanying species lists that have been produced in PAA surveys in the past have been consulted to formulate appropriate species lists and criteria. As some of these reports are now over 10 years old, the criteria will need to be checked for suitability and tweaked where necessary.

5.4 The Objectives are set out in Appendix 5.3.

The Common Features

5.5 It is recommended that each patch is assessed independently and as a whole since many are small and sometimes access is difficult (into dense reed beds for example). This avoids the need for additional stopping points, but will necessitate a W walk as far as possible and that is safe to assess the overall features across the patch.

5.6 The general aim will be to maintain the extent and range of wetland habitats that this HMO covers. They may warrant improvement in places where grazing is too high or low, or where there is eutrophication of the water (St Ouen's Pond). However, any expansion of the habitats should not be at the expense of high value habitats like wet meadows or other wet habitats. In addition, it needs to be borne in mind that ponds and swamps can progress through natural succession and fill in or dry out. Species and habitat can therefore be lost through natural

causes and decisions will be needed on whether to create new ponds to replace them or to restore to an earlier stage in succession.

5.7 The quality lower limit is predicated on the assumption that all the wetlands covered by this set of criteria are in good condition and that little restoration will be needed. There are patches in Grouville at least where grazing is too high and poaching/short vegetation are negative features, but most other sites are in good condition. The general aim of the quality criteria is therefore to maintain the features already present.

5.8 The key feature of all non-freshwater habitats is for soft, wet soils. Therefore a criterion has been provided which tests this with a 6" nail (or equivalent) and by oozing mud/water under the surveyor's boots. This should be present at all times, but may be less or drier than desirable in prolonged drought conditions.

5.9 Freshwater sites should be maintaining their normal water levels. There could be some natural variation throughout the year, but this should be visible from the signs water levels leave around the edges. The aim is to detect when water levels are abnormally low or high where some management might be needed.

5.10 It is also vital that freshwater is clean – so any signs of pollution such as sewage or other discharges are important to detect. Water covered with algal mats (*Enteromorpha* often) is usually regarded as a good indicator of eutrophication, although the source might be diffuse and not easily located (such as drainage from agricultural land in the catchment as around St. Ouen's Pond).

5.11 Since wet woodland is not the habitat target in these habitat types, a small cover of scrub or trees (most likely to be willows) is tolerated, but more extensive amounts or obvious invasion would be detrimental.

5.12 The next criterion relates to grazing pressure. The demand for 80% flowering and seeding of species is to avoid high grazing pressures. This may be too high a level, but would need to be trialled in some of the grazed marshes at Grouville or Rue de Près to test this. A lower level may be acceptable and still retain the species diversity.

5.13 As for other habitats, it is important that each wetland type consists predominantly of native species. There are not many invasive non-native species in the wetland habitats, so this criterion should be easily met and could be increased to 95% if warranted.

5.14 The last of the generic criteria is that no one or two species should be dominant, except in swamps and reed beds. These are both often species-poor, tall and dense, so are exempt from this criterion.

5.15 The presence of damaging features ties in with management needs and provides an alert to any problems. If marshes become dominated by grasses, this suggests overgrazing, so is another indicator of this. The criterion on invasive non-native species allows identification of where and which species so that management can focus on these areas. Other damage such as unauthorised vehicle ruts/damage, dumping of materials of any kind or any other types of negative activities can also be identified here.

5.16 The second page of the criteria provides species lists for each of the main habitat types. This has been produced by sifting through the species found in each habitat and attempting to classify them into a limited range of types. Reed beds are quite distinctive, dense, tall, with few

species, so these features are the key ones to note. The few species that might be found in the reed bed are listed and are similar for different locations.

5.17 The swamps tend also to be tall, sit in shallow water in ponds or marshy places and are usually dominated by tall wetland herbs. Again the main species that are relatively easy to identify are listed. The main sites are on Grouville.

5.18 The marsh/fen list is long, but covers a range of vegetation types from rush-dominated to more diverse communities. By amalgamating rushes, this removes some of the key features of different sites (but see below re. distinctiveness). The key for the marshes is for a good mixture of species. Some of these like the marsh pennywort are also Jersey BAP species so are important within the list. The first survey will need to set the baseline by marking all the species or groups of species listed, but add their relative abundance using the Dafor scale. This can then be compared with later visits, but these need to be undertaken at similar times of year. Mid summer would be an ideal time when most species are in flower or seed.

5.19 The aquatic list is much shorter, there being fewer species found in the water. White water lily occurs in several sites but has been planted, but does not seem to be invasive. This therefore need not be considered as an invasive species unless there is evidence to the contrary. It does provide good habitat structure for invertebrates provided it is not dominant. Only a more limited number of plants in each pond is required as most ponds support few species. Again, by listing the species in the baseline surveys, the future assessments can compare with the earlier records.

5.20 If there are better botanists available occasionally, there are distinctive species that are very important in different habitats (see table below). More recent records may need to be gathered for some of these as they may have been lost to natural succession or for other reasons since PAA recorded them:

Table 5.1 Distinctive species which are very important in different habitats

English Name	**Scientific Name**	**Location**
Great water dock	*Rumex hydrolapathum*	Ouaisné small pond, Grouville
Jersey water forget-me-not	*Myosotis secula*	Noirmont pond
Cyprus sedge	*Carex pseudocyperus*	Grouville and St Ouen's Pond fen
Lesser reedmace	*Typha angustifolia*	Small pond N. end Les Landes
Sweet flag	*Acorus calamus*	Noirmont – only site on Jersey, planted but not invasive

English Name	Scientific Name	Location
Horned pondweed	*Zannichellia palustris*	Seasonal ponds Ouaisné
Alternate leaved water milfoil	Myriophyllum alternifolium	Noirmont pond
Blunt flowered rush	Juncus subnodulosus	Fen round edge of reed bed, St Ouen's pond

6. SALT MARSH AND STRANDLINE COMMUNITIES

Location

6.1 The only area of salt marsh vegetation within protected or potentially protected sites in Jersey lies on the St. Ouen's Bay fringing sand dunes where sea water splashes over the sea wall at high tide. The salt marsh lies, therefore, on top of the sand dunes and has replaced dune vegetation over time as the effect of salt spray has accumulated after the sea walls were constructed. These areas are closely associated often with strandline vegetation.

6.2 Salt marsh vegetation communities can be divided in general into the lower, middle and upper zones, each characterised by different vegetation components, sediment and erosion/accretion features (Rodwell 2000). In St Ouen's Bay, the salt-splash communities share some features of the lower and middle salt marsh zones. Patches dominated by sea purslane (*Atriplex portulacoides*) are a feature of one of the lower salt marsh communities also found around south and eastern England, while sea lavender (*Limonium* spp) and sea thrift (*Armeria maritima*) are more characteristic of middle salt marsh communities (Rodwell 2000). These features help to identify the key species in the vegetation in St. Ouen's Bay.

6.3 The strandline vegetation is very characteristic of that found elsewhere in the British Isles, although with largely southern species rather than northern ones. The assemblages are dominated by largely ephemeral, nitrophilous herbs and make a brief and often fragmentary appearance where shingle, sand and organic debris has been dumped along the strandline. In Jersey along St Ouen's Bay, the organic debris tends to be seaweed thrown up in the highest tides onto the coastal sand dunes along with shingle and shells. The strandline vegetation also occurs at the bottom of the sea wall where the sea rarely overtops it – e.g. at the northern end of the Bay.

6.4 Figures 6.1 and 6.2 show the location, shape and size of the salt marsh and strandline patches in different sections along the St. Ouen's Bay coastline as surveyed in 2007. The following table shows where these are located.

Table 6.1 The distribution of the vegetation communities in the different sections

Vegetation types	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Totals
M salt marsh					+		+	+			+	+	+		+	+	+	+		**10**
N strandline		+	+		+	+	+	+	+	+		+	+	+	+		+	+	+	**15**

Plant Community Descriptions and Distribution

M: 'Saltmarsh' Splash Zone

6.5 The account and the figures are taken from the report on the coastal dunes undertaken by PAA in 2007.

6.6 Due to the barrier provided by the sea wall, high tides, especially when combined with a strong westerly wind, result in waves spraying over the top of the wall in the central section of the site. This results in salty water sprayed onto and washing through as it drains away several areas. In the highest and strongest tides, dead seaweeds and stones/shells are also deposited onto the dunes close to the wall in the central section of the site. As the wave action here is contained by the wall, there is no significant erosion of the sediment. This allows a stable substrate to persist on which the salt marsh/splash zone community has formed.

6.7 This community is characterised by relatively compact, sandy sediments within this splash zone, where the ground is regularly soaked with salt-spray and salt concentrations are therefore likely to be higher, often mixed with the pebbles and shells that have also been thrown over the wall. The characteristic species for this community, predominately curved sea hard-grass (*Parapholis incurva*) and Alderney sea-lavender (*Limonium normannicum*), are more usually found where a silty or muddy substrate and a gentler inundation of sea water create more stable conditions than those in a typical sand dune system.

6.8 In some areas, the wall is higher than the dune immediately landward and appears to facilitate further retention of sea water and sediment, thus creating a thin strip of salt marsh habitat. Indeed, the rare (in GB) salt marsh species, curved hard-grass (*Parapholis incurva*) is very often found against the sea wall in this way, such as in the south-western corner of patch 5.

6.9 The community is frequently found adjacent to the sea wall or on areas of compact and relatively stable and sheltered sand at dune edges, next to buildings and amongst pebbly areas. It is likely these features provide some protection, trapping water, sand and sediment and thereby allowing the more stable habitat to persist.

6.10 The invasive succulents, Hottentot-fig (*Carpobrotus edulis*) and dew-plant (*Disphyma crassifolium*) are found in many patches where salt marsh-like conditions occur. Dew-plant particularly, grows wild in salt-marshes in South Africa, where it originates, and so is catered for well in this situation.

6.11 Occurring in 10 sections and covering approximately 5% of the St Ouen's Bay fringing dunes, this community is often found in a strip close to the sea wall or to the seaward side of any marram or grassland. In section 11 the vegetation penetrates further inland towards the St Ouen's Pond overflow where it is also separated from the sea by a section of rank grassland. The community is at its greatest expanse in the adjacent section 12, but does not occur in sections 1-4 where the high tide does not overtop the wall.

N: Strandline

6.12 This community appears both above and below the sea wall where inundation with sea water is regular and sand is thrown up from the beach, producing an unstable environment due to movement by wind. This creates a high level of disturbance with an unstable substrate of either bare sand or shingle/pebbles with windblown sand. Characteristic species include rock samphire (*Crithmum maritimum*), sea rocket (*Cakile maritima*), prickly saltwort (*Salsola kali*), sea sandwort (*Honckenya peploides*) and sand couch (*Elytrigia juncea*). Good examples of limited areas of this vegetation are below the sea wall in area 1(although this is not mapped), the northern triangular area.

6.13 Numbers of yellow horned-poppy (*Glaucium flavum*) are decreasing across Jersey due to pressure from human use of the habitat (Le Sueur, 1984). The species occurred in six of the sections of this survey area usually on more shingly areas of the strandline community, for

example, in section 9, where an area of shingle adjoins a trampled, species rich community. Individual plants were often found in areas protected from trampling such as adjacent to the sea wall in section 5 and against a concrete slab in section 9.

6.14 Further inland, where inundation and disturbance by salty water are reduced, this community tends to give way to open marram vegetation, where the substrate is mainly loose sand or a trampled species-rich community.

Table 6.2 Data for M and N Splash zone and Strandline type communities

Community	Patches	Hectares	% of total
M: Saltmarsh 'Splash zone'	22	1.762542	5.25
N: Strandline	19	1.390059	4.14
Totals	41	3.152601	9.40

6.15 In terms of site-wide conditions, the dunes exhibit an increasing and then reduced effect of salt spray moving towards the centre of the coastal strip and then south again. This is due to the shape of the seawall, and where the tide pounds against it, which is greater in the centre of the site than at the outer ends. The distribution of salt marsh and strandline communities generally increases in the central area, particularly sections 8 to 15, except for where car parking or other hard-standing has restricted vegetation.

Significant Species

Rare Plants

6.16 A number of the species associated with the salt marsh or strandline are rare or scarce within the UK or Jersey context as shown below in Table 6.3. The shore-front salt marsh and strandline communities of St Ouen's Bay are a stronghold for a number of rarities on Jersey. Sea rocket *(Cakile maritima*) is scattered widely around Jersey's coastline but only occurs in small numbers in all but two sites, one of which being this stretch of St Ouen's Bay (Le Sueur, 1984). However, the majority of these rare species were found spread throughout the communities on site; for example, Alderney sea-lavender (*Limonium normannicum*) in the M-type salt marsh community. Yellow horned poppy and sea rocket are strandline species that do not occur on more stable dunes away from the influence of the sea.

6.17 A number of species are known to grow in the sea front dune system but were not recorded during the 2007 survey. Margaret Long, local botanical expert and member of Société Jersiaise suggested a number of such records.

6.18 The more easily recognizable of these species have been selected for inclusion on the recording form to reflect their importance. Specialist botanists will need to be deployed to search for the less easily identified ones such as *Spartina,* perhaps once every six years, and possibly to train the surveyors to identify some of the other species.

Table 6.3 Rare and scarce plant species recorded in salt marsh and strandline communities

Scientific Name	English Name	RDB*	Scarce in GB**	Jersey Rarity***	Notes	Total nos sections in which it occurs
Cakile maritima	Sea rocket			+	Population falling across Jersey	**5**
Euphorbia portlandica	Portland spurge		+			**18**
Glaucium flavum	Yellow-horned poppy			+		**6**
Inula crithmoides	Golden samphire		+		ML	**6**
Limonium normannicum	Alderney sea-lavender			**+**	Not in GB	**10**
Parapholis incurva	Curved hard-grass		+			**10**
Spartina anglica	Common cord-grass			+	Was extinct in Jersey. Recorded in a previous survey of the site.	**1**

* Near threatened, vulnerable or endangered on the Vascular Plant Red Data Book List of Great Britain (JNCC 2005). RDB column included to note but no species qualified.

** From Scarce Plants in Britain (Stewart, A. *et al* 1994)

*** Recorded as rare or of limited distribution and declining in Jersey Flora (Le Sueur 1984)

ML record provided by Margaret Long

+ Species included as a protected plant under the Conservation of Wildlife (Jersey) Law, 2000

Nature Conservation Objectives for Salt Marsh Communities

6.19 There is a significant area of salt spray/splash zone vegetation on the coastal dunes; a community which does not occur anywhere else in the Island and which supports rare species like the curved hard-grass and common cord-grass. The key objectives are therefore to

maintain the area of salt marsh vegetation and its plant diversity as well as maintain the populations of the rare species.

6.20 It is possible that the patches of salt marsh could expand over time or move within the coastal dunes as a result of climate change which could result in fiercer gales and higher water levels. Provided any expansion does not displace dune vegetation of equal importance, then this should not be detrimental to nature conservation interests. If it does, there will be little that can be done to change the incidence of salt spray and sea pools at high tide, but consideration may need to be given to restoring more coastal dune vegetation to compensate for losses.

Nature Conservation Objectives for Strandline Communities

6.21 There is a significant area of strandline vegetation on the coastal dunes, mostly at the edge of the sea wall or below it; a community which supports rare species like the sea kale and yellow horned poppy. The key objectives are therefore to maintain the area of strandline vegetation and its plant diversity as well as maintain the populations of the rare species.

6.22 It is possible that the patches of strandline vegetation could move or change in size over time as a result of climate change which could result in fiercer gales and higher water levels. Provided any expansion does not displace dune or salt marsh vegetation of equal importance, then this should not be detrimental to nature conservation interests. If it does, there will be little that can be done to change the incidence of salt spray and sea pools at high tide, but consideration may need to be given again to restoring more coastal dune vegetation to compensate for losses.

Management Issues

6.23 There are some key management issues affecting the salt marsh and strandline vegetation which needs to form part of the Habitat Condition Monitoring Objectives. These focus on invasion of non native species, but it is only the succulents in the Aizoaceae family that seem to be invading and in need of control.

The Aizoaceae Family

6.24 The fleshy-leaved succulent members of the Aizoaceae, Hottentot-fig (*Carpobrotus edulis*) and dew-plant (*Disphyma crassifolium*), occur regularly across the area. The species prefer sunny positions on poor, sandy sediment and tolerate a good degree of salty spray. Growth is in dense carpets a metre to several metres wide which smothers, and so kills other plants. Both species originate from South Africa but have adapted well to conditions on Jersey, forming carpets of thick vegetation in a variety of habitats.

6.25 The species are easily spread, particularly by gulls collecting leaves for nesting material which then take root (Le Sueur, 1984). As such these species present a clear threat to the unique and valuable vegetation of the dune front areas in St Ouen's Bay, as well as at other sites on the island.

6.26 A hard frost can kill off large areas of the succulents but very often this dead foliage is merely a surface layer of the plant, which in places can be a foot deep. The parts of the plant which survive will shoot and grow back very effectively, building up further layers of litter. Dew-plant in particular has been observed to survive all but the most severe frosts. Frosts of this severity have not occurred in Jersey for some time and cannot be relied upon as a method of control.

Further measures are needed to control the spread of these invasives. This will involve volunteer time, and careful removal of all parts of plants by hand, or using small scale machines where appropriate, with careful disposal of the collected material to avoid further colonisation elsewhere. Such effort will need to be repeated in order to maintain control over a period of years.

Grazing Management

6.27 If grazing were to be introduced more widely on the frontal dunes in St Ouen's Bay (as has been suggested), then its effect on the salt marsh and strandline communities will need to be monitored. This is also added to the recording sheet. Some species are known to be sensitive to grazing such as sea lavender and sea purslane (JNCC 2008), so their abundance could be affected if grazing by stock were introduced and be too heavy.

Trampling Pressure

6.28 Similarly, salt marsh and strandline vegetation can be affected by trampling by people accessing the coast or using the St Ouen's Bay fringing vegetation. At the time of survey, most use was restricted to the edge above the sea wall, the clearly visible tracks and car parks and trampling damage was limited. Nevertheless, any increase in the sensitive habitats would need to be monitored.

Recording form for Salt Marsh Vegetation

6.29 This document is presented as Appendix 6.1, but the decisions made are justified or explained below. It is expected that each patch (there are 22) would be assessed separately to avoid the need for any quadrats in what are very differently sized patches. Most are small enough to be seen quickly and easily from one or two points. A recording sheet with all 22 patches and each criteria will need to be created, with each patch numbered sequentially. The survey should be conducted in late May – June (July) to catch the flowering/seeding period of many of the plants.

6.30 The area should remain the same or expand – the lower limit should retain all that is present currently, but any increase should not be at the expense of good quality sand dune habitats as explained above.

6.31 The need for 19 out of 22 patches (including the two largest patches) to be in favourable condition for the whole resource to pass is fairly arbitrary, but based on the 75-90% requirement in the other Condition Protocols prepared by the DoE already. It allows for some invasion of non native plants (the most likely cause of unfavourable condition), but not in the larger patches which form the major part of the resource.

6.32 The height of the vegetation is based on photographs and memory and may need to be checked in the field. The principal is to avoid tall invasive, vigorous plants like coarse grasses and radish. The salt marsh strips are characteristically sparsely vegetated with some bare ground, but not as much as on the strandline assemblages. The bare soil/shingle criterion is set to note this, but to ensure this is natural and not owing to dumping etc by human activity.

6.33 The species listed are those that are most abundant in the salt marsh patches, but do not include some of the rarities like the cord-grass. Grasses are kept to a minimum, to make identification more straight forward, and the three selected are very distinctive. These will need

to be surveyed in May-June to see their flowering spikes. For clarity the scientific names are provided for the species on the recording sheet in Table 6.4.

6.34 Frequent is identified as regularly occurring across a patch, or locally frequent in part of a site, whilst abundant refers to cover of not more than 50% in any patch, but a greater amount altogether than for frequent.

Table 6.4 The species used for the monitoring sheet

Species that should be frequent to abundant		**Species that should be present**	
English	**Latin**	**English**	**Latin**
Alderney sea lavender	*Limonium normannicum*	Rock Samphire	*Crithmum maritimum*
Buck's - horn plantain	*Plantago coronopus*	Sea bindweed	*Calystegia soldanella*
Thrift	*Armeria maritima*	Danish scurvy-grass	*Cochlearia danica*
Sea-purslane	*Atriplex portulacoides*	Sea holly	*Eryngium maritimum*
Curved sea hard-grass	*Parapholis incurva*	Sea beet	*Beta vulgaris ssp maritima*
Sea sandwort	*Honckenya peploides*	Sea fern-grass	*Catapodium marinum*
		Sea couch	*Elytrigia atherica*
		Portland spurge	*Euphorbia portlandica*

6.35 The damaging features relate to the invasion of ice plants of various kinds – this should include *Carpobrotus* as well as *Disphyma* spp or any other similar invasives. The criterion has been set high for no invasives (although this could be in three patches for favourable condition to be achieved), but this may be considered too high as controlling these species is going to be difficult. If so, the criteria could be changed to no more than 10% cover of these invasives, but the level of cover should then be noted too so that the need for control can be identified. This

section may need to be expanded in the future if other species are found. The possibility of damage by other factors is also included in this section.

Recording form for Strandline Vegetation

6.36 The lower limits are similar to those for salt marsh vegetation. In this case, 18 of the 20 patches are taken to need to be in favourable condition for the habitat to pass. This may be regarded as too high, and could be changed after consideration after the first assessment is undertaken.

6.37 As for salt marsh, the vegetation height category relates to the need for short, open vegetation, but some of the species like the horned poppy and sea kale are taller than 30cms, and have been accommodated by reducing the percentage cover needed. This needs to be tested in the field as the 30cms set may too short.

6.38 For the strandline vegetation, the amount of bare ground is greater than for salt marsh, and again the 40-50% given will need to be tested and refined if this proves to be inaccurate. As for the salt marsh, the criteria are divided between the key species that should be present in each patch and those that should be present but are less abundant in general. Three species have been highlighted as of particular importance since they are Jersey specialities and populations of the two that tend to occur as individual plants are included. The overall populations should not decline, although their distribution is likely to change from year to year.

6.39 The same damaging features are included here as for the salt marsh vegetation and the same comments apply. The % level for affected plants by grazing is based on acceptable levels of stock grazing on heather on heathland as there are no equivalent threshold available for this habitat type and heather is considered to have an equivalent sensitivity to grazing based on its structure and character.

REFERENCES

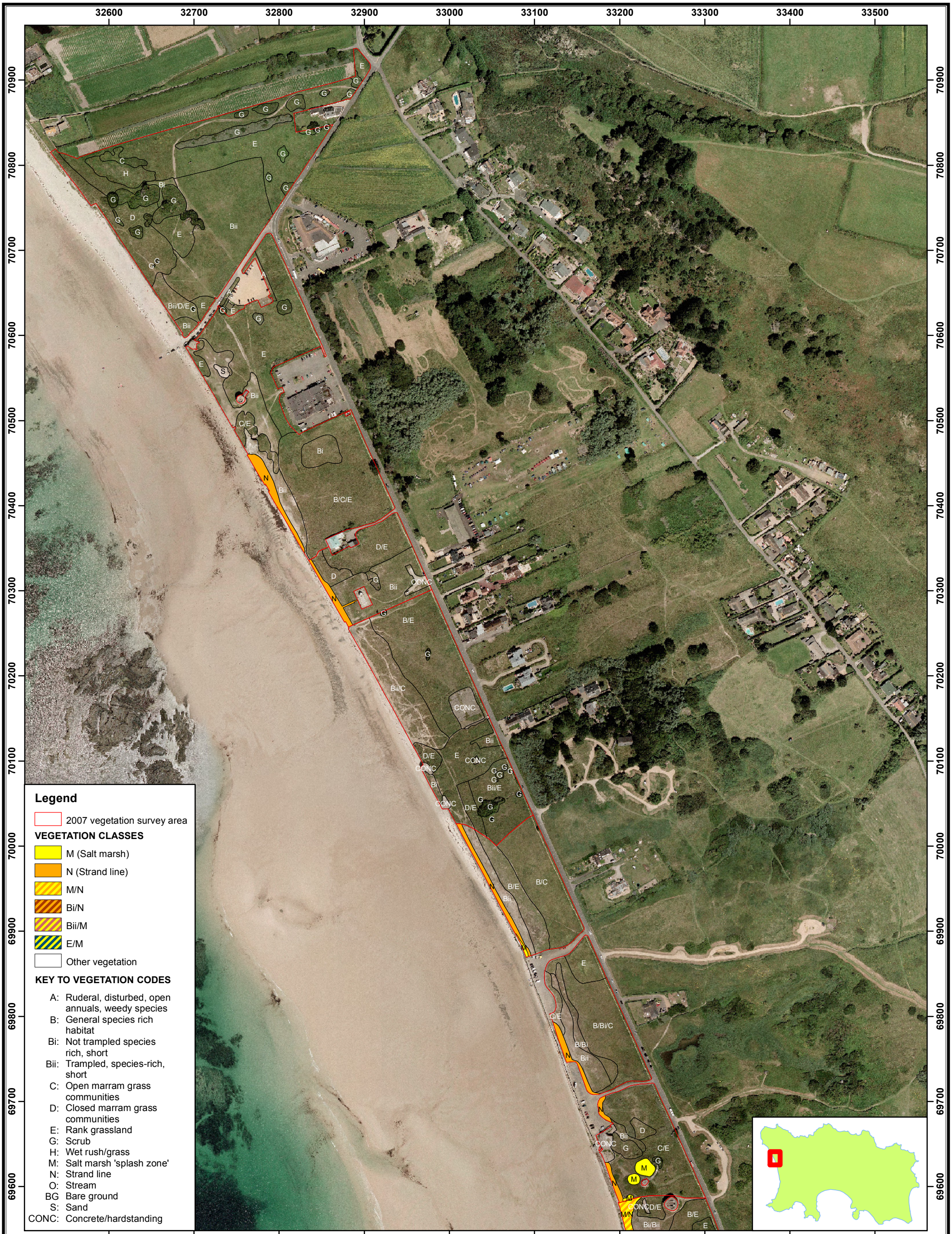
JNCC, 2004. *Common Standards Monitoring Guidance*.

Le Sueur, F. 1984*. Flora of Jersey*. Société Jersiase.

Natural England, 2010. *Higher Level Stewardship Part B Farm Environment Plan Features Manual*.

Rodwell J.S., 2000. *British Plant Communities Volume 5: Maritime communities and vegetation of open habitats*. Cambridgeshire University Press.

FIGURES



Environment Division
Howard Davis Farm
La Route de la Trinite
Trinity, Jersey
JE3 5JP

States of Jersey

Penny Anderson Associates Ltd,
Parklea, 60 Park Road,
Buxton, Derbyshire, SK17 6SN.
Telephone 01298 27086

Penny Anderson Associates Ltd
Consultant Ecologists

N

Jersey Transverse Mercator JTM2
Projection: Transverse_Mercator
False_Easting: 40000.000000
False_Northing: 70000.000000
Central_Meridian: -2.135000
Scale_Factor: 1.000000
Latitude_Of_Origin: 49.225000
Linear Unit: Meter
GCS_WGS_1984
Datum: D_WGS_1984

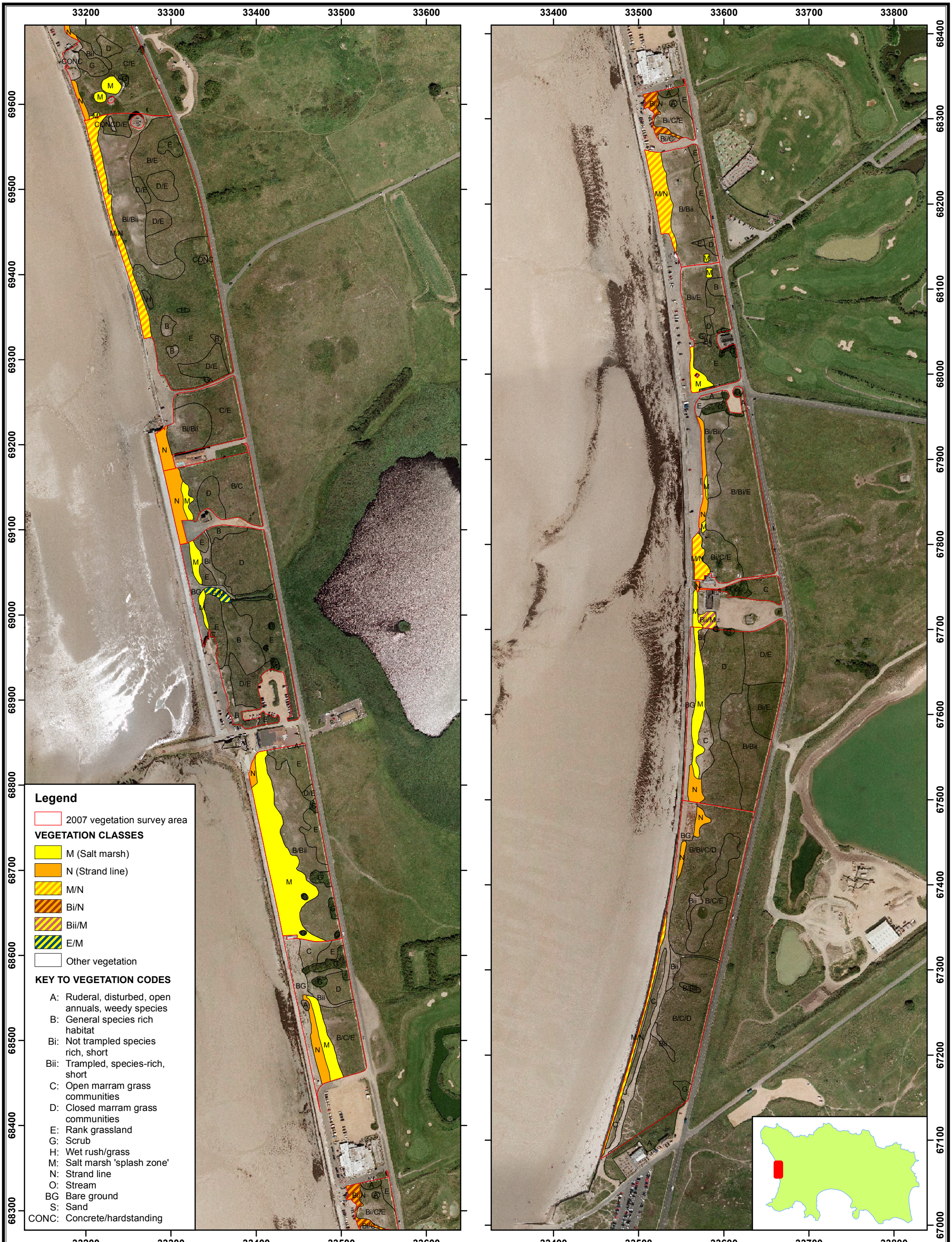
ISO A3

0 10 20 40 60 80 100 120 Metres

Title:

Salt Marsh & Strand line vegetation patches in St Ouen's Bay North

Project Name	East of Atherton		
Scale	1:4,000	Drawing No.	Figure 6.1
Drawn By	CC	Originator	PA
Date	13/06/2013		
PAA Ref.	G:\JIDC27_Jersey_Condition_Assessments_2013\Maps\St_Ouens_Bay_Dunes	Revision	A



Environment Division
Howard Davis Farm
La Route de la Trinite
Trinity, Jersey
JE3 5JP
States of Jersey

Penny Anderson Associates Ltd,
Parklea, 60 Park Road,
Buxton, Derbyshire, SK17 6SN.
Telephone 01298 27086
Penny Anderson Associates Ltd
Consultant Ecologists

Title:

Salt Marsh & Strand line vegetation patches in St Ouen's Bay South

Project Name	East of Atherton	
Scale 1:4,000	Drawing No. Figure 6.2	
Drawn By CC	Originator PA	Date 13/06/2013
PAA Ref. G:\JIDC27_Jersey_Condition Assessments_2013\Maps\St_Ouens_Bay_Dunes	Revision A	

APPENDICES

Appendix 3.1 The Species in the Wet Meadows

		Grouville, 2000			St Ouen's Pond SSI										St Peter's Valley								Rue de Pres						Below Hamptone			St Catherine's	WT Meadow	Trinity
Scientific name	**Common name**	**213**	**236**	**7**	**6**	**9**	**10**	**11**	**13**	**14**	**18**	**19**	**21**	**23**	**26d**	**26c**	**26b**	**26a**	**26e**	**26 between e&g**	**26g**	**25c**	**20a**	**20b& l**	**20d,e&h**	**20f,g&k**	**20m**	**20j**	**20i**	**19 a&b**	**19c**	**19g**			
Acer sp.	Acer species																														r			
Acer pseudoplatanus	Sycamore	r	o H												o	o H	r S		lr			r E								o	f	f			
Achillea millefolium	Yarrow	lo E		lf E	o					r			lo	o															lr	o			lf	
Agrimonia procera	Fragrant agrimony																																	r	
Agrostis canina	**Velvet bent**								**lo**		**la**	**f**		**lo**																					
Agrostis capillaris	Common bent	lo E		lo E		f	lf		lf	o		f-a		r/a			r-o S		lf		lf		o										lf	
Agrostis stolonifera	**Creeping bent**	**a**	**a E**	**la**		**f**		**a**	**a**	**f**	**f**	**lf**		**a**	**lo**	**f**	**r-o S**	**a**	**f**	**a**	**a**		**o**	**a**	**f-o**	**f-a**		**o**	**f**	**f**	**f**	**f**	**a**	**o**	**f**
Alisma plantago aquatica	**Water plantain**	**lo**	**o**													**f**			**lo**					**lr**											
Alnus cordata	Italian Alder	r		o E																															
Alnus glutinosa	Alder														r				r	lo	r			o-lf			o	o-f						
Alopecurus geniculatus	**Marsh foxtail**	**a**	**a-f E**							**o**				**r**					**lo**	**f**	**r**		**o**	**lf**	**lf**										
Alopecurus pratensis	Meadow foxtail																														r				
Anagallis arvensis	Scarlet pimpernel			lr E										r	r																				
Anagallis tenella	Bog Pimpernel							r		o				lo																					
Angelica sylvestris	**Wild angelica**																				**r**									**lf**	**r**	**o**			**lf**
Anisantha sterilis	Barren brome		o E											lo																					
Anthoxanthum odoratum	**Sweet vernal-grass**		**lf-f E**				**o-lf**	**r**		**f**	**o**	**a**		**o**	**r**								**o**	**o**	**f**					**r**	**f**		**o**	**o-lf**	**o**
Anthriscus caucalis	Bur parsley													r																					
Apium nodiflorum	**Fool's water-cress**	**o**	**lf**	**la**			**f**	**f**				**lo**		**lf**	**r-lo**	**r**		**r SE**	**lo**		**lf**	**r-o S**	**ld**	**la**	**lo**	**lf-la**				**o**	**o-lf**	**o**	**f**	**o-lf**	**la**
Arctium minus	Lesser burdock						o	o						o					o		o										o			
Arrhenatherum elatius	False oat-grass						o	o																											
Artemisia vulgaris	Mugwort			lr E																															
Arum italicum ssp. *italicum*	Italian Lords-&-ladies		r E																																
Athyrium filix-femina	Lady-fern		r E													o			lr	o E	lo E	o E								r		lo	r	lo E	o
Atriplex sp.	Orche species																															r			
Bellis perennis	Daisy	o	r										o	r			o																		
Brachythecium sp	A moss																															lo			
Bromus hordeaceus	Soft brome		o-r E		o									r																					
Bromus sp	Brome species				o																														
Caledonia sp.	Lichen species																															lf			
Callitriche sp	Water-starwort species																r S					r S													
Callitriche stagnalis	**Common water-starwort**	**la W**		**lr**								**o**		**o**																					
Calystegia sepium	Hedge bindweed	o E	f E			o		r					lo	lo		o H		a SE			r			o			r			a-d			lf	
Calystegia sp.	Bindweed species																		lo	o										lo		f			
Calystegia sylvatica	Great bindweed			lo E																			o								a-d				
Capsella bursa-pastoris	Shepherd's-purse									r																									
Cardamine flexuosa	**Wavy bitter-cress**																		**lr**	**lf**		**o**												**lr**	**lo**
Cardamine pratensis	**Cuckooflower**	**lo**																			**r**										**o**				
Carex arenaria	Sand sedge				o									lo																					
Carex flacca	**Glaucous sedge**											**f**		**r**																					
Carex hirta	**Hairy sedge**	**lo**		**f**	**lf**	**f**	**o-lf**	**o**	**r**	**f-la**	**o**	**f**	**f-la**	**f/r**	**r-lo**	**f**			**lo**		**lf**		**o**	**f**	**o**					**lf**	**r**		**r**	**lf**	**f**
Carex laevigata	**Smooth-stalked sedge**													**r**																**lf**					
Carex nigra	**Common sedge**							**o**		**r**			**r**												**f-o**										
Carex otrubae	False fox-sedge											r		r											r										
Carex leporina	**Oval sedge**									**r**		**r**												**o**						**lr**					
Carex pendula	**Pendulous sedge**															**r**			**lr**	**lr**												**r**			
Carex pseudocyperus	**Cyperus sedge**																																		**o**
Carex sp.	Sedge species						a	a		f				lf		r																			lo
Carex viridula ssp. Oedocarpa	Yellow Sedge													r																					
Castanea sativa	Sweet chestnut																													o					
Centaurea aspera	Rough star-thistle													lo																					
Centaurea nigra	Common knapweed									o				lo											lf									f-la	
Centaurium erythraea	Common centaury											o		o																					
Cerastium fontanum	Common mouse-ear	r	o E	o	o	o		o	o	o-f	o	f	lo	o	o	o		f SE	r	o	o		o	o	o					o	r		o	o	o
Chamaemelum nobile	Chamomile											o																							
Chenopodium album	Fat-hen	r									r													o										r	
Chenopodium sp.	Goosefoot species								lo																										
Chrysosplenium oppositifolium	Opposite-leaved golden saxifrage									r						lo				lr	la	r -lf SE								lf	o	lf		lf	
Circaea lutetiana	Enchanter's nightshade																													lo		lo	lo		lo
Cirsium arvense	Creeping thistle	r	o E	lo	a	f		lf		f-la	a	r	o-f	o-lf									la	o	o			o	r-lo	r	o	lf		o	
Cirsium palustre	**Marsh thistle**	**r**	**r E**			**f**		**lo**	**lf**	**o-lf**	**o**	**o**		**o**	**o**	**o**	**r-o S**	**o SE**	**r**		**r**	**r E**		**lo**	**r**					**lf**	**o**	**o**	**o**	**o**	**f**
Cirsium vulgare	Spear thistle	r E	r E	o	f	o	o	o	o	o		r/f					lo S		r	o	o			o	r					o		r-o	r	r	
Cladium mariscus	Great fen-sedge								lo																										
Conium maculatum	Hemlock			lr E						lf	r								r																
Convolvulus arvensis	Field bindweed				o									o											o				o-lf	r				
Conyza canadensis	Canadian fleabane																							r							r				
Corylus avellana	Hazel			lr E																															
Crataegus monogyna	Hawthorn	r H	r H												o E	o H	o S											o		r	o				
Crepis capillaris	Smooth Hawk's-beard	lf E		lo E	o									o/a																					
Cynosurus cristatus	Crested Dog's-tail					o	lf	o		o-lf		o		f	r-o					lf	lo			lf	o			f		o					
Cyperus eragrostis	Pale galingale																														o				
Cyperus longus	**Galingale**	**r E**		**o-lf**	**lo**		**lo**	**o**		**r**	**la**	**lo**	**a-d**	**a**									**f**	**o**	**lf-lo**	**r-lo**	**o**	**r**	**r**				**lo**		
Cytisus	Brooms																																	r	
Dactylis glomerata	Cock's-foot	lo E	o-lf f	lf	f		f	r	o	o	a		a	r		o	o S	f	f				o			r			f	o			f-la	r
Dactylorhiza praetermissa	**Southern marsh orchid**											**r**		**lo**																					
Dactylorhiza sp.	Orchid species							r				lo																							
Daucus carota	Wild Carrot													r																					
Deschampsia caespitosa	Tufted hair-grass						o-lf																												
Digitalis purpurea	Foxglove		r H																lo			r E								o	o	r	r	r	lf E
Dipsacus fullonum	Teasel														r																				
Dryopteris affinis	Scaly male-fern																													r		r			
Dryopteris dilatata	Broad bucker-fern																			lo NW												r-o			
Dryopteris filix-mas	Male-fern		r E																r					r						r				
Eleocharis palustris	**Common spike-rush**	**lf W**	**la-ld**	**o**	**lo**		**o**	**o**		**o**				**o**							**lr**			**la**	**r**							**lo**			
Elytrigia repens	Common couch				f		lo																	r									r		
Epilobium ciliatum	American willowherb																														r				
Epilobium hirsutum	**Great willowherb**		**r H**	**o**	**r-o**	**o**		**r**	**o**	**r**	**la**	**lo**	**lo**	**lo**									**o**	**o**			**o**		**o**	**r**	**a**	**r**	**o**	**lo**	
Epilobium lanceolatum	Spear-leaved willowherb											lo																							
Epilobium obscurum	Short-fruited willowherb	r	r			o		r						r																					
Epilobium parviflorum	**Hoary willowherb**									**r**		**lo**												**o**											
Epilobium sp.	Willowherb species																																		lo
Epilobium tetragonum	Square-stalked willowherb		lr E											r																					
Equisetum arvense	Field horsetail	r E	o E	f			lf	o		r		r	r	f										o-lf											
Equisetum fluviatile	**Water horsetail**	**lo W**	**o**		**lf**				**r**			**o**		**lo-f/r**										**la**						**lf**	**f**			**r**	**a**
Equisetum palustre	**Marsh horsetail**			**r**					**o**					**o**																			**la**	**lf**	
Eupatorium cannabinum	**Hemp-agrimony**			**lf E**										**r**	**lo E**			**r SE**	**lo**				**o**	**o**	**r**	**lo**			**r-o**	**lf**	**f**	**f**		**o-lf**	**o**
Euphorbia amygdaloides	Wood spurge																			lo														**r**	
Euphrasia officinale agg	Eyebright													r/f																					
Eurhynchium praelongum	Feather moss																															la			
Evernia prunastri	A Lichen																														f				
Fagus sylvatica	Beech																							r hs											
Fallopia japonica	Japanese knotweed													o																					
Festuca arundinacea	Tall fescue									o	o			o										r	a-f										
Festuca pratensis	Meadow fescue									o-lf																									
Festuca rubra	Red fescue				o-f					f-la				r/f																					
Foeniculum vulgare	Fennel													r																					
Fraxinus excelsior	Ash															o H		r SE													o-f				
Galeopsis tetrahit	Common hemp-nettle																																		lo
Galium aparine	Cleavers	lf H		la E					o	r			o	lo	lf		o S	o SE	o	lf NW	o	o E			a				lf	lo	r	o		o	o
Galium mollugo	Hedge bedstraw								o																										
Galium mollugo ssp. *erectum*	Upright hedge bedstraw	lo H																																	
Galium palustre	**Common marsh-bedstraw**	**lf**	**o**			**o**		**o**	**o**	**r**	**o**	**lo**		**la**		**r**			**lo**		**lo**			**o**	**r**					**lo**	**r**	**r**	**o**	**lr**	**la**
Galium verum	Lady's bedstraw				o								lo	lo																					
Geranium dissectum	Cut-leaved crane's-bill	r												o																				r	
Geranium molle	Dove's-foot crane's-bill		o E	lr																															
Geranium robertianum	Herb-robert		r E													lo			lo		r	r E								lf	o	lo		lo	lo
Geum urbanum	Wood avens																			lo										lr	o		lo	lo	
Glechoma hederacea	Ground ivy	lf H																lo			o-lf									lf		lf			
Glyceria declinata	Small sweet-grass													r																					
Glyceria fluitans	**Floating Sweet-grass**	**a**	**a**	**f-la**			**o**	**o**				**lf**		**lo**					**lr**	**o**					**r**								**f**	**lf-r**	**f**
Gnaphalium uliginosum	Marsh cudweed																		lr												r				lr
Hedera helix	Ivy	lo H	o E	lf H											lo	r H				lf		r-lo E	la	r	lf				r-o	lf	f	la		r	lo
Heracleum sphondylium	Hogweed	r H	o E	lf E			o			o			o	f		lo		r	lr	lo				r						o?	o		o		r
Holcus lanatus	Yorkshire-fog	f	f E	a	a	a	a	a	a	a	a	a-d	a	a	d	a	a	f	a	a	a	f	a	a	a	a-d		a	d	f-a?	f	o	a	f-a	a
Holcus mollis	Creeping soft-grass	r H	f H	lf E			o	o		o										lf NW										lo	o			lf	lo
Hordeum murinum	Wall barley													o																					
Hydrocotyle vulgaris	**Marsh pennywort**	**lf**		**lf E**		**f**	**lo/a**	**lf**	**lo**	**la**	**lf**	**la**	**lo**	**f-la**	**r-lo**	**lf**					**lf**		**o-f**	**la**	**f**					**lo**	**r**			**lf**	**la**
Hypericum humifusum	Trailing St. John's-wort	r E																																	
Hypericum tetrapterum	**Square-stalked St John's-wort**		**r E**											**o**																		**r-o**			
Hypochoeris radicata	Cat's-ear	lo E					lo			r		f		o	r																			r	
Iris pseudacorus	**Yellow Iris**	**r**	**lf**		**o**	**f**	**lf**	**la**	**f**	**o**	**o**	**lo-lf**	**lo**	**la**	**a-lf**		**a-ld S**		**lf**	**o**	**r**	**o**	**o**	**lo**	**o**	**ld**	**r-o**			**lr**	**o**	**r-o**	**lf**			
Juncus acutiflorus	**Sharp-flowered rush**	**f**	**o-f**	**f-la**	**lo**	**o**	**o**	**a**	**f**	**a**	**a**	**f-a**	**lf**	**f-la**	**f**	**a**			**lf**	**o**	**f**	**o-lf SE**	**o**	**la**	**o**	**lo**		**r**		**la**	**r-o**		**a**	**la**	**la**
Juncus articulatus	**Jointed rush**	**f**	**o f-la E**	**la**		**o**	**a**	**a/r**	**lo**	**f**		**f**		**r/f**							**lo**		**o**	**o**										**lo**	
Juncus bufonius	**Toad rush**	**lf**	**lf**	**lo**				**r/f**	**lo**	**o**		**o**		**r**	**o-f**		**r-o**		**lo**		**lo SE**		**lf**	**r**										**r**	**lf**
Juncus conglomeratus	**Compact rush**					**o**																													
Juncus effusus	**Soft rush**	**la**	**o**	**la**	**o**	**o**	**o**	**o**	**f**	**r**	**r**			**r**	**o**	**o**	**r E**		**lf**	**o**	**r**		**o**	**la**	**o**	**o**		**r-lo**	**o**	**lf**	**f**	**o**	**o**		**a**
Juncus inflexus	**Hard rush**											**lo**		**lf**																					
Juncus subnodulosus	**Blunt-flowered rush**					**o**	**o**	**o**				**o**		**f**																					
Koeleria macrantha	Crested hair-grass									o-f																									
Lapsana communis	Nipplewort																			r															lo
Lathyrus pratensis	Meadow vetchling						lf							o																					lo
Lavatera arborea	Tree mallow													o																					
Lemna minor	**Duckweed**	**lo**																																	
Leontodon autumnalis	Autumn hawkbit									lo				o	r																				
Leontodon saxatilis	Lesser hawkbit						o	r		r		o		r																					
Lepidium didymum	Lesser swine-cress																							r											
Leucanthemum vulgare	Oxeye daisy																													r					
Lonicera periclymenum	Honeysuckle																																		lo
Lolium perenne	Perennial Rye-grass	f	f E	f	lf	f	lf	o		lf		o		f			r-o		o	f	lf		o	o	f		o		f				r	
Lotus corniculatus	Bird's-foot trefoil				o	o		o		o-lf		o	lo	lo		o		r SE														r		r	
Lotus pedunculatus	**Large bird's-foot-trefoil**	**la**		**la**		**f**		**o-lf**	**o**	**o-lf**	**f**	**f**	**lo**	**o-f**	**lo**		**r-lo E**	**lo**	**lf**	**f**	**f**	**r E**	**f**	**la**	**lf-f-o**	**f**		**r**		**f**	**r**	**r**	**f**	**lf**	**la**
Luzula campestre	Field wood-rush	lo E																																	
Lychnis flos-cuculi	**Ragged-robin**			**r-o**			**o**	**r**	**r**	**o**	**o**	**lo**		**o**	**o**	**lf**							**o**		**lf-o**	**r**				**o**		**r**	**lo**	**lo**	**o**
Lycopus europaeus	**Gypsywort**		**r H**						**f**								**r S**	**lo**	**o**		**r**			**o**						**o**	**o**	**o**			**f**
Lythrum portula	**Water purslane**	**lf**																																	
Lythrum salicaria	**Purple loosestrife**					**lo**		**f**	**a**	**lf**	**f**	**lo**	**lo**	**lo**	**r**	**lo**	**r S**		**lf**	**o**	**r**												**r**			
Matricaria chamomilla	Scented Mayweed																														r				
Matricaria discoidea	Pineappleweed	r																lf	r					o											
Medicago arabica	Spotted medick	r E												o																					
Medicago lupulina	Black medick			lo E										lo																					
Mentha aquatica	**Water mint**	**r**								**r**			**lo**	**f**	**o-f**	**o**	**o-f S**	**f SE**	**la**	**f**	**f**	**o-f S**		**o**	**lf**			**f**	**f**	**f-la**	**o**	**f**	**f**	**a**
Mentha x villosa	**Apple-mint**																							**lf**	**o**					**lf**					
Mentha niliaca	Hybrid mint																r S			lf															
Mentha sp.	Mint species													f-la																	r-o				
Mentha x rotundifolia	False Apple-mint																														r-o				
Mimulus guttatus	**Monkeyflower**														**r-lo**	**o**	**lo S**	**o SE**	**lf**		**lo**	**o SE**													
Molinia caerulea	**Purple moor-grass**								**f**																										
Myosotis laxa	**Tufted forget-me-not**	**lf**	**o-lf E**			**o**		**r**	**o**	**r**		**lf**		**lf**	**r-o**									**o**						**o**					
Myosotis scorpioides	**Water forget-me-not**						**o**	**o**						**r**	**o**		**lo S**		**lf**	**lf SE**	**lf**	**o SE**											**r**	**r**	
Myosotis sp.	Forget-me-not																	o SE																	
Oenanthe crocata	**Hemlock water-dropwort**	**o**	**o-r E**	**lo E**		**a**		**o**	**a**	**lf**	**o-lf**	**lo-lf**		**lf**	**d**	**o**	**d S**	**a SE**	**la**	**a**	**lf**	**f E**	**la**	**o**	**o-o-r**	**la**	**o**	**o**	**o-f**	**a**	**f-la**	**ld**	**o**	**o**	**lf**
Oenanthe fistulosa	**Tubular water-dropwort**	**o**	**lr-o**				**r**	**r**		**r**		**o**		**r**																					
Oenanthe lachenalii	**Parsley water-dropwort**													**lo**											**r**										
Ononis repens	Common restharrow													lo																					
Orchis laxiflora	**Jersey or loose-flowered orchid**							**lo**				**lo**		**f**											**o-r**										
Parietaria judaica	Pellitory-of-the-wall	lf										lf																							
Parentucellia viscosa	**Yellow bartsia**				**lo**	**o**		**lf**		**o**		**f-la**		**f-la**																					
Parmelia caperata	A Lichen																														o				
Parmelia saxatilis	A Lichen																														f				
Peplis portula	Water purslane		o																																
Pentaglottis sempervirens	Green alkanet																		r											lf	o	r			
Persicaria amphibia	**Amphibious bistort**	**f-la**	**lf-la E**	**f**		**f**	**f**	**f**		**f**		**f**		**f**	**o**			**o SE**	**lf**		**lf**	**lf**	**o**	**o**	**o-r**	**lo**				**f**	**o**				
Persicaria hydropiper	**Water-pepper**	**o**												**f**	**lo**	**o**	**o-lf S**	**o**					**o**	**o-lf**	**lf**				**r-lo**			**lf**		**lf**	**o**
Persicaria lapathifolia	Pale persicaria				f	f			f	o-lf	f	o	o	f																					
Persicaria maculosa	Redshank	f	f	lo	o-f			o	o	o-lf	f	o		o										r											lr
Petasites fragrans	Winter heliotrope															lf H																			
Phalaris arundinacea	**Reed canary-grass**																												**r**						

Scientific name	Common name	Grouville, 2000			St Ouen's Pond SSI										St Peter's Valley								Rue de Pres						Below Hamptone			St Catherine's	NT Meadow	Trinity
		213	236	7	6	9	10	11	13	14	18	19	21	23	26d	26c	26b	26a	26e	26 between e&g	26g	25c	20a	20b& l	20d,e&h	20f,g&k	20m	20j	20i	19 a&b	19c	19g			
Phleum pratense	Timothy									r									o	r			o												
Phragmites australis	**Common Reed**			**lf E**	**a**	**f**	**o**	**o-f**	**a**	**o-lf**	**lf**	**lf-ld**		**la**										**la**	**lf**		**d**	**lr**							
Phyllitis scolopendrium	Hart's-tongue															r Wa					lr E									lr					
Plantago lanceolata	Ribwort Plantain			lo E			f	o		f		f	lo	o					o	o					a					r				o	
Plantago major	Greater Plantain	o	o E	r	lf	lf		r		r		o		o		lo		f	o				r	o							r-lo	r		o	r
Platanus x hispanica	London Plane																															r			
Poa annua	Annual meadow-grass	o	la-f E			r	o	o									o	f						r											
Poa pratensis	Smooth meadow-grass	o			f	f	o							r				f																	
Poa trivialis	**Rough meadow-grass**	**o**	**o E**	**f**				**f**	**f**	**o**	**o**	**f**		**o**	**o**		**r-o S**		**a**	**f**	**a**			**f**	**o**	**o**				**?f**	**o**			**o**	**f**
Polygonum aviculare agg.	Knot-grass [agg.]	r								r								o	o	f				r											
Polygonum sp.	Knotweed species																				lf														
Polypodium vulgare	Polypody	r H																																	
Polystichum aculeatum	Hard shield-fern																															r			
Populus alba	White poplar																		r																
Populus nigra var Italica	Lombardy poplar			lf E																															
Populus tremula	Aspen																													o	o				
Populus x canadensis	Black Italian poplar		r E	lo E																								o-f							
Populus x canescens	Grey poplar	r H	r E																																
Potentilla anserina	**Silverweed**	**r E**					**f**	**lo**	**lf**	**o-lf**		**f**	**lo**	**lf**					**lf**					**lo**	**r**										
Potentilla erecta	Tormentil							r																											
Potentilla reptans	Creeping cinquefoil				f		lf	r-o	r		o		o	o																					
Potentilla sterilis	Barren strawberry																				r													r	
Primula vulgaris	Primrose																								lr-r					r					
Prunella vulgaris	Selfheal	r	r E							r		lf/r		o	lo		lo S	a	la	f	lf	o								lo		o		o	
Prunus sp.	Cherry species																																	r	
Prunus spinosa	Blackthorn											lf/r												lf h											
Pteridium aquilinum	Bracken			lr E		o				r		lo		lf	r-o	r		o SE		lo NW	la									lf	o	ld	lo E	lo	la
Pulicaria dysenterica	**Common fleabane**	**r**	**lo E**	**o**	**lf**	**o**	**o**	**lo**		**f**	**o**	**lf**	**f**	**f**				**o SE**	**r**		**r**			**o-lf**	**f**									**lf**	**lo**
Quercus ilex	Evergreen oak	r H																																	
Quercus robur	Pedunculate oak	r H	r H															r						r-lf hs	o	o		o	o	o	o	o	o	f-o	
Ranunculus acris	Meadow buttercup									o	o			o	r-o						r	o			o					r			r		r
Ranunculus ficaria	Lesser celandine																o S																		
Ranunculus flammula	**Lesser spearwort**	**f**	**o**			**lf**	**lf**	**lo**	**o**	**lf**		**f-la**		**lo**	**o-f**	**r**			**lo**		**o**		**o**	**o-lf**	**r**	**r**				**r**				**r**	**lf**
Ranunculus repens	**Creeping buttercup**	**a**	**o-lf**	**a**	**f**	**f**		**f**	**o**	**f-a**	**a**	**f-a**	**f**	**f**	**a-lf**	**f**	**a**	**f SE**	**f**	**a**	**a**	**a**	**f**	**a**	**f**	**a**		**f**	**a-d**	**f**	**o-f**	**o**	**a**	**o-lf**	
Ranunculus sceleratus	**Celery-leaved buttercup**	**lo**			**f**							**lo**		**o**										**r**											
Ranunculus x segretii	**Hybrid water-crowfoot**													**r**																					
Raphanus raphanistrum ssp. maritimus	Sea radish				o-f								lo	r																					
Rhytiadelphus squarrosus	A Moss																																		lr
Rorippa nasturtium-aquaticum	**Water-cress**	**lo W**				**o**								**o**		**lf SE**					**lo**			**la**	**lf W**					**lo**					
Rosa canina	Dog-rose																																	r	
Rubus fruticosus agg.	Bramble	la H	ld E	lf E		o	o	r		o			la	o	lf	f H	o-lf S		lo	lf A	lf E			lf		ld		lf	la	la	o	o	lo	o
Rumex acetosa	Common sorrel	r	r E	lr E				r	o	o	f	lo		o		r			r		o		o		r			r		f	o		o	o	o
Rumex acetosella	**Sheep's sorrel**	**lr E**		**lr**																															
Rumex conglomeratus	Clustered dock	f	r	o	o			o-lf	r	o-lf	o	f		f/r					o	o	f		o	o	o			r		o	f		o	o	o
Rumex cf. crispus	Curled dock							o		o											r														
Rumex obtusifolius	Broad-leaved dock	r	r	lo E	f	o	f	f		o	o	o		lo	o		o		o	o	o	o								?f	o	r	r	r-o	
Rumex sanguineus	Wood dock														o	r	o	r SE														o			
Salix alba	White willow			lr E																								o							
Salix aurita	Eared willow																											r-o							
Salix cf cinerea	Sallow																		lo						lo										
Salix cinerea ssp. oleifolia	a poplar or willow		r H	lf E		o					lf													xaurita? Lf								o		o	
Salix elaeagnos	Olive willow												o																						
Salix fragilis	Crack willow		r E	lo E																				lo hs											
Salix oleifolia	Grey willow																		lf		r														lf
Salix sp.	Willow species											o																							
Salix viminalis	Osier			r E																															
Salvia verbenaca	Wild clary													o																					
Sambucus nigra	Elder			lr H											r E																o-f	o			lr
Scrophularia auriculata	Water figwort											lo																							
Scrophularia scorodonia	Balm-leaved figwort														r	r H	o S	o E	o	r	r		lo	r							o				
Senecio jacobaea	Common ragwort		r							o		o		r	r-lo			r SE	o	r												r			
Setaria verticillata	Rough Bristle-grass																																	lr	
Silene dioica	Red campion				o									o	o	lo	o E	o SE	lf	lo E	lo	r-o E								lr	o	o		r	
Silene dioica x alba																																		r	
Silene vulgaris	Bladder campion																																	r	
Sinapsis alba	White mustard													o																					
Solanum dulcamara	**Bittersweet**	**r**			**lo**	**o**			**o**		**o**				**lo**	**r**	**r-lo E**		**r**		**o SE**		**r**	**o**			**o**								**r**
Solanum nigrum	Black nightshade	r					o	o			f	lo																							
Sonchus asper	Prickly sow-thistle					o	r			r	r			r					o	r			r	o							r			lr
Sonchus oleraceaus	Smooth sow-thistle	r	r E	r E			o	o		r		o		r										o										r	r
Sparganium erectum	**Branched bur-reed**	**r**										**r**		**lo**					**lf**	**r**	**o**										**lr**	**o**	**f**		
Spergula ssp.	Sea-spurry species																							r											
Stachys sylvatica	Hedge woundwort	lo E	o E	lo E											r	o H		lo	o	lo				lo				r	lo		o		o-r	lr
Stellaria graminea	Lesser stichwort																				r													lo	
Stellaria holostea	Greater stichwort																													lo					
Stellaria media	Common chickweed	r								o						o		o SE			r														
Stellaria uliginosa	**Bog stitchwort**	**lf S**	**r**									**r**			**r-o**		**r S**		**lf**	**f**	**f**		**r**							**lo**	**o-lf**		**o-lf**	**r**	**o**
Symphytum officinale	Common comfrey	r E	r E																														lo		
Tanacetum parthenium	Feverfew																		r																
Taraxicum officinale agg.	Dandelion	r		lr E										r							r													r	
Teucrium scorodonia	Wood sage	lo													r				lr												r			lr	r
Thlaspi arvense	Field penny-cress																																	lr	
Tilia europaea	Lime		r H																																
Trifolium arvense	Hare's-foot clover									r																									
Trifolium dubium	Lesser trefoil	loE		lo E						o				r																					
Trifolium pratense	Red clover				o		o			o		o		o	o		o					f	o		f-r										
Trifolium repens	White clover	lf	ld f E	lf	f	f	f	o	o	a	lf	lf	lo	f		a		f-a	lf	f			o		f				a-d	r	o			o	o
Trifolium sp.	Clover species													r																					
Trifolium subterraneum	Subterranean clover													r																					
Tripleurospermum inodorum	Scentless mayweed	r								r		o-lf		o	r	r		f						r											
Typha latifolia	**Bulrush**			**lr**		**f**						**o**		**o**										**r**	**lo**		**o**								
Ulex europaeus	Gorse											r												lo es	o				o-f						lr
Ulmus sp.	Elm species											r																							
Ulmus glabra	Wych elm																													o					
Ulmus minor ssp. minor	Small-leaved elm	lf H																						lo hs											
Umbilicus rupestris	Navelwort	r H																					lf								r				
Urtica dioica	Common nettle	lf H	lf E		o	lo	o	o	f		o	lo	o-f	lo	f	lf	o-lf	ld	lo	o	lo	f-la		lf	f-lo		f		o-lf	?lf	a	ld	lo		o
Valerianella locusta	Common cornsalad													o																					
Verbena officinalis	Vervain														r																				
Veronica beccabunga	**Brooklime**	**lo S**	**lf-d**	**lo**		**f**						**la**			**r**	**lf SE**	**o S**	**o SE**	**lo**		**r S**			**lf**	**lo**									**lo**	
Veronica chamaedrys	Germander speedwell																lo S			lo	lo										lf			lf	
Veronica serpyllifolia	Thyme-leaved speedwell																r S		r																lr
Vicia cracca	Tufted vetch			lf E			o	o		r				o										r											
Vicia hirsuta	Hairy tare		r E											o																					
Vicia sativa ssp. sativa	Common vetch	r		lf E	o		lo	f		r				o																					
Viola riviniana	Common dog-violet																													lo				lo	
Number of Wetland Species		40	28	25	15	25	20	33	26	32	20	42	12	51	26	21	17	13	31	16	31	11	23	40	34	14	7	8	10	29	24	19	23	29	26

Key:

Bold text Compartment columns

Wet Meadow Species

E= Edge
H= Hedge
S= Stream
SE = Stream Edge
W = Water
Wa = On Wall
NW= Near Wood

Appendix 3.2

Wet Meadow Habitat Condition Monitoring Objectives Site…… Date…....

Conservation objective for maintenance management		To maintain or improve the **wet meadows** condition where:
Extent	**Lower limit**	No loss of wet meadow habitat in Jersey in the protected sites
	Upper limit	Restoration of meadows to add to area of those that are in favourable condition
Quality	**Lower limit**	Improvement in all meadows not in favourable condition, and maintenance of those in favourable condition

Site-specific habitat definitions

Criteria for wet meadows (each field treated separately)	**Locate area of damp/wet ground in the meadow and complete survey for this area only in each field:** 80% of the vegetation should be <45cms tall (excluding flowering stems). There should be <10% bare ground that damages the sward Pushing a 6" nail into the soil should be easy at any time There should be < 5% scrub/tree cover >80% of plants should be flowering and preferably seeding prior to any cutting and >45% during grazing after re-growth (if cut) No one or two species should be dominant across the vegetation At least 15 of the following plants should be occasional to abundant. Note if they are spread out throughout the wet area or only in a few spots: Fool's water cress — Galingale Marsh thistle — Common spike-rush Hairy sedge — Water horsetail Marsh bedstraw — Marsh pennywort Yellow iris — Jointed rushes Ragged robin — Water mint Purple loosestrife — Water forget-me not spp Lesser spearwort — Common fleabane Amphibious bistort/water pepper Gypsywort — Greater bird's-foot trefoil Monkey flower — Bittersweet Bog stitchwort — Brooklime Toad rush — Other sedges
Presence of damaging features	**In any 1 field (note, estimate extent and mark locations of each on map if present):** Tall herbs >1.5m tall should not be dominant Grasses without wetland plants listed should not dominate No invasive non-native species e.g. Japanese knotweed. No signs of pollution in any stream or ditch (smell of sewage, signs of dirty water?) Field cut and cuttings not removed. Any signs of damage by vehicles/trampling/dumping etc?

Appendix 4.1

Maritme Cliff Habitat Condition Monitoring Objectives Site……..Name……Date.

Conservation objective for maintenance management		To maintain the **maritime cliff patches** on the rocky coasts in favourable condition
Extent	**Lower limit**	The area of all the patches together is not reduced. See aerial photo – Date - and mapped patches.
	Upper limit	No limit, but note if displaces good quality coastal heath or grassland vegetation and consider compensation for this
Quality	**Lower limit**	80% of patches meets the quality criteria set out below

Site-specific habitat definitions

Criteria for maritime cliff
Assess for each patch

At least 50% rock covered in patchy lichens with no/few higher plants
At least 8 of the following present at occasionally or more widely in vegetation (except Bouley Bay SSI, where only 4 needed):

Thrift	Sweet vernal grass	Portland spurge
Fine-leaved fescues	Sheep's bit	Ox-eye daisy
Buck's horn plantain	Sea plantain	English stonecrop
Navelwort	Rock samphire	Danish scurvy-grass
Sea campion	Wild carrot	Rock spurrey

Mosses on the rocks and soils

At least 2 of the following should be more than occasional:

North coast	**South coast/Les Landes**
Intermediate polypody	Early sand-grass
Foxglove	Soft brome
Ivy	Sea fern-grass
Honeysuckle	
Bird's-foot trefoil	

Distinctive spp - Sea spleenwort should be present on Les Landes and Bonne Nuit, note where and populations

Presence of damaging features

In any 1 patch:
There should be no invasive Hottentot fig, ice or dew plants of any species. Estimate the % cover of any of these across the patch (only on S coast and Les Landes).
There should be no damage to the ground from excavation, dumping of materials, etc. Estimate the % cover of any of these
There should be no trampling that results in significant bare ground (eg from climbing). Estimate the % of the patch affected.

Appendix 5.1a

Marsh/fresh water Habitat Condition Monitoring Objectives Site……. Date…...

Conservation objective for maintenance management		To maintain or improve the **marshes/reed beds/swamps/fresh-water** condition where:
Extent	**Lower limit**	No loss of each of the habitat types in Jersey in the protected sites. Note that ponds can fill in naturally over time and may need management or replacement
	Upper limit	No upper limit, provided they do not expand into habitats also of high value (eg wet meadows).
Quality	**Lower limit**	Maintenance of character and composition in all habitat types
Site-specific habitat definitions		
Criteria for marsh/freshwater habitats – soils/hydrology		**Habitats to be assessed based on the whole area of the feature. Record multiple areas of same feature individually (each area of reed bed or each pond).** **Marsh –** ground to be soft at all times with water on the surface except in drought conditions. 6" nail should push into surface easily and mud or water squeeze out of soil under feet. **Freshwater** – Water levels stable at normal level with 10% tolerance (vegetation/algae around edge shows where water level is normally). - no signs of pollution in water (sewage, effluent from industry or agriculture) - water should be clear not milky or grey. - algal mats should not dominate the water surface **All habitats** There should be < 5% scrub/tree cover >80% of plants should be flowering and seeding >90% of the species present should be native No one or two species should be dominant across the vegetation except in reed beds and swamps.
Presence of damaging features		**In any habitat patch (note, estimate extent and mark locations of each on map if present and relevant):** Grasses without wetland plants listed should not dominate No invasive non-native species Any signs of damage by vehicles/trampling/dumping etc?

Appendix 5.1b

Marsh/fresh water Habitat Condition Monitoring Objectives Site……. Date…...

Habitat specific habitat definitions

Criteria for marsh/freshwater habitats

Habitat specific criteria – note all species present and their abundance in the patch

Reed Bed –should be 1.5-2m+ high, dense reeds, occasional other species present

Swamp – should be dense tall, mixed species with none dominant – list species and their abundance

Marsh/fen – should be 0.4 – 1.5m high (grazed or not), at least three of the listed species should be more than rare in the vegetation

Open water – at least 1 of the list more than rare in the water

Reed bed	Swamp	Marsh/fen	Open water
Bittersweet	Bur-reed	Common spike-rush	Common spike-rush
Common reed	Common reed	Rushes	White water lily
Great hairy willow herb	Greater reedmace (bulrush)	Galingale	Common starwort
Hedge bindweeds	Rushes	Marsh bedstraw	Celery-leaved buttercup (muddy edges)
Hemp agrimony	Yellow iris	Fool's water cress	Yellow iris
Water horsetail		Marsh thistle	Great water dock
Sedges		Hairy sedge	Fool's watercress
Duckweed		Marsh pennywort	Watercress
		Purple loosestrife	Brooklime
		Common fleabane	Bog stitchwort
		Amphibious bistort/water pepper	Amphibious bistort/water pepper
		Water forget-me not spp	Water milfoil
		Water mint	Water plantain
		Lesser spearwort	
		sedges	
		Gypsywort	
		Greater bird's-foot trefoil	
		Brooklime	
		Bog stitchwort	
		Hemlock water dropwort	
		Lesser spearwort	
		Great sword sedge (St Ouen's)	
		ferns	
		Marsh pennywort	
		Hemp agrimony	
		Purple loosestrife	
		Marsh bedstraw	

Appendix 6.1

Salt Marsh Habitat Condition Monitoring Objectives Patch nos… date… name…

Conservation objective for maintenance management		To maintain the **salt marsh patches** along the fringing dunes in St Ouen's Bay in favourable condition where:
Extent	**Lower limit**	The area of all the patches together is not reduced. See aerial photo and mapped patches 2007 for area covered.
	Upper limit	No limit, but note if displaces good quality dune vegetation and consider compensation for this
Quality	**Lower limit**	19 out of 22 patches (as marked on the attached map of the salt marsh vegetation) meets the quality criteria set out below, with the largest 2 patches needing to be in favourable condition.
Site-specific habitat definitions		
Criteria for salt marsh		**In any 1 patch:** 80% of the vegetation should be <30cms tall. Bare soil/shingle should be intimately dispersed between plants in small patches, be naturally derived and not man-made. There should be at least 2 of the following plants that are frequent to abundant in the patch: Alderney sea lavender — Buck'- horn plantain Thrift — Curved sea hard-grass Sea-purslane — Sea sandwort
		In any one patch at least 2 of the following species should be present: Rock Samphire — Sea bindweed Danish scurvy-grass — Sea holly Sea beet — Sea couch Portland spurge — Sea fern-grass
Presence of damaging features		**In any 1 patch:** There should be no invasive ice or dew plants of any species. Estimate the % cover of any of these across the patch. There should be no damage to the ground from vehicles, excavation, dumping of materials, etc. Estimate the % cover of any of these There should be no trampling that results in bare ground (paths through the vegetation) or that reduces the vegetation by more than half its average height. Estimate the % of the patch affected. If stock grazing is present, estimate % flowering of main plants in patch and comment on degree of any trampling damage. These should not be significant (ie over 20% of plants affected).

Appendix 6.2

Strand Line Habitat Condition Monitoring Objectives Patch no… Name… Date…

Conservation objective for maintenance management		To maintain the **strand line patches** along the fringing dunes in St Ouen's Bay in favourable condition where:
Extent	**Lower limit**	The area of all the patches together is not reduced. See aerial photo and mapped patches 2007 for area covered.
	Upper limit	No limit, but note if displaces good quality dune vegetation and consider compensation for this
Quality	**Lower limit**	18 out of 20 patches (as marked on the attached map of the strand line vegetation, plus the strip below the wall in Section 1)
Site-specific habitat definitions		
Criteria for Strand line		**In any 1 patch:** 60% of the vegetation should be <30cms tall. Bare soil/shingle should be more than 40-50% of the patch, be naturally derived and not man-made. There should be at least 2 of the following plants that are frequent in the patch: Annual sea blite — Rock samphire Sea holly — Sea sandwort Sea-purslane
		In any one patch at least 2 of the following species should be present: Sea kale — Yellow horned poppy Sea beet — Portland spurge Sand spurrey — Other orache species Sea rocket Sea kale should occur in at least 2 patches Sea rocket should occur in at least 5 patches Yellow horned sea poppy should occur in at least 6 patches Count the plants of kale and poppy – these should not decline
Presence of damaging features		**In any 1 patch:** There should be no invasive ice plants of any species. Estimate the % cover of any of these across the patch. There should be no damage to the ground from vehicles, excavation, dumping of materials, etc. Estimate the % cover of any of these. There should be no trampling that results in bare ground (paths through the vegetation) or that reduces the vegetation by more than half its average height. Estimate the % of the patch affected. If stock grazing is present, estimate % flowering of main plants in patch and comment on degree of any trampling damage. These should not be significant (ie over 20% of plants affected).

Penny Anderson Associates Ltd

CONSULTANT ECOLOGISTS

Park Lea, 60 Park Road, Buxton, Derbyshire SK17 6SN

Registered Office as Above | Registered in England & Wales | Company No. 4223109 | Directors: Mrs P Anderson Mr P Worrall Mr C Anglish