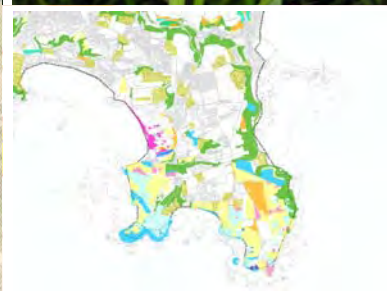
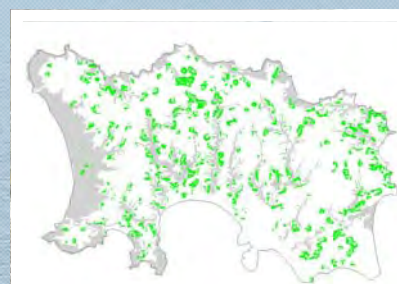


# Jersey Environmental Services

## Protection of Ecologically Sensitive Areas (PESAP) Project

June 2010





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## JERSEY ENVIRONMENTAL SERVICES

### PROTECTION OF ECOLOGICALLY SENSITIVE AREAS (PESAP) PROJECT

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June 2010

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

Signed:

A handwritten signature in black ink that reads "Penny Anderson". The signature is written in a cursive, flowing style.

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## 1. INTRODUCTION

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- 1.1 This report sets out the process and findings to further the protection of ecologically sensitive areas within the current revision of the Jersey Island Plan (JIP). The JIP sets out policies which shape decisions of Local Planning Officers, the Planning and Environment Ministry and Policy Makers. It also provides maps detailing Planning Zones which have various levels of protection from development. The highest level of protection is in the Zone of Outstanding Character and various other designated areas provide development sites, and /or identify built-up areas which may have reduced development requirements.
- 1.2 It is proposed to add other layers to the zoning map, including a layer that identifies sites of archaeological importance and another that identifies key habitat areas and corridors of land which may have special protection in order to link habitats and provide connectivity of habitats to facilitate dispersal of species between populations.
- 1.3 This report takes forward the work needed to identify the key habitat areas and the corridors needed to link them effectively.
- 1.4 The objectives of the work are to:
- identify on maps Environmentally Sensitive Areas (ESAs);
  - provide a written description of the nature of the environmentally sensitive land, including its key importance in the Local (Jersey) and international context;
  - identify issues relating to threats and opportunities for protection from development;
  - identify on maps buffer areas surrounding the ESAs where possible, and corridors which provide links between key habitats;
  - provide written description of the nature of the land in these buffer areas.
- 1.5 The buffer areas and corridors are likely to, but not necessarily, occur on agricultural land, much of it currently designated in the JIP Countryside Zone. Such land can be targeted for inclusion in projects with funding from the Countryside Renewal Scheme (Jersey's agri-environment initiative), which will increase their value as habitat and or dispersal or linking areas.
- 1.6 In general, where possible, the corridors should provide links between habitats of the same type, but should also connect related habitats (eg. areas of heathland to acid grassland), and habitats which may be unrelated (eg. wet grassland and woodland) in order to provide a functioning network. Because of the distribution of habitats on particular soil or topographical features, linking across valleys for example will have to rely on linking unrelated habitats in most situations.
- 1.7 In many instances there will be more than one potential route for a corridor to link habitats, and such routes are to be prioritised, with relevant criteria for their selection and prioritisation. The criteria will be identified and would include width, length, land-use types, existing protection level and relevant soils and topography.
- 1.8 The work is based on the Phase 1 Habitat mapping that is available, combined with the more detailed surveys that PAA and others have conducted over the last 10 or more years. This first step in the work has been to amalgamate the various sources of information into a

comprehensive data base (as far as the data permit) from which to derive the project objectives. The next section sets out the decisions made and the process adopted in order to derive a single habitat/vegetation map for the Island. This is then combined with the information on SSIs in order to identify ESAs (see Section 3). The data developed for the habitat map is used to define boundaries and to present information on the relative composition of the ESAs selected. The subsequent sections develop the buffers and linkages required.

## **2. DEVELOPMENT OF THE HABITAT MAP**

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### **Task 1 – GIS-Based Preparation of a Unified Habitats Layer**

- 2.1 The first requirement of the Protection of Environmentally Sensitive Areas Project (henceforth referred to as 'PESAP') involved the creation of a single, unified, simplified GIS habitats layer, which would be used as a baseline resource from which the PESAP analysis work would be undertaken and the Key Habitat Areas (KHA) derived.
- 2.2 This task involved the amalgamation of habitat feature data from 11 separate GIS-based habitat survey data layers, collected and created over many years of GIS survey work for the States of Jersey Environmental Services Department (now the Environment Department).
- 2.3 The individual habitat layers used to create the master layer included the following:
- Phase 1 Habitat Survey of Jersey Island (1997-2000) - Polygon-based feature dataset, generated from ongoing Phase 1 habitat surveys from 1997 to 2000. Dataset has Island-wide coverage at the Phase 1 Survey level of detail;
  - St Ouen's Bay Study (1999) - More detailed survey of the habitats of the St. Ouen's Bay area (1997 and 2008) plus the survey of ST Ouen's pond area (1997);
  - coastal heathland surveys (2001-2007) – Ongoing, detailed Phase 2 habitat surveys of the Northern coastal heathlands;
  - Les Blanche Banques Habitat Survey (2005) – Very detailed, site-specific vegetation survey of the dune grassland area, St. Ouen's Bay;
  - wet meadows survey (2003-4);
  - 2009 and earlier (1995) woodland surveys;
  - south west coast heathland survey (1996);
  - Plémont (1997) and Portelet (1997) Habitat surveys;
  - Grouville Marsh Habitat Survey (2000);
  - La Moye and Bodet Golf Courses surveys (1992);
  - Gorey Castle Habitat Survey (2000);
  - La Hogue Bie Habitat Survey (2001); and
  - Hamptonne Habitat Survey (2001).
- 2.4 Not all the surveys involved mapping on GIS, so the habitats from these had to be added to the system. For each of the above surveys which had been captured onto GIS over a number of years and for a variety of different purposes, the habitat survey classification schemes adopted for each were different in almost every case. As a result of this the various habitat classification



schemes and categories had to be standardised in order to allow the separate datasets to be integrated into a single, standardised data layer.

- 2.5 Data integration was further complicated by the fact that many of the older datasets were geo-referenced to the older Jersey UTM projection. These datasets therefore had to be transformed to the new JTM2 projection before inclusion into the latest GIS. This work was undertaken in ESRI ArcGIS, using the guidelines as provided by BKS Surveys Ltd and supplied to PAA via the States of Jersey Environment Department.
- 2.6 The survey standardisation process essentially involved a manual data reclassification process where the classification scheme in each of the datasets was summarised, examined and then reclassified into a series of standardised, mutually-compatible habitat classes. In practice, this reclassification process proved to be far from simple, demanding careful consideration as to which sub-categories each of the polygon features should be fitted into, using a logical, best-fit reclassification scheme. The process was guided by expert input from ecologists who undertook much of the earlier survey work. Once completed, the new scheme was then applied to each of the datasets in turn. The survey layers thus contained both original and new habitat classification scheme attribute data.
- 2.7 The final stage of the integration work involved taking the actual polygon features and merging them within the GIS into a single layer. As the 2000 Phase 1 Habitat Survey GIS data layer was the largest, most complete feature data layer, with Island-wide coverage, it was selected as the 'core' layer, into which the features from later surveys would be added.
- 2.8 For this process, a key assumption was made concerning data precedence: the assumption being that the later surveys were more detailed and accurate as they were prepared using a combination of field survey backed up by aerial photographic interpretation. This data would replace the earlier Phase 1 Habitat Survey data, since the earlier Phase 1 Survey was almost entirely based on aerial photographic interpretation from a set of photographs captured in 1996-1997 and was therefore judged to be older (less current), less relevant and less accurate.
- 2.9 The complexity of features and amount of overlap between datasets meant that the only feasible way of integrating feature data from one layer into a single layer was to delete out the earlier polygon features from the original Phase 1 Survey data layer and to replace them directly with the more recent version of the same features. In practice, this process worked well since the later survey data was invariably more detailed than the original Phase 1 Survey work.
- 2.10 As the project aim was to produce a simplified habitats layer, highlighting key habitat areas, no attempt was made to re-visit, re-interpret and re-edit survey polygon features which lay at the boundaries between old and new survey datasets. Where there was overlap, the more recent feature data replaced the older feature data, or else the older feature data was cut away to accommodate the more recent data.
- 2.11 Obviously, if time and resources allowed, these areas could be re-visited, re-surveyed and the GIS data updated accordingly. However, this was beyond the scope and feasibility for the PESAP Project and so is noted here for reference purposes only.
- 2.12 After several rounds of interpretation / reinterpretation and feature reclassification, a final merged habitats layer was produced. This layer was checked for consistency and errors before being used as the baseline dataset for further GIS analyses.

## **Data Quality Issues**

### **JTM2 Projection: Data Transformation and Re-Projection Issues**

- 2.13 Before the project commenced, a major potential issue associated with the recent change in geographic projection systems was identified and discussed with the PESAP Project Officer.
- 2.14 All earlier GIS work was captured to the original Jersey UTM geographic projection. The later work, including the PESAP Project has been captured to the recently introduced Jersey Transverse Mercator (JTM2) geographic projection. A fairly simple geometric transformation can be performed in most GIS applications in order to re-project the older datasets onto the newer projection. This tool was used extensively at the start of the work in order to geo-reference all datasets onto the new system.
- 2.15 However, it was noted that after the transformation procedure was completed, several datasets, (principally the Phase 1 Habitat Survey layer) showed consistent minor (and in some cases significant) positional variations between digitised survey features (polygons) and their corresponding features in the new JTM2-based digital topographic base map for the Island.
- 2.16 These inaccuracies are an inevitable result of projecting older, less accurate digitised data onto newer, more positionally accurate digital base maps.
- 2.17 It was agreed in discussions with the project officer that for the purposes of the PESAP Project, these inaccuracies were not particularly relevant, especially when considering the scale at which the PESAP Project is focussed. Nevertheless, these discrepancies are present and extensive and so any additional work which refers back to, or is based on the transformed Phase 1 Habitat Survey map layer needs to be fully aware of this issue.
- 2.18 At the local scale, it is frequently difficult to relate the habitat survey to features in the new base map, either because they are offset and do not directly overlap, or else the features on the ground have changed and so the survey polygons are no longer relevant.
- 2.19 Because of the nature of these inaccuracies, at some stage in the future it might be desirable to undertake a second, Island-wide Phase 1 Habitat Survey, based on features captured from the most recent aerial photography and 'snapped' to the JTM2 Mastermap-style digital base map. This is most significant on the west coast near St Ouen's Bay where the base mapping is approximately 3 metres out.

### **Recorder 6 Survey Protocol**

- 2.20 Again, at the start of the PESAP Project, discussions included a request from the one of the Project Officers to undertake all future habitat survey work to a Recorder 6 survey protocol. The States of Jersey Environment Department are attempting to overcome historical issues of survey incompatibility by adopting standardised survey methodology and classification schemes based on the latest NBN Recorder 6 biological recording software.
- 2.21 Earlier surveys have traditionally used a series of classification schemes based around Phase 1 and Phase 2 Habitat survey, but not strictly adhering to each. Thus, although detailed and accurate, survey data is frequently not directly comparable between years; an essential requirement for change detection studies over time. Adopting a standardised approach to survey methodology will overcome this issue. The Recorder 6 software represents the ideal platform in which to do this, as it is a widely-used, industry-standard tool for biological recording in the UK.

- 2.22 The Recorder 6-based approach would involve the capture of feature polygons based on the interpretation of the most recent air photography and field surveys onto the new base mapping dataset. At the capture phase, two identification codes would be assigned to each feature in the layer; a unique identification number for that polygon feature, and a second identification code or number which refer directly to a Recorder 6 record for that habitat type / community.
- 2.23 As the PESAP Project utilises existing datasets and requires a simplified Key Habitat Areas map as the key resource dataset, the Recorder 6 survey protocol was not strictly relevant to this study and could not be applied. However, the point was noted for future survey work.

## **Task 2 – GIS-based Spatial Modelling**

### ***Choice of Approach and Methodology***

- 2.24 Several modelling options were reviewed for the study, including the use of raster-based Multi Criteria Evaluation (MCE) modelling and other specialist commercial corridor modelling tools. These were eventually rejected (as not being entirely suitable) in favour of a more conventional approach based on a tailored GIS-based derived mapping and proximity analysis methodology, which, crucially, is guided and directed by PAA's extensive and detailed ecological understanding and experience of the Jersey natural environment. This expertise has been developed over many years of survey work on the Island, where a good ecological understanding of the Island's landscape ecology and function has been developed.
- 2.25 The modelling approach thus uses a range of GIS-based analyses and procedures including:
- classification and reclassification;
  - feature overlay procedures (clip, intersect and union operations);
  - proximity analyses (cost-distance surfaces and buffer analyses);
  - expert interpretation of results and model re-iteration;
  - automatic and manual derivation of linkages and corridors based on the above techniques and expert ecological input;
  - spatial statistical summary and reporting.
- 2.26 As is usually the case in studies of this type, arriving at the final result is the result of an iterative process of analysis, interpretation of results and then re-analysis. The critical requirement is for expert input from ecological specialist and GIS specialist alike.

### ***Development of the Key Habitat Areas (KHA) Classification Scheme***

- 2.27 The first sub-task was to derive the summary Key Habitat Areas layer, as described above. After this phase of the work was complete, there were still a number of key issues which required further investigation or resolution, in discussion with the Project Officer. These included the following:
- Improved grassland – This land use/habitat type was not part of the original Phase 1 Survey and so no improved grassland is contained within that layer. However, there are two

alternative data sources for improved grassland: 1) From the original survey target notes layer, which contained an “Arable/Improved Grassland” category. These features have been selected from the dataset and intersected with the new base mapping, to give a new layer containing Arable / Improved Grassland polygon features. On inspection, the majority (though certainly not all) of these polygons are classified as CULTIVATION in the Jersey base map. As a spin-off from this process a similar layer containing semi-improved grassland has also been derived. The States of Jersey has stated that some ground truthing can be used to identify grassland types for these areas.

- Mixed Woodland – Those polygons classified as generic woodland “WD” in the original Phase 1 Survey were reviewed and a GIS-based intersection operation, together with the Jersey base map layer have been used in order to try to determine a specific woodland type for each unclassified woodland feature. From a total of 857 features described simply as “woodland” in the Phase 1 Survey, PAA has managed to reclassify 592 of these into specific woodland types (see the updated list of PESAP Key Habitat Types below). This leaves 265 features remaining as unclassified woodland, out of a total of 1083 woodland features contained in the original Phase 1 Survey layer. This process has produced a total of six woodland categories. These are: broadleaved woodland, broadleaved plantation, mixed conifer and broadleaved woodland, coniferous plantation, and generic woodland.
- Woodland Ground Truthing - The Project Officer has also informed the project team of the intention to undertake work in the near future with respect to woodland survey and classification. As a requirement for this work, woodland habitat has been sub-divided into the six separate categories (identified above) as Jersey ED will be needing to look at woodland for 2008/2009 projects. Those features still labelled as ‘generic’ (ie. not previously classified in any earlier study) are to be ground truthed at a later date by the client.
- Copse – These features are already included as woodland in the Phase 1 Survey, though not classified as copse, only by woodland type.
- Hedgerows – The original Phase 1 Survey included a linear features layer, which predominantly contained information relating to hedgerows and other field boundary types. It is suggested that feature categories 1 and 3 are targeted in this layer, which refer to “tall / high boundary (hedgerows)” and “Low boundary (hedgerows) with scattered trees”. With reference back to the Phase 1 Survey Reports PAA prepared for the States of Jersey in 2000 (and earlier), these are the most ecologically important features in this layer. It was also discussed that many of the Island’s hedgerows are in a poor state, consisting of a single line of shrubs with no growth low down. Any remaining hedgerows may be able to be targeted for improvements in the agri-environment scheme, so ‘missing’ hedges on boundaries will be important information.
- Dwarf shrub heath and heathland communities – These can not be separated out from each other as they were surveyed as a range of mixed heathland habitat types.
- Gorse – Wherever possible, PAA has extracted habitat types containing gorse into a new category. This is called “Gorse communities” (Category 31) and is specifically derived from the later, more detailed dune surveys, where gorse information was included. In the earlier surveys, gorse was incorporated into other scrub categories.



**Table 2.1 - The 14 KHA Classes**

KHA Number	Key Habitat Area Description
<b>1</b>	All <b>grassland</b> habitats
1a	Acid grassland with/without bracken, scrub, trees
1b	Marshy grassland with/without bracken, scrub, trees and other combinations
1c	Neutral grassland with/without bracken, scrub, trees and other combinations
1d	Coastal grasslands (including maritime cliff) with/without other coastal habitats
1e	Other grasslands (mostly not ground truthed)
<b>2</b>	<b>Bracken</b> with/without other habitats
<b>3</b>	Coastal <b>heathland</b> with/without other coastal habitats
<b>4</b>	<b>Woodland</b>
4a	Broad leaved plantation
4b	Broad leaved semi-natural woodland
4c	Conifer plantation
4d	Mixed conifer / broad leaved plantation
4e	Other woodland (not ground truthed)
<b>5</b>	<b>Scrub</b>
5a	Gorse dominated scrub
5b	Other scrub
<b>6</b>	<b>Dune</b> communities with/without bracken, & bare sand
<b>7</b>	<b>Ruderal</b>
<b>8</b>	<b>Open water including swamp and marginal vegetation</b>
<b>9</b>	<b>Salt marsh</b>
<b>10</b>	<b>Strandline</b>
11	Quarry
12	Amenity grassland
13	Arable
14	Bare ground

### 3. SELECTION OF THE ESAS

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#### Introduction

- 3.1 The ESAs have been selected based on the main areas of habitat incorporating the SSIs and the more important habitats in Jersey. Some of the ESAs are contiguous, but differ from their neighbour in some way, while others are quite separate and isolated. On the whole the boundaries have been drawn so that they hug quite closely the edges of habitat blocks. This is straightforward where these are continuous in an area such as along the north coast, but where they are broken, then some agricultural and other land has been incorporated, such as in the St Ouen's Bay ESA. No effort has been made to exclude properties or other landuses where these lie within or on the edges of the habitat blocks unless the areas are fairly urban. The assumption is that the often large gardens of the properties fringing or incorporated into the ESAs can contribute to the habitat mix.
- 3.2 On the whole, the ESAs have been selected on the basis of there being a substantial area of habitats of various kinds that are complementary, and which provide a core of semi-natural habitat through which species can move and interact at the population level. As a result, there are some important habitats that are small and isolated and not included in the ESAs. This is based on the premise that the ESAs should be substantive in order to provide a robust habitat complex for species, where they can move around freely, and interchange with populations in other parts of the ESA. The isolated, non-ESA sites have been kept in mind when assessing potential for linkages and direct habitat connections in the buffer zones described in Section 4.
- 3.3 The ESAs selected are:
- Les Landes heathland;
  - St Ouen's Bay habitats;
  - the North Coast habitats; especially heathlands, coastal grassland, maritime cliff vegetation and interconnecting habitats;
  - Rozel area – predominantly coastal habitats and woodland, including St. Catherine's Valley
  - the Grouville habitats
  - the South-west coast heathlands;
  - the Ouaisné to Noirmont coastal habitats;
  - the valley woodlands and wet meadows;
  - the Rue de Près wet grasslands.
- 3.4 These ESAs include as much as possible of the higher value habitat, much of which also features in Jersey's Biodiversity Strategy (ancient woodland, wet meadows, maritime heath and cliff, coastal sand dunes and vegetated shingle), but excludes all maritime areas which would be protected through other mechanisms and which support the other sub-littoral and maritime BAP habitats. They are shown on Figure 3-1. The habitats they encompass are shown on Figure 3-2. The total area covered by all the ESAs is 2,796.03ha. This is about 24% of the Island.

## The ESAs

### Les Landes ESA

#### Conservation Interest

- 3.5 Les Landes encompasses the largest and broadest area of heathland on the Jersey, and is of high nature conservation value. The Jersey Biodiversity Strategy considers coastal heathland to be a key habitat type (States of Jersey Planning and Environment Committee, 2000). It is also mostly an SSI (102ha out of 119ha). The site has been selected as an ESA as it forms a large bulk of habitat which is continuous from L'Étacquerel in the south to where it merges into the narrower north coast habitat strip in the north-east corner. The boundary for the ESA has been defined to follow the coast to the west, small tracks or roads to the east, and incorporates all Les Landes SSI to the north-east. There is a slight break to the continuity of habitats east of Le Grand Étacquerel in the south, which has been used as the south-east boundary.
- 3.6 Les Landes ESA covers 124.94ha. This consists predominantly of semi-natural habitats which complement each other, and which are largely contiguous. The main habitat is coastal heathland covering nearly 40ha, which is the largest area of dwarf shrub heath in a continuous block in Jersey. This is largely dominated by bell heather (*Erica cinerea*) and Western gorse (*Ulex gallii*). This forms an extensive, low cover mixed with patches of European Gorse (*Ulex europaeus*) and bracken (*Pteridium aquilinum*). Coastal grassland, at 22.6ha, is the next most extensive habitat type, wrapping round the coastal cliffs and supporting a number of species that are rare or of limited distribution in Jersey. A total of 56 plant species of restricted distribution have been recorded on Les Landes (Penny Anderson Associates 1986), with the key species listed in Table 3.2. The coastal grassland is interrupted by a small but significant wetland area, Le Canne de Squez, and several small streams, which also support a number of plants that are scarce on Jersey. Le Canne du Squez wetland represents a rare habitat on Jersey. Although small in area, these wet areas support several species not found extensively in Jersey.

**Table 3.1 -The Habitats in Les Landes ESA**

3	Coastal heathland with/without other coastal habitats	39.35
1d	Coastal grasslands with/without other coastal habitats	22.63
1a	Acid grassland with/without bracken, scrub, trees	19.49
2	Bracken with/without other habitats	17.79
5	Scrub	8.02
1c	Neutral grassland with/without bracken, scrub, trees and other	6.69
14	Bare ground	6.42
1e	Other grasslands	2.21
12	Amenity grassland	1.00
1b	Marshy grassland with/without bracken, scrub, trees and other	0.74
7	Ruderal	0.55
11	Quarry	0.04
8	Open water	0.01
	<b>Total</b>	<b>124.94ha</b>

- 3.7 Acid grasslands cover nearly 20ha, most of which lies within the race course circle, or on the cliffs at the southern end of the site. Other habitats are of much more limited extent, and include scrub and neutral grassland (within the race course circle, and on the firing range banks). The totals are given in Table 3.1.

**Table 3.2 - The Scarce/Rare Jersey Plant Species Found on Les Landes in the 1986 Surveys and From Previous Records**

Scientific Name	English Name	Location	Rarity in Jersey	GB and wider status
<i>Asplenium obovatum</i>	Lanceolate spleenwort	Sea cliffs	Local	Scarce
<i>Adiantum capillus-veneris</i>	Maidenhair fern	East of Gros Nez	CoW 2000 Only locality	Scarce
<i>Eleocharis multicaulis</i>	Many stalked spike-rush	Le Canne du Squez	Rare – 1 1960s record	W. GB mostly, possible European responsibility (Cheffings and Farrell)
<i>Eleogiton fluitans</i>	Floating club rush	Le Canne du Squez	Rare – 2 old records	Probable international responsibility (RDB)
<i>Eriophorum angustifolium</i>	Common cottongrass	Le Canne du Squez	Rare – 1? site	Common on peatlands in GB
<i>Hippocrepis comosa</i>	Horseshoe vetch	Coastal grassland	Restricted to area from L'Étaq round Grosnez to Le Creux Gros	Restricted to chalk and limestone areas, mainly in England
<i>Hypericum elodes</i>	Marsh St. John's Wort	Le Canne du Squez	Jersey BAP	Range in GB reduced markedly in last 150 years
<i>Hypochaeris maculata</i>	Spotted cat's ear	Gros Nez	CoW 2000 Jersey BAP	RDB Near threatened in GB
<i>Juncus capitatus</i>	Dwarf rush	Coastal grassland	Local, but can be abundant	RDB Vulnerable in GB
<i>Mibora minima</i>	Early sand grass	Coastal grassland	Common on the coast, western distribution.	RDB Wigginton





Scientific Name	English Name	Location	Rarity in Jersey	GB and wider status
<i>Parentucellia viscosa</i>	Yellow bartsia	Wet grassland near Race track	Local, though sometimes abundant	Some decline in south-west GB, otherwise stable
<i>Potamogeton polygonifolius</i>	Bog pondweed	Le Canne du Squez	Locally common	Common in north-west GB
<i>Primula veris</i>	Cowslip	Gros Nez	CoW 2000 Very rare, only site	Common in GB though has declined in 20 <sup>th</sup> Century
<i>Radiola linoides</i>	All-seed	Coastal grassland	Locally common	RDB Near Threatened in GB
<i>Romulea columnae</i>	Sand crocus	Coastal grassland	Common	RDB Vulnerable in GB
<i>Sagina subulata</i>	Heath pearlwort	Heathland	Locally frequent	Evidence of decline in inland sites in GB
<i>Samolus valerandi</i>	Brookweed	Cliffs with spring NW end	Local in wet places by the coast.	Locally common near coasts
<i>Scrophularia scorodonia</i>	Balm-leaved figwort	Scrub	Common	Nationally Scarce in Wigginton, Jersey's population is significant in the GB context
<i>Scutellaria minor</i>	Lesser skullcap	Le Canne du Squez	Jersey BAP Local	Evidence of range contraction in GB due to agricultural improvement
<i>Succisa pratensis</i>	Devil's bit scabious	Gros Nez	CoW 2000 Rare	Widespread decline in south and east GB due to agricultural improvement
<i>Tuberaria guttata</i>	Spotted rockrose	Heathland in southern half	Locally frequent	RDB Near threatened in GB
<i>Viola canina</i>	Heath dog violet	Heathland	Rare	RDB Near threatened in GB

Key:

CoW	Conservation of Wildlife Order 2000 - Article 3 Protected Plant Species
Jersey BAP	Subject of a Species Action Plan under the Jersey Biodiversity Action Plan
RDB	Listed in latest revision (2006) of the Vascular Plant Red Data List for Great Britain (Cheffings and Farrell, 2005).
Rare in Britain	Occurring in 15 or fewer hectads in Britain
Scarce in Britain	Occurring in 16 – 100 hectads in Britain
Wigginton 1999	<i>British Red Data Books 1 Vascular Plants. Third edition.</i> JNCC.

- 3.8 As well as plants, Les Landes is important for a number of special animals. The site is one of the best for Dartford warblers on the Island, and black redstart and wheatear are known to have bred in the area. Veron (1997) lists Les Landes as supporting the largest concentration of Dartford warblers in Jersey, with 5-10 pairs. There are also 1-5 pairs of stonechats, 1-3 pairs of wheatears, 5-10 pairs of skylarks, 10-30 pairs of linnets and 1 pair of ravens. Winter visitors to the site included short-eared owl, hen harrier and merlin, and many migrants pass through the area such as yellow wagtail, black redstart, dotterel and snow bunting.
- 3.9 The site has supported the Glanville fritillary, a rare butterfly, only found on the west coast of Jersey. The agile frog was introduced to Les Landes.
- 3.10 Lowland heathland is an internationally rare habitat and is included on Annex I of the EC Habitats Directive 1992. The UK has approximately 20% of the international lowland heathland resource (around 58,000ha) and has designated Special Areas of Conservation (SACs) to protect the most extensive and well conserved sites. Heathlands on the north coast of Jersey accord with the European Dry Heaths which are found in most of the EU member states but are only extensive in the western oceanic fringes of Europe. This broad definition includes both upland and lowland types but it is the latter that the rarest and at most risk from human activities. Within the European context, therefore, all the coastal heathland is of high importance in Jersey.

### Conservation Threats

- 3.11 Much of the area of prime habitat is protected in the SSI, and the intensity of use by vehicles has reduced significantly since the car parks were installed and free access was reduced. The whole area is still well used for recreation, particularly by dog walkers. There is also a model aircraft club in the centre of the heathland, and the racecourse attracts significant use in season. Any pressure to increase the recreational use, or to add other attractions such as a golf course or to expand the racecourse would be a threat to the nature conservation interest.

### St Ouen's Bay ESA

- 3.12 This is the largest ESA selected, covering 805ha, of which 649ha comprise habitats which complement the whole site. The site has been chosen on the basis of its concentration of habitats of high value which are linked by other semi-natural habitats of lesser value. This habitat matrix covers a sequence of soils and topography stretching from the maritime influence on the coast up to the acid grasslands on the cliff top above the bay.
- 3.13 The key areas are Les Blanches Banques sand dune system (already an SSI) and the St. Ouen's pond complex (also designated as an SSI) comprising pond, marsh, reed bed, wet meadow and further dune habitats. Both these areas incorporate a number of Jersey BAP habitat types. The key areas are complemented and linked by the extensive coastal dune edge which includes patches of salt marsh species in the splash zone. This is a rich and important habitat zone in its

own right, supporting many of the special species that also occur on the main dune system. The inland cliff comprising acid grasslands, scrub and scattered trees encloses the bay, and provides ecological links to the Val de Mare reservoir system with its important woodlands. The rough areas of La Moye Golf Course also support many of the specialist dune species found on Les Blanches Banques, although the fairways and greens are relatively species poor due to the intensive management they receive. The airport grasslands provide further links between the ESA and the wider landscape though these are not included in the ESA owing to their generally low biological diversity. Likewise, Les Quennevais playing fields and the golf course at Bosdet also act as buffer zones on the inland side of the ESA.

- 3.14 The ESA incorporates some 185ha of land that is not semi-natural habitat, much of which is arable land lying east of St Ouen's Pond and between the end of the dunes just beyond La Petite Tour and Le Grand Étacquerel. Some of the fields where early potatoes are grown and the land then left fallow after harvest provide a valuable ephemeral habitat in whose weedy flora provides a source of food for a variety for bird species. Many of the fields also have hedged boundaries which provide ecological linkages between scrub and woodland within the ESA boundary, but these are not visible on the GIS map.

**Table 3.3 - The Habitat Areas in the St Ouen's Bay ESA**

St Ouen's ESA (621.14 ha total habitats)  
Boundary with large white spaces = 804.59ha  
Les Blanches Banques SSI boundary = 130.2ha

KHA Number	Habitat	Hectares
6	Dune communities with/without bracken, scrub, trees and bare sand	213.12
1d	Coastal grasslands with/without other coastal habitats	92.57
12	Amenity grassland	74.49
1e	Other grasslands	55.39
2	Bracken with/without other habitats	53.40
4e	Other woodland	38.24
5	Scrub	32.00
8	Open water	28.01
1b	Marshy grassland with/without bracken, scrub, trees and other	17.57
11	Quarry	11.71
14	Bare ground	9.12
3	Coastal heathland with/without other coastal habitats	7.54
1c	Neutral grassland with/without bracken, scrub, trees and other	7.22
1a	Acid grassland with/without bracken, scrub, trees	2.91
10	Strandline	1.77

KHA Number	Habitat	Hectares
9	Salt marsh	1.24
5b	Other scrub	1.03
7	Ruderal	0.99
na	Hardstanding	0.40
na	Building	0.40
na	Garden	0.40
4c	Conifer Plantation	0.09
		<b>649.63</b>

- 3.15 There are also a number of properties included within the ESA boundary as well as the current sand pit.
- 3.16 The most extensive habitat type within the ESA is sand dunes (213.1ha), including all the dune grasslands and the restored land where sand has been extracted in the past. The undisturbed dunes and those that have been restored following other landuses are especially rich in species and support a large number of the special species (see Table 3.4).
- 3.17 The second most abundant habitat is coastal grassland (92.6ha) lying on the inland cliff, which although being a mix of acid and neutral communities, provides a valuable complement to the more calcareous grasslands on the dunes. These areas also support some special species, generally those not found on the dunes.
- 3.18 There is no doubt that within Jersey, Les Blanchés Banques is outstanding as the only extensive, largely unaltered dune system in the Island, and the only naturally occurring extensive area of calcareous soil (Le Sueur 1976). The dune system has declined in area due to the development of playing fields at its landward extremity, the extraction of sand in the north-east, and the expansion of the golf course eastwards. The conservation of the rest of the dunes, therefore, becomes increasingly essential.
- 3.19 Some of the habitats found in the St Ouen's Bay ESA can be considered valuable at the Great Britain scale whilst others are valuable in a European context. Les Blanchés Banques is slightly larger than the average dune size in England (98ha), whilst in a European context, the only two of the eight dune systems on the nearby French coast there are, are more extensive than Les Blanchés Banques.
- 3.19 Three of the coastal sand dune types listed in Annex I of the EC Directive (92/43/1992) on the Conservation of Natural Habitats and of Wild Fauna and Flora as warranting special protection occur within St. Ouen's Bay ESA:
- shifting dunes along the shoreline with marram grass (white dunes);
  - Atlantic de-calcified dunes (dune heath); and
  - fixed dunes with herbaceous vegetation (grey dunes)

- 3.20 Because of the sea wall at the edge of the fore-dunes on Les Blanchés Banques, and consequent lack of replenishing sand, the dune system is not particularly mobile, and would probably not qualify as of international quality as a shifting dune system. The dune heath area is very small in comparison with other sites, but is still an important element. The grey dunes, on the other hand, are extensive, rich and variable, including elements of at least three of the seven CORINE grey dune types that feature in the Habitats Directive.
- 3.21 Within the Jersey context, St Ouen's Pond is the only example of this habitat type, comprising reed beds and surrounding marshes and wet grassland. It is also important in providing a complete sequence of habitats across a number of ecological gradients from wet to dry, from sand to peat and across different community boundaries. This complete expression of ecological gradients is rare and valuable.
- 3.22 The ESA supports many special species of plants and animals, and has been subject to more intensive study than others parts of the Island. Table 3.4 shows demonstrates the rarity value of this area in that the list of plant species that are either scarce in Jersey or are restricted in Great Britain or Europe is longer than for any other ESA.

**Table 3.4 - Special Plant Species in St Ouen's Bay ESA**

Scientific Name	English Name	Location	Jersey Status	GB Status
<i>Agrostis canina canina</i>	Velvet bent	St. Ouen's pond area	Rare	Common
<i>Anacamptis pyramidalis</i>	Pyramidal orchid	Coastal dunes	Local	Stable
<i>Anagallis tenella</i>	Bog pimpernel	St. Ouen's pond area	Local	Evidence of some loss to agricultural improvement in GB
<i>Armeria arenaria</i>	Jersey thrift	Dunes	Local	Not native
<i>Arum italicum</i>	Italian lords-and-ladies	Woodland	Widespread	RDB Near Threatened.
<i>Asparagus officinalis subsp. prostratus</i>	wild asparagus	Dunes	CoW (2000) Jersey BAP Rare	RDB Endangered. UKBAP priority
<i>Atriplex portulacoides</i>	Sea-purslane	Coastal dunes	Local	Common
<i>Bupleurum baldense</i>	Small hare's-ear	Dune grassland	Locally frequent in Les Quennevais and St. Ouen's bay. Jersey BAP	RDB Near Threatened. Wildlife and Countryside Act Schedule 8
<i>Carex laevigata</i>	Smooth-stalked sedge	Damp grassland	Local	Stable



Scientific Name	English Name	Location	Jersey Status	GB Status
<i>Carex nigra</i>	Common sedge	St. Ouen's Pond	Plentiful east of pond, rare elsewhere	Common
<i>Carex otrubae</i>	False fox-sedge	Wet meadow	Local	Common
<i>Carex ovalis</i>	Oval sedge	Wet meadow	Occasional	Common
<i>Carex panicea</i>	Carnation sedge	St. Ouen's pond area	Rare – recorded at only 3 sites since 1960	Common though some decline since 1950
<i>Carex pendula</i>	Pendulous sedge	St. Ouen's pond area	Rare – recorded at 10 sites since 1960	Common, has apparently expanded northwards
<i>Carex pseudocyperus</i>	Cyperus sedge	St. Ouen's Pond	Rare, two other sites from PAA surveys	Relatively common but has declined in eastern in England
<i>Carex pulicaris</i>	Flea sedge	La Moye Golf Course, <i>Molinia</i> patch	Local	Relatively common, though there have been declines in central England
<i>Carex riparia</i>	Greater pond-sedge	St. Ouen's Pond	Rare, no other stations in Jersey	Common in England
<i>Carex viridula</i> subsp <i>oedocarpa</i>	Common yellow-sedge	St. Ouen's Pond	Rare	Common to north and west
<i>Chamaemelum nobile</i>	Chamomile	St. Ouen's pond area	Locally abundant	RDB Near Vulnerable in GB. UKBAP species
<i>Chenopodium rubrum</i>	Red goosefoot	Strand line	Very rare	Common, increasing
<i>Crassula tillaea</i>	Mossy stonecrop	Dunes paths	Locally common	Scarce, very locally distributed
<i>Cladium mariscus</i>	Great fen-sedge	St. Ouen's Pond	Rare, no other stations in Jersey	Wide, but scattered distribution
<i>Cynodon dactylon</i>	Bermuda-grass	Coastal grassland	Occasional	RDB vulnerable in Wiggington, not included in Cheffings & Farrell



Scientific Name	English Name	Location	Jersey Status	GB Status
<i>Cyperus longus</i>	Galingale	St. Ouen's pond area	Common	RDB Near Threatened.
<i>Cytisus scoparius maritimus</i>	Broom	Scrub on cliffs	Locally abundant	RDB Near Threatened.
<i>Dactylorhiza fuchsii</i> x <i>D. maculata</i>	Hybrid orchid	St. Ouen's Pond	CoW 2000 Rare. Only site.	Uncommon
<i>Dactylorhiza fuchsii</i> x <i>D. praetermissa</i>	Hybrid orchid	St. Ouen's Pond	Cow 2000 Rare. Only site.	Commonest <i>Dactylorhiza</i> hybrid
<i>Dactylorhiza maculata</i> x <i>D. praetermissa</i>	Hybrid orchid	St. Ouen's Pond	CoW 2000 Rare. Only site.	Uncommon
<i>Dactylorhiza praetermissa</i>	Southern marsh orchid	St. Ouen's Pond, <i>Molinia</i> patch La Moye Golf Course	CoW 2000 Local	Common
<i>Deschampsia cespitosa</i>	Tufted hair-grass	St. Ouen's Pond	Rare	Very common
<i>Echium plantagineum</i>	Purple viper's bugloss	Restored dunes	Locally abundant	RDB Endangered in Wigginton, not included in Cheffings & Farrell
<i>Eriophorum angustifolium</i>	Common cotton-grass	St. Ouen's Pond	Rare	Notable decline in the lowlands
<i>Erodium moschatum</i>	Musk stork's-bill	Dunes	Widespread and plentiful	Scarce
<i>Equisetum fluviatile</i>	Water horsetail	St Ouen's Pond area	Occasional	Common
<i>Festuca arenaria</i>	Rush-leaved fescue	Dunes	Only site (not recorded by Le Sueur)	Scarce in Britain
<i>Galium palustre</i> subsp. <i>elongatum</i>	Greater marsh bedstraw	St. Ouen's Pond area	One other site only - Chromosome counts needed	Distribution unknown
<i>Glaucium flavum</i>	Yellow horned-poppo	Strandline	Restricted and decreasing	Relatively stable



Scientific Name	English Name	Location	Jersey Status	GB Status
<i>Glyceria declinata</i>	Small sweet-grass	St. Ouen's pond area	Rare	Common
<i>Himantoglossum hircinum</i>	Lizard orchid	Les Blanches Banques	CoW 2000 Jersey BAP Rare, restricted	RDB Near Threatened in GB.
<i>Hypericum elodes</i>	Marsh St John's wort	St. Ouen's Pond	Jersey BAP	Notable decline, in England
<i>Hypericum linariifolium</i>	Toadflax-leaved St John's-wort	L'Étacquerel hill	CoW 2000 Jersey BAP	RDB Near Threatened in GB
<i>Hypochaeris glabra</i>	Smooth cat's-ear	Dune grassland	Common on dunes and cliffs of south-west Jersey	RDB Vulnerable in GB
<i>Juncus acutus</i>	Sharp rush	Hollows in dunes, St. Ouen's Pond	Local	Scarce in Britain
<i>Juncus capitatus</i>	Dwarf rush	Inland cliff	Locally common, Jersey BAP	RDB Vulnerable in GB
<i>Juncus inflexus</i>	Hard rush	St. Ouen's pond	Local	Common
<i>Juncus subnodulosus</i>	Blunt-flowered rush	St. Ouen's pond	Rare, one of only two recorded sites	Stable
<i>Limonium normannicum</i>	Alderney sea-lavender	Coastal dunes	CoW 2000 Locally common,	World range limited to NW France and the Channel Islands
<i>Linum bienne</i>	Pale flax	Dune grassland	Jersey BAP	Stable
<i>Lotus angustissimus</i>	Slender bird's-foot-trefoil	Inland cliff	Rare, local	RDB Near Threatened in GB
<i>Lotus subbiflorus</i>	Hairy bird's-foot-trefoil	Inland cliff	Frequent	Scarce in Britain
<i>Medicago minima</i>	Bur medick	Cliff grassland	Locally frequent	RDB Vulnerable in GB
<i>Mibora minima</i>	Early sand-grass	Dune grassland	Local on west coast of Jersey	Rare in Britain, RDB in Wigginton
<i>Myosotis scorpioides</i>	Water forget-me-not	St. Ouen's pond area	Rare	Common





Scientific Name	English Name	Location	Jersey Status	GB Status
<i>Odontites verna</i>	Red bartsia	St Ouen's Bay	Locally abundant, St. Ouen's Bay, elsewhere rare	Common
<i>Oenanthe fistulosa</i>	Tubular water-dropwort	St. Ouen's pond area	Scattered distribution, where found it is occasional	Notable decline due to agricultural change
<i>Oenanthe lachenalii</i>	Parsley water-dropwort	St. Ouen's pond area	Rare	Notable decline in inland sites
<i>Orobanche purpurea</i>	Yarrow broomrape	Grassland	Local, though variable.	RDB Vulnerable in GB
<i>Parapholis incurva</i>	Curved hard-grass	Salt marsh spray zone	Occasional in scattered locations	Scarce in Britain
<i>Parentucellia viscosa</i>	Yellow bartsia	Wet meadows	Locally abundant	Some loss of historic sites, though increasing as an introduction
<i>Petrorhagia nanteuillii</i>	Childing pink	Dune grassland	Locally common in some years only on the dunes. Jersey BAP	RDB Vulnerable in GB
<i>Picris hieracioides</i>	Hawkweed oxtongue	Grassland	Local	Common to south and east
<i>Poa infirma</i>	Early meadow-grass	Dune grassland	Common near coast	Scarce in Britain
<i>Pilosella peleteriana</i>	Shaggy mouse-ear-hawkweed	Dunes Les Blanchés Banques, La Moye Golf Course	Common on coast	RDB Near Threatened in GB.
<i>Polycarpon tetraphyllum</i>	Four-leaved allseed	Throughout	Common	Nationally rare
<i>Potamogeton pusillus</i>	Lesser pondweed	St. Ouen's pond area	Only location, but irregular occurrence	Frequent
<i>Potamogeton natans</i>	Broad-leaved pondweed	St Ouen's pond area	Thought extinct in Jersey	Common



Scientific Name	English Name	Location	Jersey Status	GB Status
<i>Ranunculus hederaceus</i>	Ivy-leaved water crowfoot	St Ouen's pond area	Rare, three other localities	Common
<i>Ranunculus sceleratus</i>	Celery-leaved buttercup	St Ouen's pond area	Rare, perhaps increasing	Common
<i>Ranunculus x segretti</i>	Hybrid water crowfoot	N. canal	Rare, one location	Unknown
<i>Romulea columnae</i>	Sand crocus	Dune grassland	Locally common	RDB Vulnerable in GB
<i>Scilla autumnalis</i>	Autumn squill	Dune grassland	Locally common	Scarce in Britain
<i>Schoenoplectus tabernaemontani</i>	Grey club-rush	St. Ouen's pond area	Rare, 2 sites in St. Ouen's bay	Locally common
<i>Scrophularia auriculata</i>	Water figwort	St. Ouen's pond area	Rare in wet places.	Common
<i>Scrophularia scorodonia</i>	Balm-leaved figwort	Scrub, bracken	Common	Wigginton regards as native, RDB, south westerly distribution in GB
<i>Silene conica</i>	Sand catchfly	Dune grassland	Locally abundant, only in sandy areas	RDB Vulnerable in GB
<i>Silene gallica</i>	Small-flowered catchfly	Dune grassland	Locally common	RDB Endangered in GB UKBAP species
<i>Silene nutans</i>	Nottingham catchfly	Dunes	Local	RDB Near Threatened in GB
<i>Silybum marianum</i>	Milk thistle	Disturbed ground	Rare alien	Local / casual alien (archaeophyte)
<i>Spartina anglica</i>	Common cord-grass	Salt spray splash zone	Thought to have been extinct in Jersey, re-discovered in PAA surveys	Endemic but widely planted in W. Europe
<i>Succisa pratensis</i>	Devil's-bit scabious	<i>Molinia</i> patch La Moye Golf Course	Very locally common	Common but has undergone a widespread decline



Scientific Name	English Name	Location	Jersey Status	GB Status
<i>Thesium humifusum</i>	Bastard-toadflax	Scarce	Rare	Scarce in Britain
<i>Torilis nodosa</i>	Knotted hedge-parsley	Dune grassland	Rare.	Locally common to east
<i>Trifolium glomeratum</i>	Clustered clover	Dune grassland	Locally common	Scarce in Britain
<i>Trifolium suffocatum</i>	Suffocated clover	Dune grassland	Locally frequent	Scarce in Britain
<i>Trisetum flavescens</i>	Yellow oat-grass	Cliff grassland/fields	Thought to be extinct in Jersey	Common
<i>Tuberaria guttata</i>	Spotted rock-rose	Cliff grassland	Locally common	RDB Near Threatened in GB Rare in Britain
<i>Vicia tetrasperma</i>	Smooth tare	Dune grassland	Rare	Common to south and east
<i>Viola kitaibeliana</i>	Dwarf pansy	Dune grassland	Rare	RDB Near Threatened in GB
<i>Vulpia fasciculata</i>	Dune fescue	Dune grassland	Scarce	Scarce in Britain

3.23 In addition, there are species that could still be in the ESA on the dunes or elsewhere in the Bay but which have not been recorded recently (Table 3.5). Since new species or locations for species are still being found in recent surveys, it is possible that some of these species at least are still present in the Bay.

**Table 3.5 - Additional Special Plant Species not Recently Recorded in the St. Ouen's Bay Area**

Scientific Name	English Name	National Status <sup>1+2</sup>	Status in Jersey <sup>3</sup>
<i>Asplenium obovatum</i>	Lanceolate spleenwort	RDB Near Threatened, internationally important	Frequent
<i>Baldellia ranunculoides</i>	Lesser water-plantain	RDB Near Threatened	Rare, last century not seen recently
<i>Bolboschoenus maritimus</i>	Sea club-rush	Common round most coasts	Rare, in damp places
<i>Carex divisa</i>	Divided sedge	Scarce	Rare
<i>Chenopodium vulvaria</i>	Stinking goosefoot	RDB vulnerable	Rare, Jersey BAP
<i>Geranium purpureum</i>	Little-robin	Very Local	Common
<i>Gnaphalium luteoalbum</i>	Jersey cudweed	RDB endangered (Wigginton)	Mostly only by St Ouen's Pond, Jersey BAP
<i>Isolepis setacea</i>	Bristle club-rush	Frequent	Occasional
<i>Lepidium draba</i>	Hoary cress	Coastal, widespread	Local
<i>Leucojum aestivum</i> *	Summer snowflake	Rare. Very local wet meadows	Scattered, possible introduction
<i>Marrubium vulgare</i>	White horehound	Scarce	Sparsely scattered
<i>Matthiola sinuata</i>	Sea stock	RDB vulnerable, Jersey BAP	Very few sites, population varies significantly. Jersey RDB
<i>Medicago polymorpha</i>	Toothed medick	Scarce, sandy areas near sea	Frequent
<i>Papaver argemone</i>	Prickly poppy	Scattered	Rare, erratic occurrence
<i>Polypogon viridis</i>	Water bent	Casual	Scattered Locally frequent
<i>Ranunculus baudotii</i>	Brackish water-crowfoot	Scattered	Rare, not recorded recently



Scientific Name	English Name	National Status <sup>1+2</sup>	Status in Jersey <sup>3</sup>
<i>Reseda lutea</i>	Wild mignonette	Throughout BI	Rare
<i>Rumex maritimus</i>	Golden dock	Scattered	Possibly extinct, two records this century
<i>Schoenoplectus lacustris</i>	Common club-rush	Frequent	Rare
<i>Schoenoplectus pungens</i>	Sharp club-rush	RDB, one population reintroduced	Possibly extinct
<i>Spergularia bocconii</i>	Greek sea-spurrey	RDB endangered	Common, possibly introduction
<i>Spiranthes aestivalis</i>	Summer Lady's tresses	RDB extinct	Extinct?
<i>Triglochin palustris</i>	Marsh arrowgrass	Mostly in N Britain	Rare, not seen recently

Key:

<sup>1</sup> RDB = Red data book species from: Cheffings and Farrell 2005. These occur in less than 16 10 x 10km sqs. in the National Grid, and Wigginton 1999.

<sup>2</sup> Scarce Species in Britain = Those occurring in 16-100 10km<sup>2</sup> from 1970 onwards From: Stewart *et al* 1994.

<sup>3</sup> From: Le Sueur 1984.

\* Not native.

3.24 Many of the dune species listed on the tables above have shown a marked decline since 1930 on dunes in England (Radley 1994). Five occur in reasonable or large populations on the Jersey dunes. These include childing pink (*Petrohagia nanteuillii*) (although in some years very few plants are found) and balm-leaved figwort (*Scrophularia scorodonia*). Several species which are absent from the British mainland are found on the Jersey dunes, and there are several more which are very rare and confined to the south coast or Cornish peninsula in England. Of those listed (Radley 1994), five of the eight Nationally Rare and four of the seven Nationally Scarce plants also grow on Les Blanchés Banques.

3.25 Viewed as part of the British Isles, the flora of Les Blanchés Banques is further highlighted by the considerable number of national rarities. Fourteen of the 54 maritime or sub-maritime species which Ratcliffe (1977) lists as rare, appear on Les Blanchés Banques. These species show strong affinities with the oceanic southern and Mediterranean elements of the European flora, and several [the Jersey thrift (*Armeria alliacea*), rough star-thistle (*Centaurea asper*), great brome (*Bromus rigidus*), and one of the catchflies (*Silene quinquevulnera*)] do not occur naturally in the rest of the British Isles. Some of the nationally rare species, like the rough star-thistle and hare's tail (*Lagurus ovatus*) are abundant further south on the European continent, and Jersey

represents the north-western boundary of their ecological tolerance, an interesting feature in itself. Others are scarce in Great Britain (Stewart *et al.* 1994,) and restricted to coastal habitats or scattered patches in other habitats.

- 3.26 Furthermore, 25 species which are included in the British Red Data Book on vascular plants (Cheffings and Farrell 2005, plus a few only in the earlier volume by Wigginton 1999) have been recorded on Les Blanchés Banques, and two, childing pink and Greek sea-spurrey (*Spergularia bocconii*), are considered to be nationally in danger of extinction. In addition, the sea stock has declined to dangerously low levels in recent years in Jersey. In Britain, childing pink, lizard orchid (*Himantoglossum hircinum*), sand crocus (*Romulea columnae*) and small hare's ear (*Bupleurum baldense*) are afforded complete protection under the 1981 Wildlife and Countryside Act. It is of vital importance to the conservation of these rare species that so many occur in such good numbers on Les Blanchés Banques. Early sand-grass (*Mibora minima*) and dwarf pansy (*Viola kitaibeliana*) are abundant in their preferred habitat on the dunes.
- 3.27 The value of the dunes for these rare plants is accentuated when it is realised how limited many are now in Jersey compared with their past distribution. Le Sueur (1976) plots the demise or decline of various plants, including several of the dunes and coasts. The Jersey thrift, she remembers, used to extend in an 'unbroken pink haze' across the land which is now occupied by the Quennevais Park housing scheme.
- 3.28 Of the vertebrates, the fact that Jersey is the only natural site in the British Isles for the green lizard, is of nature conservation significance, although it is common in Europe. It occurs in a number of habitats on the Island, not just in the St. Ouen's ESA, but the largest population is likely to be here since the habitats are more extensive. The breeding cirl bunting that has occurred on La Moye golf course is also valuable as it is regarded as a declining *Red Data Book* bird species in Britain, confined to a limited number of localities (Batten *et al* 1990).
- 3.29 Veron (1997) lists two of the inland cliff areas, Le Mont Rossignol and Mont a la Brune, as worthy of status as Sites of Channel Island Importance for Birds. Breeding Dartford warbler (1-3 pairs on the former site), linnets, stonechat, lesser whitethroat and whitethroat, and barn owl that forage over the banks of the Val de la Mare reservoirs are listed as the important species. St Ouen's Pond is not regarded as of such high value, but supports 10-20 pairs of Cetti's warblers, 50-100 pairs of reed warblers, 0-5 pairs of sedge warblers, 10-20 pairs of lapwing, plus stonechat, shoveler, little grebe, pochard, skylark and bearded tit. Passage migrant and wintering birds include hen harrier, short-eared owl, peregrine falcon, bitter and a variety of ducks. At 20 pairs, this represents 3% of the GB population, and is therefore of high significance for one site. The high number of lapwing also features in the GB context where this species has been declining significantly and is now added to the British red list of species of conservation concern.
- 3.30 The invertebrates have been studied in some detail on the dunes. Some of the species that occur on Les Blanchés Banques are species that do not occur elsewhere in Britain. Some may be recent colonists, while others may be species that cannot tolerate the perhaps slightly harsher climate of Britain. These species include the Blue-winged grasshopper and the Jersey grasshopper (*Euchorthippus pulvinatus elegantulus*), as well as many species of beetle, bug, fly, ant, bee and wasp. It is the Hymenoptera (ants, bees and wasps) that have the highest proportion of non British species (Le Quesne 1973), perhaps because a large number of the solitary bees and wasps require rather open habitats with bare soil or sand, high insolation and abundant food resources: all conditions fulfilled on the dunes.

- 3.31 The wood ant *Formica pratensis* is the only species found on Jersey that is on the IUCN Red Data List for Europe. It is a vulnerable species as it is believed that it became extinct in the UK in 1986. It is found on the nearby coastal heaths of Brittany and Normandy (Key pers. com) in the south-west of Jersey and on the North Coast near Plémont.

**Table 3.6 - Numbers of Rare or Scarce Invertebrates found on Les Blanches Banques in the Period 1985–1997**

Order	Status	Number
<b>Orthoptera</b> , Grasshoppers & Crickets	Not UK	2
	RDB1	1
	RDB3	1
	Na	1
	Nb	1
<b>Dictyoptera</b> , Cockroaches	Nb	2
<b>Hemiptera Heteroptera</b> , Bugs	Not UK	6 + (2)
	Extinct in UK	1 + (1)
	RDB1	1
	RDB2	1
	RDB3	7
<b>Diptera</b> , Flies	Not UK	1
	N	2
<b>Lepidoptera</b> , Butterflies & Moths	Na	1
	Nb	1
<b>Neuroptera</b> , Ant lions	Not UK	(1)
<b>Coleoptera</b> , Beetles	Not UK	8 + (1)
	RDB1/pRDB1	7
	RDB2	1
	RDB3	1
	pRDBK	6
	Na	10
	Nb	29



Order	Status	Number
<b>Hymenoptera, Ants, Bees, Wasps</b>	Not UK	6
	Extinct in UK	2
	RDB3	3
	Nb	3
<b>Total insects recorded 1985 - 1998</b>	Not UK	23 +(4)
	Extinct in UK	3 + (1)
	RDB1	9
	RDB2	2
	RDB3	12
	pRDBK	6
	Na	12
	Nb	49
	N	2

NB: Figures in brackets indicate the number of species recently found in Britain and for which a status has yet to be determined.

Key:

RDB1	Red Data Book Category 1	Endangered
RDB2	Red Data Book Category 2	Vulnerable
RDB3	Red Data Book Category 3	Rare
pRDB	Red Data Book Category	Provisional grading
pRDBK	provisional Red Data Book species	but insufficient known
N	Nationally Scarce -	Notable species
Na	Nationally Scarce -	occurs in 7 or less vice counties
Nb	Nationally Scarce -	occurs in 20 or less vice counties

- 3.32 Amongst all the families of insects there are species that maintain a toehold in Britain or have become extinct in recent time. Several of the Hymenoptera fall into this category, as do several Shield bugs (Pentatomidae and related families) and the ground bugs (Lygaeidae). The distribution of the species that are rare in Britain fall into three groups: Eastern, South coast and Western.
- 3.33 Several of the uncommon species in Jersey are described as Iberian species and are not common in northern and north-western France. *Anthicus tristis*, an antlike beetle, illustrates this where the subspecies *A. tristis schaumii* occurs in coastal areas from Morocco, round the Iberian coast and along the Atlantic and Channel coasts of France (Bonadonna 1991). In Britain it has only been recorded from Chesil Beach on the Dorset coast since 1970 and is regarded as endangered (Hyman and Parsons 1992).



- 3.34 *Cryptocephalus rufipes*, a leaf beetle which does not occur in Britain, feeds on poplars (*Populus* spp.) and might have been introduced by accident to Jersey on imported trees. Although it will feed on willows (*Salix* spp.), it seems to be more frequent on poplars, most or all of which are planted on Jersey (Le Sueur 1984). There are very few poplars on the dunes which locally restricts its occurrence.
- 3.35 In summary, the St. Ouen's ESA is of prime importance for its dune habitat and the special plants and animals that it supports. The semi-natural dune vegetation is the more important habitat, but the restored and disturbed areas complement and buffer these well. The ESA is also of prime importance for its complex of habitats associated with St. Ouen's Pond, and the fact that all these show natural ecological gradients between the habitat types and the dune communities.
- 3.36 The habitats are complemented by, and the total area significantly increased by, the cliff grasslands and scrub, which are important for birds in places, in their own right, as well as supporting a range of different species of plants and animals. The total extent of the ESA and of the habitats, and the fact that many are well connected, is also of high significance.

### **Conservation Threats**

- 3.37 Any loss of habitats or decrease in their current connectivity through agricultural intensification or development (further golf courses or other facilities for example, or further sand extraction) would be damaging. Any further intensification of agriculture and the current infiltration of nutrients and possibly pesticides into the Bay's freshwater systems are also of concern. There is evidence that St Ouen's Pond has suffered some eutrophication over recent years, for example. A further threat would be if appropriate management of the existing valuable habitats were not applied, or was removed. Continued sand extraction, and lack of a coordinated restoration strategy for the quarry has and will have a large impact on the bay and its hydrology, and the continual small and medium sized developments that take place within the Bay, when considered in total, is having a large impact through changing patterns of disturbance, direct habitat loss and the loss of connectivity between habitats.

### **The North Coast ESA**

- 3.38 The North Coast ESA has been defined as stretching from the edge of Les Landes ESA in the west all along the coast, with a break for the quarry at Le Grand Mourier, finishing at Rozel. This gives a total area of 490.7ha. This ESA is largely habitat-based, with only small areas incorporated that are not, where these would otherwise break the continuity of the site. On the whole the ESA is a very narrow strip of coastal habitats, but the major wooded valleys of La Grève de Lecq and Vallée des Mourières have been included as these extend arms of habitats inland and are connected to the north coast habitats.
- 3.39 The North Coast ESA includes all the areas of heathland (Jersey BAP habitat) that occur along the north coast of Jersey, along with extensive areas of bracken and other habitats. There are no current SSIs in the stretch, but two are proposed that would cover the key habitat areas in the Bonne Nuit/Giffard Bay area and from Le Petit Port, including Egypte, to L'Étacquerel.
- 3.40 The total area of habitat cover in the ESA is shown on Table 3.7 below. There is a slight overlap of habitats owing to the different OS bases that have been used.

**Table 3.7 - The Habitat Areas in the North Coast ESA**

North Coast ESA (483ha total habitats)  
Boundary covers 269.55ha and 221.16ha (total 490.71ha)

KHA Number	Habitat	Hectares
2	Bracken, with or without other habitats	227.59
4b	Broad leaved semi natural woodland	41.77
3	Heathland	38.75
5	Scrub	36.94
1d	Coastal grasslands	29.13
4e	Other woodland	28.57
1c	Neutral grassland	15.88
14	Bare ground	15.63
12	Amenity grassland	14.48
1e	Other grasslands	15.09
1a	Acid grassland	5.42
7	Ruderal	2.07
8	Open water	1.55
1b	Marshy grassland	1.48
4c	Conifer plantation	1.46
NA	gardens	1.10
NA	Buildings/hard standing	2.20
6	Dune	0.73
11	Quarry	0.47
unclassified	mainly streams etc?	0.33
13	Arable	0.25
6	dune communities with/without bracken	0.15
		<b>484.26</b>

- 3.41 Bracken is the overwhelming habitat type (47% of the ESA) and provides the backbone to the habitats along the coast. It exceeds the area of all other habitats and constitutes nearly half of the total ESA area. It is not completely dominant across this area as the category includes all bracken mixtures and co-dominant habitat types as well. In addition, many of the bracken beds support a wide range of other species such as honeysuckle (*Lonicera periclymenum*), woodsage (*Teucrium scorodonia*) and the British rarity, balm leaved figwort (*Scrophularia scorodonia*). Thus, for example, the acid grassland/bracken mixtures on Le Marionneaux where the grassland community is quite rich and the bracken fairly thin in places, is included in the bracken category.

- 3.42 Broad-leaved semi-natural woodland (Jersey BAP habitat) is the next most extensive habitat, concentrated in the valleys of La Grève de Lecq and Vallée des Mouriers, Egypte, above Bouley Bay and in the area of the Dolmen des Geonnais. Much of this woodland comprises oak (*Quercus robur*) but with abundant sycamore (*Acer pseudoplatanus*) and a wide range of other species. The ground flora is also quite rich in places, with plenty of ferns.
- 3.43 Equally important habitats are the heathlands (38.75ha), coastal grasslands including maritime cliff (29.13ha) and a variety of grasslands. Acid grasslands are more often associated with the heathland and coastal habitats while the neutral grassland tends to be further inland. The heathland tends to occur in small patches, with the largest above Bouley Bay on Vicard and Le Jardin d'Olivet and above Giffard and Bonne Nuit. The heathland is generally in small patches separated by bracken or scrub, and is not as extensive as that on Les Landes.
- 3.44 Much of the scrub, which is nearly as extensive as the heathland (36.86ha), consists of European gorse or wind-blown shrubs like blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*) elder (*Sambucus nigra*) and sycamore. The scrub occurs in generally small patches throughout the whole ESA, sometimes associated with rock outcrops, in others filling small valleys, or occurring as patches on sheltered areas from the winds.
- 3.45 From earlier surveys, the following Table 3.8 lists the rare or important plant species found in the ESA in different surveys carried out by PAA since 1984/85.

**Table 3.8 - The Special Plant Species in the North Coast ESA**

Scientific Name	English Name	Location	Rarity in Jersey	GB and wider Status
<i>Asplenium billotii</i>	Lanceolate spleenwort	Sea cliffs	Local	Scarce
<i>Carex caryophyllea</i>	Spring sedge	Bouley Bay/Bonne Nuit	Rare	Common
<i>Carex nigra</i>	Common sedge	Bouley Bay/Bonne Nuit	Rare	Common and widespread
<i>Carex pendula</i>	Pendulous sedge	La Perruqe	Rare – recorded at 10 sites since 1960	Common, has apparently expanded northwards
<i>Carex pseudocyperus</i>	Cypress sedge	La Perruqe	Two other localities, this is a new site	Relatively common but has declined in eastern in England
<i>Carex pilulifera</i>	Pill sedge	Path edge, acid grassland	Local	Common



Scientific Name	English Name	Location	Rarity in Jersey	GB and wider Status
<i>Danthonia decumbens</i>	Heath grass	path edges, coastal grassland	Occasional. mostly on coasts	Common
<i>Euphorbia portlandica</i>	Portland spurge	Coastal grassland & maritime cliff - several sites	Common in sandy areas	Local in GB. Possible international responsibility
<i>Glaux maritima</i>	Sea milkwort	maritime cliff, between L'Étacquerel and Rozel	Few sites	Characteristic coast species in GB.
<i>Pilosella peleteriana</i>	Shaggy mouse-ear hawkweed	Bouley Bay/Bonne Nuit	Common, particularly round coasts	Near threatened RDB
<i>Hypericum linariifolium</i>	Toadflax-leaved St. John's-wort	between L'Étacquerel and Rozel, and near L'Étacquerel fort	not fully recorded, Jersey BAP	Near threatened RDB
<i>Juncus acutus</i>	Sharp rush	between L'Étacquerel and Rozel, foot of cliffs	Local	Scarce in GB
<i>Juncus conglomeratus</i>	Compact rush	Bouley Bay/Bonne Nuit	Rare	Very common
<i>Juncus gerardii</i>	Saltmarsh rush	between L'Étacquerel and Rozel, foot of cliffs	Local, Jersey BAP	Abundant on coasts in GB
<i>Limonium vulgare</i>	Common sea lavender	saltmarsh, between L'Étacquerel and Rozel, foot of cliffs	Very rare	Common in GB
<i>Lotus angustissimus</i>	Slender bird's-foot trefoil	Bouley Bay/Bonne Nuit	Jersey BAP	Near threatened RDB
<i>Lotus subbiflorus</i>	Hairy bird's-foot trefoil	coastal grassland, maritime cliff	Frequent	Scarce in GB
<i>Luzula multiflora</i>	Heath woodrush	Bonne Nuit by path	Rare	Common on acid soils in uplands in GB
<i>Luzula sylvatica</i>	Greater woodrush	Bouley Bay/Bonne Nuit	Rare	Common and widespread



Scientific Name	English Name	Location	Rarity in Jersey	GB and wider Status
<i>Mercurialis perennis</i>	Dog's mercury	Bouley Bay to Jardin d'Olivet	Restricted to damp thickets, decreasing.	Common and widespread
<i>Moenchia erecta</i>	Upright chickweed	Bouley Bay/Bonne Nuit	Scarce	Local, England and Wales
<i>Oxalis acetosella</i>	wood sorrel	Bouley Bay/Bonne Nuit	Rare	Common and widespread
<i>Polycarpon tetraphyllum</i>	Four-leaved allseed	neutral grassland	Common	Wigginton – RDB, very rare and declining
<i>Polypodium interjectum</i>	Intermediate polypody	maritime cliff and coastal grassland	common	International responsibility
<i>Romulea columnae</i>	Sand crocus	coastal grassland	Common	Vulnerable RDB
<i>Rumex rupestris</i>	Shore dock	between L'Étacquerel and Rozel, foot of cliffs	BAP spp, RDB in Jersey	Endangered RDB
<i>Scilla autumnalis</i>	Autumn squill	Bouley Bay/Bonne Nuit	Scarce	Scarce in GB
<i>Scrophularia scorodonia</i>	Balm leaved figwort	bracken and scrub	Common in scrub and bracken	Nationally Scarce in Wigginton, Jersey's population is significant in the GB context
<i>Sibthorpia europaea</i>	Cornish moneywort	beside small streams by coastal path	Frequent	Scarce in GB. Possible international responsibility (RDB)
<i>Silene nutans</i>	Nottingham catchfly	Bouley Bay/Bonne Nuit	Scarce	Scarce in GB. Near threatened in GB. A criteria (RDB)

Scientific Name	English Name	Location	Rarity in Jersey	GB and wider Status
<i>Spergularia marina</i>	Lesser sea spurrey	Bouley Bay/Bonne Nuit	Rare	Widespread
<i>Teesdalia nudicaulis</i>	Shepherd's cress	Bouley Bay/Bonne Nuit	Scarce	Near threatened in GB. A criteria (RDB)
<i>Trifolium glomeratum</i>	Clustered clover	Bouley Bay/Bonne Nuit	Scarce	Local, East England coast
<i>Triglochin maritimum</i>	Sea arrowgrass	between L'Étacquerel and Rozel, foot of cliffs	Rare	Common in saltmarshes in GB

- 3.46 There are other rare species which may have been lost from the North Coast, including round-leaved sundew (*Drosera rotundifolia*), which was recorded in an important wet area at Egypte but could not be refound in the recent 2008 survey by PAA.
- 3.47 In addition, there are species like saw-wort (*Serratula tinctoria*) and Royal fern (*Osmunda regalis*), where nearly all the Jersey population occurs on the north coast and sea spleenwort (*Asplenium maritimum*), heath bedstraw (*Galium saxatile*) and tormentil (*Potentilla erecta*) which are more widespread but with a substantial number of locations on the north coast (Le Sueur 1984).
- 3.48 As far as animal life is concerned, there is less readily available information on these. However, the North Coast is important for a variety of bird species. Stentiford (1999) mentions the importance of the razorbills and puffins on the Plémont headland, although neither occurs in significant numbers, as well as fulmar which is more abundant. At Jardin d'Olivet, Crabbé and the stretch of North Coast from Frémont to Wolf's Caves one or two pairs of Dartford warblers nest and at La Belle Hougue three pairs nest in the denser areas of gorse. Other species include linnets, stonechat, whitethroat, occasional lesser whitethroat and yellowhammer. There are several locations where lesser black-backed gulls breed on the cliffs along the North Coast. The North Coast Cliffs and L'Étacquerel Fort are regarded by Veron (1997) as qualifying as Sites of Channel Islands Importance for birds.
- 3.49 Less is known about other animals. Green lizard (a Jersey BAP species) has been recorded on a number of areas of the North Coast. Wall lizards (a Jersey BAP species) are mentioned by Veron (1997) as occurring on Le Jardin d'Olivet in 1992, and which occur on Napoleonic fortifications along the north coast. Red squirrels (Jersey BAP species) may occur in the woodlands in the ESA boundary selected, but some of these are quite isolated from other wooded habitats, which could reduce their functionality for squirrels. There are red squirrels in woodland not far away from these sites (eg Le Couperin). Little is known about the overall value of the North Coast for invertebrates as a whole, but Warne (2008) in a report on Egypte, recorded 360 species of beetles, bugs and other insects, of which 23 are Nationally Notable or RDB species, comprising 6.4% of the total. On the dunes and heaths surveyed elsewhere on the Island, this proportion is generally over 10%. Egypte scores lower than the best sites surveyed (St Ouen's Pond and

Ouaisné Common). However, it is important for its wetland assemblage, a rare feature within the North Coast habitats as a whole.

3.50 The wood ant *Formica pratensis* is the only species found on Jersey that is on the IUCN Red Data List for Europe, as mentioned in St. Ouen's ESA. It is found on the North Coast near Plémont.

3.51 The importance of the ESA can be defined as:

- the continuity of habitats;
- the amount of heathland and the number of large patches still persisting - which represents most of the northern heathlands outside the south coast and Les Landes, and which are internationally important;
- the amount of coastal grassland and maritime cliffs that stretch nearly continuously along the ESA;
- the extent of woodland, and the high quality of the larger semi-natural sites;
- the range of plant species present, some of which do not occur widely elsewhere in the Island, or are rare in Jersey, or are important on the international scale in the whole of Great Britain, and important populations are found in Jersey;
- the importance of the coastal strip for breeding birds as well as wintering ones;
- the value of the habitats for a wide range of invertebrates, with Egypte featuring as of high significance, although there is a dearth of comparative data for other sites.

### **Conservation Threats**

3.52 The key issue is the ongoing lack of management of all the North Coast for many years, and the resulting loss of nature conservation value. In particular, bracken continues to spread at the expense of dwarf shrub heath; the latter is shrinking in area and quality. There have been a number of wildfires which have also affected the quality of the heathlands in particular. The gorse is aging as well, with limited regeneration, and scrub is developing into incipient woodland in places.

3.53 Some areas are well used by recreationists, with some degree of disturbance possibly affecting the breeding birds in particular.

3.54 The North Coast is mostly a very narrow strip of habitats, affected in many places by the close proximity of intensively managed agricultural land, with its concomitant effects such as eutrophication, effects on water flows and possibly localised effects of the application of agricultural chemicals. The effects are evident in the quality of the water seeping into the coastal strip, such as in Egypte wet peat area where the vegetation has become rank and rare species such as sundew disappeared.

### **Rozel Area ESA**

3.55 At the eastern end of the North Coast, the character of the coast changes to one that is generally lower, with very little heathland, but more woodland. This area, separated from the North Coast by the settlement of Rozel, has been defined as the Rozel Area ESA. It runs from Rozel

eastwards to incorporate a number of woodlands including Les Vaux de Rozel, Le Couperon, and St. Catherine's Valley as well as the rest of the north-east coast. There is a narrow link between St. Catherine's Valley and Le Couperon consisting of a mixture of woodland and grassland which is sufficient to justify including the two wooded areas in a single ESA.

- 3.56 The total area of this ESA is 130ha. It consists largely of continuous habitats in contiguity, with only a few arable or other non-defining habitats incorporated into the area. Amenity grassland (often large gardens) are included where they fall between other habitats, but not when they occur on the edge and for which there are no other obvious reasons for their inclusion.
- 3.57 The main habitat, comprising over half of the habitat in the ESA is woodland (Table 3.9), much of which is semi-natural broad-leaved woodland (Jersey BAP habitat). The main blocks are in Les Vaux de Rozel and its tributary valleys passing down to Rozel Bay, Le Couperon and the woodlands of St. Catherine's Valley and its tributaries. Although there are a number of introduced species such as sycamore in these woods, the main species, understorey and ground flora are native and diverse. Le Couperon consists of a large wood astride a stream, a marsh and associated wetland species, the only significant area of coastal heathland at the eastern end of the north coast, and coastal grassland with a mixture of acid grassland and maritime coastal species.

**Table 3.9 - The Habitats in the Rozel Area ESA**

KHA Number	HABITAT	HECTARES
4b	Broad leaved semi-natural woodland	53.08
1e	Other grasslands	15.77
4e	Other woodland	11.10
2	Bracken with/without other habitats	10.63
12	Amenity grassland	9.35
1c	Neutral grassland +/- scrub/trees	7.24
5	Scrub	4.29
1b	Marshy grassland with/without bracken/scrub/trees	4.03
1d	Coastal grasslands	3.64
3	Heathland +/- other coastal habitats	2.15
8	Open water + other	1.79
7	Ruderal	1.13
13	Arable	0.95
14	Bare ground	0.88
5b	Other scrub	0.84
1a	Acid grassland +/- bracken/scrub/trees	0.18
4c	Conifer plantation	0.12
11	Quarry	0.06
NA	Buildings	0.06
NA	Gardens	0.06
	<b>TOTAL</b>	<b>127.46</b>



- 3.58 The other main valley, St Catherine's, supports extensive woodland, a stream and wet meadows (Jersey BAP habitat).
- 3.59 The special plant species recorded in St Catherine's Valley, its wet meadows and in Le Couperon are listed below.

**Table 3.10 - The Special Species in the Rozel ESA**

Scientific Name	English Name	Location	Rarity in Jersey	GB and wider status
<i>Arum italicum?</i> <i>ssp italicum</i>	Large Lords and Ladies	Woodlands, hedges	Widespread	S. Europe, introduced S. England
<i>Danthonia decumbens</i>	Heath-grass	Le Couperon coastal grassland	Occasional	Widespread on acid soils in GB
<i>Polypodium interjectum</i>	Intermediate polypody	Maritime cliff and coastal grassland	Common	International responsibility
<i>Scrophularia scorodonia</i>	Balm-leaved figwort	Le Couperon woodland	Common	Nationally Scarce in Wigginton, Jersey's population is significant in the GB context

- 3.60 Although there is little information on the animals of importance in this ESA area, red squirrels are known to inhabit Le Couperon woodland. Veron (1997) lists St. Catherine's Wood as an important valley with some of the most mature woodland in Jersey which supports sparrow hawk, great spotted woodpecker and spotted flycatcher. Wood warbler (rare in Jersey) and golden oriole have been recorded on passage in the valley.
- 3.61 The importance of the ESA lies in its woodlands. St. Catherine's Valley is a proposed SSI, and Le Couperon, along with its nearby coastal habitats, has also been recommended for SSI consideration (PAA 2002). The two areas are complemented by the intervening coastal habitat and wooded areas to form a rather narrow, spindly-shaped ESA with a large perimeter to core ratio.

### Conservation Threats

- 3.62 The threats are from intensification of recreational activity, from unsuitable woodland management or loss of any of the habitats for other landuses. Any works such as drainage, or intensification of agricultural production which also affected the hydrology and water quality in the valleys would also pose a threat to the nature conservation interest, particularly if the wet meadows became drier.

### Grouville ESA

- 3.63 Grouville consists largely of the sand dunes and Grouville Golf Course and the wetlands centred on Grouville Marsh and the associated wet meadows. Although the two habitats and many of

their species are quite different, they are close together and will share many of the more catholic species of birds and invertebrates. The Queens Valley Reservoir valley has not been added, although there are tenuous links to the Grouville wet meadows area through a variety of amenity land. This ESA tends to be broader close to the coast and then follows thinning arms of habitats up the valleys to the west, leaving rather narrow ribbons of habitat in this direction. It does not feature as a Site of Importance for Birds, and is therefore not a prime area for selection, although, better connectivity could increase its value.

- 3.64 The site encompasses 80ha, with habitats covering 76.6ha. The main habitat is grassland, mostly meadows and dune grassland (much of the 17ha shown as amenity grassland in Table 3.11) is the golf course on sand, and can be added to the total area of dunes, although there will be far less nature conservation value in the improved grassland of the fairways.

**Table 3.11 - The Habitats of the Grouville ESA (Total ESA Area Boundary = 80ha)**

KHA Number	Key Habitat Area Description	Sum of Ha
12	Amenity grassland	17.12
6	Dune communities with/without bracken, scrub, trees & bare sand	13.60
4e	Other woodland	10.32
1c	Neutral grassland with/without bracken, scrub, trees and other	8.79
1b	Marshy grassland with/without bracken, scrub, trees and other	8.10
1e	Other grasslands	7.22
5	Scrub	5.80
8	Open water	2.99
1d	Coastal grasslands with/without other coastal habitats	1.58
4c	Conifer plantation	0.71
2	Bracken with/without other habitats	0.57
1a	Acid grassland with/without bracken, scrub, trees	0.19
4a	Broad leaved plantation	0.17
na	Hardstanding	0.12
na	Building	0.12
na	Garden	0.12
14	Bare ground	0.08
11	Quarry	0.02
	<b>Total</b>	<b>77.61</b>

- 3.65 There is a fair amount of woodland (10.32ha), mostly around Grouville Marsh, plus scrub (5.8ha) largely on the golf course. The open water shown on Grouville Marsh includes reed swamp, rush swamp and other swamp communities. The woodland is largely wet woodland consisting of willows, but there are drier areas as well. The ground flora is limited by the shade, but includes a

number of ferns and sedges. Grouville Marsh provides a complex of habitats from managed to unmanaged wet meadows (Jersey BAP habitat), to marsh, fen, wet and dry woodland and represents an interesting sere between these and the inland end of the former dune system. The flora is rich and includes several species which are rare in Jersey (Table 3.12) as well as two British RDB species. The whole habitat complex represents one which is now rare in Jersey.

- 3.66 Grouville Marsh is recognised as a valuable site for birds, but would not qualify as a Site of Importance. Veron (1997) lists Cetti's warbler (1 pair), lesser spotted woodpecker, reed warbler (10-30 pairs) as important breeding species, but notes the importance of the site for passage migrants and winter visitors. Long-eared owls use the marsh as a roost and barn owls hunt over the area. Cirl buntings when they were present (very rare in Great Britain) used to feed on the rough grass areas during the winter as well.
- 3.67 The importance of the ESA lies in the mixture of wetland habitats and their plant and animal communities – woodland, reed beds, sedge and rush swamps, wet grassland – that occur on Grouville Marsh and extending out into other marshy grasslands, or grasslands with some marshy elements and streams surviving into the narrowing valleys, and in the dune grassland on the Golf Course. The latter is the only significant area of dunes on the Island outside St Ouen's Bay and Ouaisné Common.
- 3.68 The uncommon or rare plant species recorded in Grouville Marsh are shown in Table 3.12. There are no recent records available for the Golf Course.

**Table 3.12 - The Special Plant Species in the Grouville ESA**

Scientific Name	English Name	Location	Rarity in Jersey	GB and wider status
<i>Arum italicum?</i> <i>ssp italicum</i>	Large Lords and Ladies	Grouville Marsh	widespread	S. Europe, introduced S. England
<i>Carex pendula</i>	Pendulous sedge	Grouville Marsh	Rare – recorded at 10 sites since 1960	Common, has apparently expanded northwards
<i>Carex pseudocyperus</i>	Cyperus sedge	Grouville Marsh	Two other localities, this is a new site	Relatively common but has declined in eastern in England
<i>Cyperus longus</i>	Galingale	Grouville Marsh	Common	RDB Near Threatened
<i>Lythrum portula</i>	Water purslane	Grouville Marsh and wet meadows	Rare	Scattered

Scientific Name	English Name	Location	Rarity in Jersey	GB and wider status
<i>Oenanthe fistulosa</i>	Tubular water dropwort	Grouville Marsh	Rare in wet areas	RDB Vulnerable
<i>Rorippa palustris</i>	Marsh yellowcress	Wet meadows Grouville	Rare	Frequent
<i>Scrophularia scorodonia</i>	Balm-leaved figwort	Grouville Marsh	Common in scrub and bracken	Nationally Scarce in Wigginton, Jersey's population is significant in the GB context

### Conservation Threats

- 3.69 The key threat is the further improvement and drainage of the wet meadows that would affect not only the importance of the wet meadows, but also the hydrology of the Marsh. Any development that affects the hydrology in or just outside the ESA would also be damaging to the wetland complex. Inappropriate management is also an issue in terms of grazing being too heavy or not enough, the use of fertiliser would reduce the species-richness and diversity of the grasslands, and any other agricultural chemicals being detrimental to the conservation interest of the habitats. The same agri-chemicals, including fertilisers, used in fields that are within the same drainage system also have the potential to affect the quality of the ESA wetlands. Any intensification or expansion of the golf course onto the relict sand dune grassland would also be a threat to the conservation interest of the area.

### The South-West Coast ESA

- 3.70 The south-west coast ESA totals 170ha, of which 154ha comprises habitats of interest. La Landes du Ouest SSI covers 40ha on the south coast. The ESA has been extended to cover the heathland and coastal grasslands/bracken around La Corbiere, although the continuity of habitats is not as complete in this area as to the south. It then follows the coastline in quite a broad swathe as far east as St Brelade, incorporating the woodlands in Le Val.

**Table 3.13 - The Habitats in the South West Coast ESA**

SW Coast ESA = 164.92ha Total Habitats  
Boundary with Non Habitat Areas = 169ha  
La Landes Du Ouest SSI Boundary = 39.96ha

KHA Number	Habitats	Hectares
1d	Coastal grasslands with/without other coastal habitats	37.21
3	Coastal heathland with/without other coastal habitats	29.32
2	Bracken with/without other habitats	26.94
12	Amenity grassland	18.98
4e	Other woodland	12.54
1e	Other grasslands	12.38
5	Scrub	8.69
4b	Broad leaved semi-natural woodland	7.55
1a	Acid grassland with/without bracken, scrub, trees	4.86
14	Bare ground	3.67
11	Quarry	1.26
1c	Neutral grassland with/without bracken, scrub, trees and other	1.16
8	Open water	0.37
	<b>Total</b>	<b>164.92</b>

- 3.71 The main habitat in the ESA is coastal grassland (37ha), with heathland close behind (29ha). Bracken covers some 27ha. These three form the bulk of this ESA and are largely contiguous. The largest area of heathland lies within La Lande du Ouest SSI, with only small patches more fragmented and less contiguous elsewhere. Scrub and woodland together (28.8ha) forms a significant cover. The scrub is divided into a number of generally small patches, but the woodland is focused in the valleys in more sheltered spots such as near to St Brelade. The main Jersey BAP habitats are the heathlands and semi-natural broad-leaved woodland.
- 3.72 The ESA also incorporates some areas of farmland, as well as a number of buildings and gardens, and some amenity land. These are most concentrated in La Corbière area.

**Table 3.14 - The Special Species of La Landes du Ouest ESA**

Scientific Name	English Name	Location	Rarity in Jersey	GB and wider status
<i>Asplenium obovatum</i>	Lanceolate spleenwort	sea cliffs	local	common in SW
<i>Juncus capitatus</i>	Dwarf rush	Coastal grass/dwarf shrub and lichen communities at coast edge	Local, but can be abundant	RDB Vulnerable in GB
<i>Matthiola sinuata</i>	Sea stock	Sea cliffs	RDB vulnerable, Jersey BAP	Very few sites, population varies significantly. Jersey RDB
<i>Moenchia erecta</i>	Upright chickweed	dwarf shrub heath/gorse mixture	Scarce	Local, England and Wales
<i>Romulea columnae</i>	Sand crocus	Coastal grass/dwarf shrub and lichen communities at coast edge	Locally common	
<i>Scilla autumnalis</i>	Autumn squill	Coastal grass/dwarf shrub and lichen communities at coast edge	Scarce	Scarce in GB
<i>Tuberaria guttata</i>	Spotted rockrose	Coastal grass/dwarf shrub and lichen communities at coast edge	Locally frequent	RDB Near threatened in GB

3.73 La Landes du Ouest and Le Beauport/Les Creux, St Brelade are identified as worthy of being Sites of Importance for Birds in Jersey by Veron (1997). Dartford warbler, stonechat, whitethroat and linnet as well as a pair of ravens on each are listed as of significance for both sites., skylark, serin, and foraging barn owl are noted for the SSI area, whilst swifts, kestrel and sparrowhawk are listed for Le Beauport.

3.74 The main importance of the ESA is the contiguity and continuity of habitats across a large part of the south-west corner of Jersey, the abundance of heathland and grassland habitat, which supports a number of special plant and animal species, the gorse and scrub habitat also

contributes to the importance of the area for birds. The other BAP habitat - semi-natural woodland- also features in the site. The heathland is also important because it complements that on the North Coast and Les Landes, providing a habitat for more warmth-loving species that are found on the North Coast for example.

### Conservation Threats

- 3.75 The main threat to the open habitats is wildfire, and recent fires have destroyed much of the scrub on some parts of the site, and recovery is slow and patchy. The spread of Hottentot fig and its relatives on the cliffs threatens the native species, and this could increase with climate change and reduced cold spells in winter which can control the spread of these escaped plants originating from South African.
- 3.76 There are some threats from recreational use, and pressure from development of the surrounding land is contributing to the loss of habitat and the isolation of the separate habitat areas.

### Noirmont-Portelet ESA

- 3.77 This ESA covers the two main promontories and a narrow belt between them of Noirmont and Portelet as well as the dunes of Ouaisné Common. The habitats (Table 3.15) are dominated by bracken, woodland and scrub (86 out of the 133ha of habitat), with only a small area of heathland (15ha), although the latter would once have been more widespread. Coastal grassland forms a fringe round the main headlands, particularly Portelet, whilst woodland is tucked away on the east facing side of Noirmont where it is more sheltered from the wind. There are small pools which are very important on Ouaisné Common as well as a patch of wet heath which is unique to the Island.
- 3.78 The heathlands on Portelet, in particular, are of greatest value and unique as they include lichen-rich heathland, of which there is very little on the Island, and supports a range of southern Jersey species not found on the larger heaths of the North Coast. This emphasises the importance of conservation of all the heathland on Jersey as each area complements the next, and all together they support a wider richness of species.

**Table 3.15 - The Habitats in the Noirmont-Portelet ESA**

Noirmont - Portelet ESA 145ha total habitats  
Boundary with non habitat land = 156ha

KHA Number		Hectares
2	Bracken	36.43
4e	Other woodland	25.94
5	Scrub	23.90
3	Heathland	15.15
1d	Coastal grassland	13.81
12	Amenity grassland	12.99
1a	Acid grassland	3.85



1c	Neutral grassland	7.07
6	Dune	2.51
14	bare ground	2.30
8	Open water	0.61
4b	Broad leaved semi natural woodland	0.52
11	Quarry	0.22
	<b>Total</b>	<b>145.29</b>

- 3.79 The ESA only incorporates a small amount of non-habitat land, largely consisting of a few arable fields, a few properties and some small amenity areas.
- 3.80 The special plant species (Table 3.16) are largely associated with the maritime grasslands and heathland. None are restricted to this site, but are generally local in their occurrence in Jersey, or are commoner in Jersey but restricted or scarce in Britain.
- 3.81 In addition to the plants, the site is important for its birds. Veron (1997) lists Portelet, Noirmont and Ouaisné as Sites of Importance for Birds in Jersey. Noirmont is noted as a site for some of Jersey's most significant spring and autumn migration landfalls. In addition breeding species of all three sites include Dartford warblers, stonechats and whitethroats. There is in addition linnets, great spotted woodpecker, skylark as well as barn owl and sparrowhawk foraging at Noirmont, linnets, cuckoo, curlew, swifts, and a large gull colony on Portelet, and serin, cuckoo, on Ouaisné.

**Table 3.16 - The Special Plants in the Noirmont- Portelet ESA**

Scientific Name	English Name	Location	Rarity in Jersey	GB and wider status
<i>Bromus hordeaceus ssp ferronii</i>	Soft brome subsp	Cliff grassland, Noirmont	New record, very rare in past	coastal, widely distributed
<i>Carex pilulifera</i>	Pill sedge	Portelet	Local, never in any quantity	Widespread
<i>Erica tetralix</i>	Cross-leaved heath	Ouaisné	3 sites in Jersey	Widespread
<i>Juncus capitatus</i>	Dwarf rush	Portelet and Noirmont	Local, but can be abundant	RDB Vulnerable in GB
<i>Mibora minima</i>	Early sand-grass	cliff grassland, Noirmont	Local on west coast of Jersey	Rare in Britain, RDB in Wigginton
<i>Orchis morio</i>	Green-winged orchid	Portelet	Only in the S and W	Very thinly scattered



Scientific Name	English Name	Location	Rarity in Jersey	GB and wider status
<i>Radiola linoides</i>	All-seed	Portelet	locally abundant	Near threatened RDB
<i>Romulea columnae</i>	Sand crocus	Portelet	Locally common	Very local
<i>Sagina subulata</i>	Heath pearlwort	Portelet	Local	Scattered
<i>Scilla autumnalis</i>	Autumn squill	Portelet and Noirmont	Locally common	Nationally Scarce
<i>Tuberaria guttata</i> <i>ssp guttata</i>	Spotted rock-rose	Portelet and Noirmont	Locally frequent	RDB Near threatened in GB

- 3.82 Ouaisné is also an important site for agile frog, which has been re-introduced into the ponds after intensive rescue breeding at Jersey Zoo. Grass snake and green lizard also occur on this site, with green lizard on Portelet as well.
- 3.83 An early survey carried out by Warne (1986) found that about 14.5% of the beetles on Portelet as a whole are listed as uncommon or rare on the mainland, and there are two bugs found that did not occur in Britain at all. The warm maritime grassland slopes were identified as being particularly important for a small number of Atlantic species.
- 3.84 The significance of this ESA is the large area of habitat, much of which is contiguous, with little non-habitat area interrupting species movement; the important heathland and associated maritime grassland; the important dune scrub, pools, and wet heath; the bird assemblage, the invertebrate assemblage, and the important habitat for the agile frog, green lizard and grass snake.

### Conservation Threats

- 3.85 The greatest threats are from wildfire which destroys the heathland and scrub habitat, which takes time to recover, depending on the level of rabbit grazing; recreational disturbance; eutrophication of the pools and wet heathland from agricultural fertilisers or septic tanks from land above the bay and other pollution; the loss of heathland to scrub and bracken if not managed appropriately; any development pressure, or development outside which would increase the other threats listed (such as hydrological changes).

### Wooded Valleys ESA

- 3.86 The Wooded Valley ESA is unusual in that it consists of a range of nine wooded valley complexes located within the central portion of the Island of Jersey as follows:
- St Aubin's Valley – 61.93ha;
  - Beau Mont – 45.24ha;
  - St Peter's Valley Complex – 201.76ha;

- Waterworks Valley Link – 17.25ha;
- Waterworks Valley – 114.0ha;
- Vallée de Bellosanne – 65.46ha;
- Le Vallée des Vaux (3ha of which is owned and managed by the National Trust for Jersey) – 49.08ha;
- Les Grands Vaux – 183.71ha;
- Queen’s Valley – 29.9ha.

3.87 Within these woodland valley complexes, woodland habitats (Table 3.17) cover 275.8ha (39% of the total area). Of this, 67.7ha have been classified as broad leaved semi-natural woodland. Other habitats accounting for a substantial proportion of this ESA include grassland (25.4%), of which 20.8% has been classified as neutral grassland and 17.9% as marshy/wet grassland; bracken (8.1%); and open water (5.0%). Additionally, <5% of the ESA comprises scrub (2.8%), heathland (0.7%), ruderal (0.1%) and dune habitats (0.02%).

**Table 3.17 - The Habitat Areas in the Wooded Valleys ESA**

Wooded Valleys ESA = 690.91ha Total Habitats  
Boundary with Large White Spaces = 706ha

Habitat	KHA Number	General Type	Hectares
Other woodland	4e	Woodland	199.85
Amenity grassland	12		109.86
Other grassland	1e	Grassland	107.35
Broadleaved semi-natural woodland	4b	Woodland	67.69
Bracken with/without other habitats	2	Bracken	55.76
Neutral grassland with/without bracken, scrub, trees and other	1c	Grassland	36.48
Open water	8	Open water	34.32
Marshy grassland with/without bracken, scrub, trees and other	1b	Grassland	31.28
Scrub	5	Scrub	19.30
Woodland	4a	Woodland	7.70

Habitat	KHA Number	General Type	Hectares
Quarry	11	Quarry	6.66
Bare ground	14		5.28
Coastal heathland with/without other coastal habitats	3	Heathland	4.90
NA Hardstanding/ Buildings or Gardens - Excluded	na		1.01
Conifer plantation	4c	Woodland	0.56
Ruderal	7	Ruderal	0.39
Arable	13		0.30
Dune communities with/without bracken, scrub, trees and bare sand	6	Dune	0.18
			<b>690.91</b>

- 3.88 Considering each wooded valley individually, the greatest proportional coverage of broad leaved semi-natural woodland cover is for the St Peter's and Waterworks Valleys, with respectively 18.5ha and 26.6ha. This habitat also occurs to a lesser extent within Beau Mont (9.9ha), Les Grands Vaux (4.8ha), Queen's Valley (4.3ha), and Vallee de Bellosanne (3.6ha).
- 3.89 In terms of the key grassland habitats, the greatest proportion of marshy/wet grassland occurs within Les Grands Vaux (12.8ha), St Peter's Valley Complex (7.4ha) and Waterworks Valley (5.7ha). The habitat also occurs to a lesser extent within Les Vallee des Vaux, St Aubin's Valley, Vallee de Bellosanne and Waterworks Valley Link.
- 3.90 The proportional coverage of neutral grassland is greatest for Les Grands Vaux (13.1ha) and St Peter's Valley Complex (8.0ha). In addition, a smaller total area of this habitat has been recorded with all other valleys.
- 3.91 Although the total coverage of heathland habitat within the woodland ESA is low (4.9ha), this habitat is found within three of the woodland complexes (Beau Mont (4.0ha), Queen's Valley (0.9ha) and Waterworks Valley (0.1ha)).
- 3.92 Finally, open water forms part of each of the nine wooded valley complexes within the ESA, although the total extent is very small for most of these (<3ha for Beau Mont, Le Valle des Vaux, St Aubin's Valley, Vallee des Bellosanne and the Waterworks Valley Link). By contrast, Queen's Valley has the greatest extent of open water (12.3ha).

- 3.93 The ESA comprises a small amount of non-habitat land, largely in the form of arable fields, bare ground and various infrastructure elements (driveways, car park, road etc.).
- 3.94 Pedunculate oak is ubiquitous in the valley woodlands but its dominance usually varies considerably within a single site. Often co-dominant with the oak are sycamore and sweet chestnut, although the concentrations of these species are also highly variable. Beech and ash are also usually present, the former occasionally forming single-species stands, but generally not in large quantity. Stands with high concentrations of sycamore generally have restricted shrub-layer growth due to the amount of saplings that this species produces. In other stands, the shrub layer can be very diverse with butcher's broom, holm oak, holly, hawthorn, elder and small-leaved elm all relatively common. The rarer shrub layer species include hazel, medlar and field maple.
- 3.95 The ground flora of the woodlands is usually restricted to species that are able to tolerate dry, relatively acidic, soil conditions although seepages of relatively base-rich water from the valley sides are very occasionally marked by a patch of dog's mercury. The most frequent ground flora species are the broad buckler, male and hart's tongue ferns, wood sage, enchanter's nightshade, bluebell, red campion, wood avens, bramble, nettle and wall pennywort. Non-native species can be frequent in the woodlands, particularly at the edges of residential gardens; montbretia, winter heliotrope and non-native daffodils and bluebells occur frequently.
- 3.96 Along streams and seepage lines in the woodlands, grey willow, and sometimes, alder, occur along with ash. The ground flora of these wet areas is often dominated by hemlock water-dropwort together with *Dryopteris* ferns and opposite-leaved golden-saxifrage. Rarer species of wet areas include pendulous sedge and remote sedge.

**Table 3.18 - The Special Plants of the Wooded Valleys ESA**

Scientific Name	English Name	Location	Rarity in Jersey	GB and wider status
<i>Elatine hexandra</i>	Six-stamen waterwort	St. Peter's Valley – La Hague Reservoir	Rare, one location Jersey BAP	Widespread, though uncommon
<i>Mercurialis perennis</i>	Dog's mercury	St. Peter's Valley – St. Peter's Wood	Rare, though in abundance where it occurs	Common and widespread
<i>Carex pilulifera</i>	Pill sedge	St. Peter's Valley – St. Peter's Wood	Local	Common and widespread
<i>Oxalis acetosella</i>	Wood sorrel	St. Peter's Valley – St. Peter's Wood	Uncommon	Common and widespread

- 3.97 Jersey's red squirrel population originated from introductions made during the nineteenth century from British and French animals. Red squirrels are protected under the Conservation of Wildlife (Jersey) Law 2000 and are the subject of an action plan under the Island's Biodiversity Strategy. The species is also the subject of a Species Action Plan under the UK Biodiversity Action Plan.

- 3.98 The red squirrel's main foods are tree seeds and nuts and therefore conservation of woodland is fundamental to their conservation. The Island's squirrels are thought to exist as a metapopulation (States of Jersey Environment Division 2006) and therefore linking wooded habitats, to enable genetic exchange between populations will play a major role in their long-term conservation. The central population is centred on the Water Works and St. Peter's valleys (States of Jersey Environment Division 2006) and there are many options to provide strong connections between this area and other red squirrel populations to the east, the north-west and the south-west. To the east, Le Vallee de Vaux and Les Grands Vaux have the capacity to support a larger population than at present and could provide an immigration route to the north-eastern population centre of Rozel and St. Catherine's woods. To the south-west, the valleys of Beau Mont and St. Aubin could provide links to the relatively isolated woods in St. Brelade's Bay. To the north-west, the isolation of the population at La Grève de Lecq could be reduced by the establishment of stronger corridors.
- 3.99 A total of nine bat species have been recorded on Jersey. Greater horseshoe bats were last recorded in 1959, brown long-eared in 2003 and Leisler's bat in 2002. The remaining six species vary from common to uncommon though all species are protected under the Conservation of Wildlife (Jersey) Law 2000 and are the subject of a grouped action plan under the Island's Biodiversity Strategy. Although most species are thought to be highly dependent on man-made structures for shelter (States of Jersey Environment Division 2006), the relatively mild local climate suggests that some may roost in trees, which are abundant in the wooded valleys. All Jersey's bat species eat insects and the wooded valleys are therefore likely to be important as woodland edge and wetland habitats are particularly associated with bat foraging (Mitchell-Jones 2004). Bats also need to be able to move between their roosts and suitable foraging sites and it has been shown that many species prefer to follow tree-lines and waterways, so the wooded valleys are also likely to be of value to bats in this respect. Any further linkage of the valleys with wooded wildlife corridors, such as that proposed for red squirrels, would favour bats.

### **Conservation Threats**

- 3.100 Threats to this habitat are largely through housing development across the Island. In this regard, the National Trust bought up land in an attempt to safeguard the woodland valleys. Various additional issues are apparent, particularly those associated with proximity to urban settlements, including fly tipping, vandalism and trampling. In addition, various non-native species have encroached (eg. sycamore) and now require control measures. Finally, many larger elm specimens have been lost to Dutch elm disease.

### ***The South-East Grasslands ESA***

- 3.101 The South-east grasslands are a group of separate sites east of St Helier. They comprise the Rue de Prés wet meadows at Samarés, a smaller group just west of these, the line of grasslands at La Petite Longueville and small habitat patches close-by. The whole ESA covers 58ha and is the smallest of all the sites. The main habitat is grassland, with marshy grassland standing out at the highest cover. There is a limited amount of woodland included in the site, along with minor amounts of other habitats.
- 3.102 The marshy grasslands are the most important feature and the size of the separate groups of habitats has been drawn to maximise the connectivity of these and to maintain as far as possible hydrological units which can be more easily managed. The group of 12 meadows in Rue de Prés are outstanding in the Jersey context and amongst the best to be found. One meadow in particular is very rich in species and a number of rare or uncommon species were found here (Penny Anderson Associates 2004), (Table 3.20). The other meadows are of lower diversity with fewer species present.

**Table 3.19 - The Habitats in the South East Grasslands ESA**  
Total ESA Area Boundary = 58ha

KHA Number	Key Habitat Area Description	Hectares
1b	Marshy grassland with/without bracken, scrub, trees and other	18.60
1e	Other grasslands	14.80
1c	Neutral grassland with/without bracken, scrub, trees and other	10.38
4e	Other woodland	9.29
12	Amenity grassland	2.49
8	Open water	2.04
4a	Broad leaved plantation	1.10
2	Bracken with/without other habitats	0.68
5	Scrub	0.28
14	Bare ground	0.18
		<b>59.83</b>

- 3.103 The scarce or special plants are listed in Table 3.20. Of these, cyperus sedge is the most widespread, occurring often in meadows which are otherwise partially improved for agriculture. The other species have only been recorded in the wet meadows surveyed in 2004 in this area (PAA 2004) in those in the Rue de Prés.
- 3.104 There is little information about animals for this area. A marsh harrier which is rare in Jersey (owing to the general lack of suitable habitat) was seen during the wet meadow survey over Rue de Prés. Stentiford (1999) did not include this area in his bird watching guide. Veron (1997) includes Longeuville Marsh in his account and lists 5-10 pairs of reed warbler, 0-1 of Cetti's warbler, 1-5 pairs of skylark and occasional lapwing amongst its breeding species. Roosting herons (up to 1200 and little egrets (up to 150) are also noted. Beautiful demoiselles (a Jersey BAP species) were seen here as well which are not common in Jersey.

**Table 3.20 - The Special Species of the South-East Grasslands ESA**

Scientific Name	English Name	Location	Rarity in Jersey	GB and wider status
<i>Carex nigra</i>	Common sedge	Marshy grassland, Rue de Prés	Plentiful east of pond, rare elsewhere	Common
<i>Cyperus longus</i>	Galingale	Marshy grasslands	Common	RDB Near Threatened.
<i>Oenanthe lachenalii</i>	Parsley water dropwort	Marshy grasslands, Rue de Prés	Rare	Coastal species in brackish ditches etc, scattered inland
<i>Orchis laxiflora</i>	Jersey orchid	Marshy grassland Rue de Prés	Very few sites, sometimes locally abundant in them.	Absent GB, Western France to Netherlands only
<i>Ranunculus sceleratus</i>	Celery-leaved buttercup	wet meadows	Rare	
<i>Scrophularia scorodonia</i>	Balm-leaved figwort	drier parts of wet meadows	Common	Wigginton regards as native, RDB, south westerly distribution in GB

### Conservation Threats

- 3.105 The greatest threats to these grasslands are for further agricultural improvement, drying out through this and local residential or commercial development being established nearby, thus affecting the local hydrology, lack of suitable management and loss completely through development. They are particularly vulnerable as they lie close to St. Helier. There was already commercial development close to Rue de Prés during the 2004 surveys that were likely to affect the hydrology of the best meadows there. Several meadows had been improved between the 1983 and 2004 surveys (Knightbridge 1983 and PAA 2004). Veron (1997) also mentions the degradation of Longueville Marsh through the same suite of threats.

## 4. OPPORTUNITY MAPPING

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- 4.1 Broadly, opportunity mapping aims to use a range of data layers to identify connections and potential linkages between patches of the same habitat type at the landscape scale. The specific intention is to identify habitat patches to focus resources towards the enhancement habitat network functionality of within the landscape. These areas can be targeted for a range of key actions, including restoration, enhancement or creation of habitats to increase core habitat areas and infill between scattered patches, or sensitive management practises aimed at improving the permeability of the wider matrix to enable/facilitate species movement and dispersal. Furthermore, increasing core areas engenders a range of key improvements to any habitat network. Not least that, with careful planning, functional networks of larger habitat patches have increased core areas and reduced edge effects, thereby increasing the resistance and resilience of the individual habitat and its associated species in the face of land use change (ie. development or climate change).

### Key Definitions

- 4.2 The following terms are used regularly throughout this section.
- **Direct Connections:** Connections between all individual habitat polygons  $\leq 50\text{m}$  apart which are deemed to be part of the same patch network.
  - **Stepping Stone Search Area:** A 100m buffer around all networks and patches, within which suitable patches of habitat are identified for targeted enhancements.
  - **Stepping Stone Habitat Enhancement Area:** Potentially suitable habitat patches within a  $\leq 100\text{m}$  radius of existing habitat patches, the aim of which is to connect existing patches and create larger, more robust habitat networks via stepping stones connections.
  - **Buffer Zone Search Area:** A 500m buffer around all networks and patches, within which suitable patches of habitat are identified for targeted sensitive management actions (i.e agri-environment schemes).
  - **Buffer Zone:** Identified from the Buffer Zone Search Area, this represents all suitable habitat patches within the Buffer Zone to target sensitive management actions with the aim of increasing the overall resistance and resilience of habitat networks.

### Methods

- 4.3 Firstly, considering each habitat individually, larger patches were created by dissolving all adjacent polygons (using ArcView 3.2) of the same habitat type (those with shared boundary or point). The key habitats considered were as follows:
- grassland;
  - woodland;
  - heathland;
  - dunes;
  - saltmarsh.
- 4.4 Secondly, networks for each habitat type, considered to be those sets of patches with existing direct connections, were created by dissolving all habitat patches within 50m of each other. The



distance of 50m was used as a measure of the direct connections between individual patches and is indicative of the distance over which generalised species freely move.

- 4.5 Finally, stepping stone connections (Stepping Stone Enhancement Areas) between networks/patches have been identified as those patches between 50 and 100m apart. Thus, to increase network functionality, search areas for habitat enhancement (ie. infilling between stepping stones) have been identified within a 100m buffer of each patch. This is considered a conservative estimate of the standard distance within which typical species are able to move. The rationale behind this step is to identify suitable areas for potential enhancements to further increase the functionality of individual habitat networks and of green spaces in general for biodiversity. In this regard, suitable habitats between each existing patches (and between stepping stones) can be targeted for actions to either enhance existing habitats to increase matrix permeability or to (re)create new habitats to match the target habitat (ie. grassland, woodland etc).
- 4.6 Possible habitat enhancement areas were selected from only those habitat types considered suitable within the 100m search area. It should be noted that the precise nature of the habitats (re)created/enhanced will depend upon a range of factors including the following: soils, aspect, slope, hydrology, other habitats, land owner preferences. The areas selected provide a focus for efforts and subsequent discussions.
- 4.7 At this stage the enhancement areas identified for each habitat will inevitably overlap. The final stage, therefore, was to select which habitats should take priority within these Stepping Stone Habitat Enhancement Areas (SSHEA).
- 4.8 Finally, an additional search area (up to 500m) was identified as a means of selecting those areas within which sensitive site management (ie. agri-environmental schemes) is required in order to ensure the integrity of habitat networks across Jersey. Only those habitats considered suitable were extracted from this search area (ie. excluding urban areas, key habitats and infrastructure).

## Results

### ***Grassland Networks***

- 4.9 The total area of grassland habitat across Jersey was 449.1ha (Figure 4.1). Overall, this comprised 876 individual patches, which in turn formed 108 networks (joining all grassland habitat patches  $\leq 50m$  apart).
- 4.10 Following aggregation of adjacent patches, the SSHEA search zone (Figure 4.2) comprised a total area of 3184.6ha, 26.8% of the land area of Jersey. Taking account of only those habitats considered suitable accounted for 1933.9ha, 16.2% of the total land area of Jersey (Figure 4.3).
- 4.11 Within an additional search area (up to 500m) of 10665.6ha, 89.6% of the land area of Jersey was identified as a means of selecting those areas within which sensitive site management (ie. agri-environmental schemes) is required (Figure 4.4). Within this search area, 5995.3ha, 50.4% of the land area of Jersey, is considered suitable habitat for sensitive land management actions (Figure 4.5).

### **Coastal Heathland Networks**

- 4.12 The total area of heathland habitat with Jersey was 118.8ha (Figure 4.6). Overall, this comprised 257 individual patches, which in turn formed 34 networks (joining all grassland habitat patches ≤50m apart).
- 4.13 Following aggregation of adjacent habitat patches, the SSHEA search zone comprised a total area of 462.4ha, 3.9% of the land area of Jersey (Figure 4.7). Taking account of only those habitats considered suitable accounted for 306.8ha, 2.6% of the total land area of Jersey (Figure 4.8).
- 4.14 Within the additional wider search area (up to 500m) of 2580.9ha, 21.7% of the land area of Jersey was identified as a means of selecting those areas within which sensitive site management (ie. agri-environmental schemes) is required (Figure 4.9). Within this search area, 1468.5ha, 12.3% of the land area of Jersey, is considered suitable habitat for sensitive land management actions (Figure 4.10).

### **Woodland Networks**

- 4.15 The total area of woodland habitat with Jersey was 507.5ha (Figure 4.11). Overall, this comprised 1061 individual patches, which in turn formed 121 networks (joining all grassland habitat patches ≤50m apart).
- 4.16 The SSHEA search zone comprised a total area of 4454.9ha, 37.4% of the land area of Jersey (Figure 4.12). Taking account of only those habitats considered suitable accounted for 2,086.8ha, 17.5% of the total land area of Jersey (Figure 4.13).
- 4.17 Within the additional wider search area (up to 500m) of 11232.8ha, 94.4% of the land area of Jersey was identified as a means of selecting those areas within which sensitive site management (ie. agri-environmental schemes) is required (Figure 4.14). Within this search area, 6307.5ha, 53.0% of the land area of Jersey, is considered suitable habitat for sensitive land management actions (Figure 4.15).

### **Dune Networks**

- 4.18 The total area of dune habitat with Jersey was 116.3ha (Figure 4.16). Overall, this comprised 259 individual patches, which in turn formed six networks (joining all grassland habitat patches ≤50m apart).
- 4.19 The SSHEA search zone comprised a total area of 573.5ha, 4.8% of the land area of Jersey (Figure 4.17). Taking account of only those habitats considered suitable accounted for 135.8ha, 1.1% of the total land area of Jersey (Figure 4.18).
- 4.20 Within the additional wider search area (up to 500m) of 1353.9ha, 11.4% of the land area of Jersey was identified as a means of selecting those areas within which sensitive site management (ie. agri-environmental schemes) is required (Figure 19). Within this search area, 506.2ha, 4.3% of the land area of Jersey, is considered suitable habitat for sensitive land management actions (Figure 20).

### **Saltmarsh Networks**

- 4.21 The total area of saltmarsh habitat with Jersey was 2.9ha (Figure 4.21). Overall, this comprised 13 individual patches, which in turn formed four networks (joining all grassland habitat patches ≤50m apart).
- 4.22 The SSHEA search zone comprised a total area of 44.1ha, 0.4% of the land area of Jersey (Figure 4.22). Taking account of only those habitats considered suitable accounted for 4.0ha, 0.03% of the total land area of Jersey (Figure 4.23).
- 4.23 Within the additional wider search area (up to 500m) of 246.2ha, 2.1% of the land area of Jersey was identified as a means of selecting those areas within which sensitive site management (ie. agri-environmental schemes) is required (Figure 4.24). Within this search area, 58.3ha, 0.5% of the land area of Jersey, is considered suitable habitat for sensitive land management actions (Figure 4.25).

### **All SSHEA Combined - Prioritisation**

- 4.24 Inevitably, given that many of the key habitats addressed in this section occur in close proximity to one another, there is overlap between those areas identified as SSHEA Figure 4.26).
- 4.25 The total area covered by all five SSHEA is 3088.3ha (or 25.9% of the total land area of Jersey). Taking account of the numbers of habitat types for which a given SSHEA habitat patch has been identified as important (ie. the number of SSHEA each patch is included within), 59% of the total area has been identified as important for one of the five habitat types (woodland, heathland, grassland, dune or saltmarsh) (Table 4.1).

**Table 4.1 - Across all SSHEA. This Table Shows the Number of Different Habitats (1-4), The Total Area of Patches Within Each Set and The Percentage of Total Combined SSHEA Area**

Numbers of habitats	Area (ha)	% Total SSHEA Area
1	1815.6	58.8
2	1166.6	37.8
3	105.5	3.4
4	0.5	0.02

- 4.26 In addition, 38% of the total SSHEA area has been identified as important for two habitats (Table 4.1). Of this, 78.2% (912.8ha) of the patch area concerns the 'conflict' between woodland and grassland (Figure 4.27).
- 4.27 Of the remaining patch area, 14.1% (165ha) concerns the conflicting requirements of grassland and heathland, 2.8% (32.5ha) woodland and dunes, 2.4% (27.5ha) grassland and dunes, and 2.2% (25.5ha) woodland and heathland. The remaining 0.3% of the total area concerns conflicts between saltmarsh and dunes (1.9ha), heathland and dunes (0.6ha), woodland and saltmarsh (0.4ha), and grassland and saltmarsh (0.3ha).

- 4.28 Of the 3088.3ha of land selected as SSHEA across all five habitats, 3.4% (105.5ha) has been identified for three habitats concurrently (Figure 4.28; Table 4.1).
- 4.29 More specifically, 63.2% of the land area represents conflicts between woodland, grassland and heathland (Figures 4.30-4.34), 28.3% (29.9ha) between woodland, grassland and dune, 7.3% (7.7ha) between woodland, heathland and dune, and 1.0% (1.1ha) between grassland, saltmarsh and dune.
- 4.30 Finally, of the 3088.3ha of land selected as SSHEA across all five habitats, 3.4% (0.5ha) has been identified for four habitats concurrently (Figure 4.29).
- 4.31 More specifically, these patches have been identified as important for woodland, grassland, heathland and dune habitats simultaneously.
- 4.32 Taking account of all conflicting SSHEA requirements and extracting such patches from the SSHEA for each habitat inevitably reduces the size of the SSHEA for any given habitat type. In this regard, Table 4.2 provides the total area remaining for each habitat (excluding any patch identified as important for more than one habitat).

**Table 4.2 - Area of the SSHEA for Each Habitat Excluding all Patches for Which More Than One Habitat is Identified as Important**

Habitat	Unique SSHEA Area	% SSHEA
Woodland	1010.8	48.4
Grassland	729.8	37.7
Heathland	40.5	13.2
Saltmarsh	0.3	4.0
Dune	34.2	25.2

- 4.33 Resolution of conflicting requirements for the remainder of the total SSHEA area will require further investigation of the characteristics of each habitat patch in relation to its suitability for individual habitats, and its likely/desired role within the landscape. For instance, within a given SSHEA for an individual habitat, not all patches will need to be reverted to that habitat. Alternatively, and depending upon the role of the particular patch within the overall landscape matrix, individual patches may be of greater value as matrix habitats with the aim of improving the quality and permeability of the wider landscape matrix. In some cases, however, prioritisation of habitats will be necessary in order to determine which habitat should be the focus of a particular enhancement patch.



**Table 4.3 - Summary of Each Key Habitat Type Including the Total area of Patches, the Number of Patches, Number of Connected (<50m Distance) Networks, Total Area of SSHEA, Non-Conflict SSHEA Area and Percentage of the Total Combined SSHEA for Each Habitat**

Habitat Type	Existing Habitat			SSHEA		
	Total area	Patches	Networks	Total area	Non-conflict Habitat Area	% total SSHEA
Grassland	449.1	876	108	1933.9	729.8	37.7
Coastal heathland	118.8	257	34	306.8	40.5	13.2
Woodland	507.5	1061	121	2086.8	1010.8	48.4
Dunes	116.3	259	6	135.8	34.2	25.2
Saltmarsh	2.9	13	4	4	0.26	6.5

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1 - Les Landes

2 - North Coast

3 - Rozel

9 to 17 - Woodland Valleys

4 - Grouville


5 - St Ouens Bay

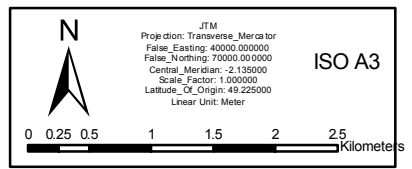
8 - South East Grasslands

6 - South West Coast

7 - Noirmont - Portelet

**Legend**

-  Environmentally Sensitive Areas (ESAs)
- Environmentally Sensitive Areas (ESAs)**
-  1, Les Landes
-  2, North Coast
-  3, Rozel
-  4, Grouville
-  5, St Ouens Bay
-  6, South West Coast
-  7, Noirmont - Portelet
-  8, South East Grasslands
-  9, St Aubins Valley
-  10, Beau Mont
-  11, St. Peter's Valley Complex
-  12, Waterworks valley link
-  13, Waterworks Valley
-  14, Vallee de Bellosanne
-  15, Le vallee des Vaux
-  16, Les Grands Vaux
-  17, Queen's Valley
-  SSIs
-  Jersey\_Outline



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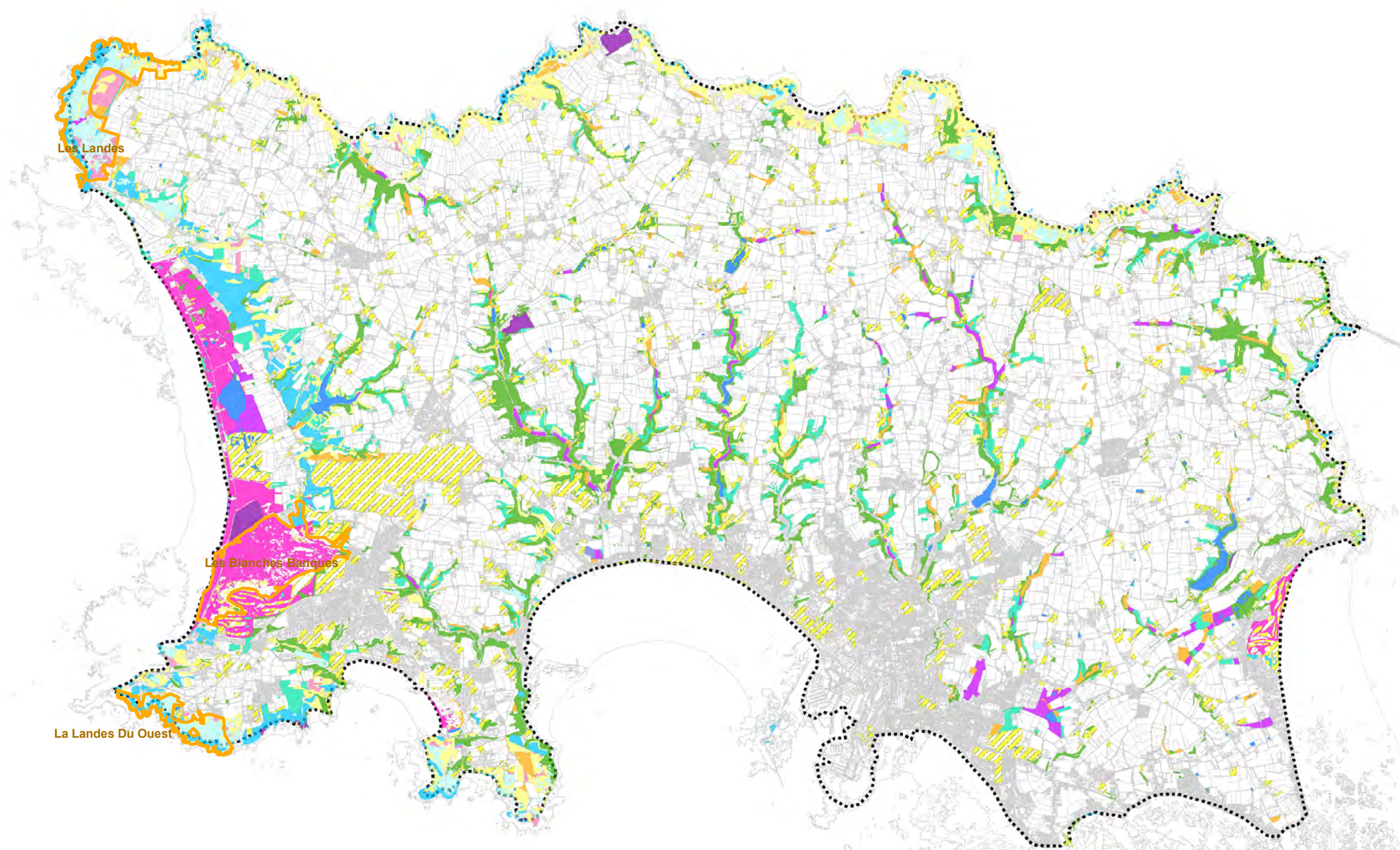
Project Name: Jersey PESAP Project  
 Discipline: Ecology

**Environmentally Sensitive Areas (ESAs)**

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Drawn By: JS	Originator: GJH
Date: JUNE 2010	Revision: A
PAA Ref: G:\JIDC22_Jersey_PESAP_Project\Map\St Jersey 2008	



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- Legend**
- SSIs
  - Key Habitat Area (KHA) Type:**
  - 1a Grassland (Acid with/without bracken, scrub, trees)
  - 1b Grassland (Marshy with/wo bracken, scrub, trees, other)
  - 1c Grassland (Neutral with/without )
  - 1d Grassland (Coastal w/o other coastal habitats)
  - 1e Grassland (Other)
  - 3 Heathland (Coastal w/o other coastal habitats)
  - 5b Scrub
  - 2 Bracken
  - 4 Woodland
  - 4a (broad leaved plantation)
  - 4b (bl. semi-natural)
  - 4c (conifer plantation)
  - 4d (mixed conifer / bl plantation)
  - 4e (other woodland)
  - 6 - Dune communities
  - 7 - Ruderal
  - 8 - Open water
  - 9 - Saltmarsh
  - 10 - Strandline
  - 11 - Quarry
  - 12 - Amenity grassland ( including Airport)

Projection: JTM  
 False\_Easting: 40000.000000  
 False\_Northing: 70000.000000  
 Central\_Meridian: -2.135000  
 Scale\_Factor: 1.000000  
 Latitude\_Of\_Origin: 49.225000  
 Linear Unit: Meter

ISO A3

0 0.3 0.6 1.2 1.8 Kilometers



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Project Name  
**Jersey PESAP Project**

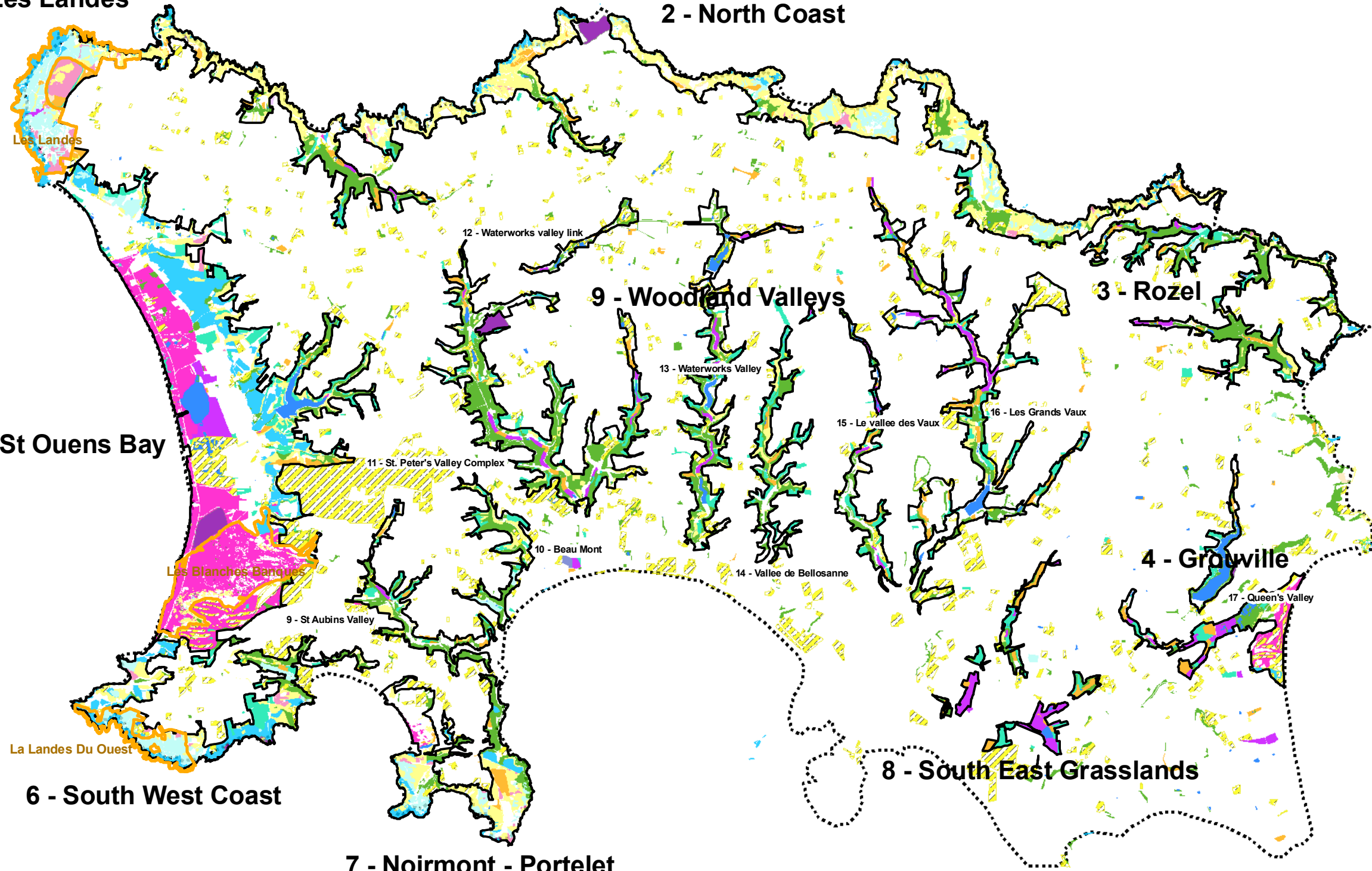
Discipline  
Ecology

**Key Habitat Zones (KHAs)**

Scale	1:57,000	Drawing No.	Figure 3-2
Drawn By	JS	Originator	PA/GJH
		Date	JUNE 2010
PAA Ref.	G:\JDC22	Revision	A
Jersey_PESAP_Project\Maps\US1 Jersey 2010			

**1 - Les Landes**

**2 - North Coast**



**5 - St Ouens Bay**

**9 - Woodland Valleys**

**3 - Rozel**

**4 - Grouville**

**8 - South East Grasslands**

La Landes Du Ouest

**6 - South West Coast**

**7 - Noirmont - Portelet**

**Legend**

- SSIs
- Environmentally Sensitive Areas (ESAs)

**Key Habitat Area (KHA) Type:**

- 1a Grassland (Acid with/without bracken, scrub, trees)
- 1b Grassland (Marshy with/wo bracken, scrub, trees, other)
- 1c Grassland (Neutral with/without)
- 1d Grassland (Coastal w/o other coastal habitats)
- 1e Grassland (Other)
- 3 Heathland (Coastal w/o other coastal habitats)
- 5b Scrub
- 2 Bracken
- 4 Woodland
- 4a (broad leaved plantation)
- 4b (bl. semi-natural)
- 4c (conifer plantation)
- 4d (mixed conifer / bl plantation)
- 4e (other woodland)
- 6 - Dune communities
- 7 - Ruderal
- 8 - Open water
- 9 - Saltmarsh
- 10 - Strandline
- 11 - Quarry
- 12 - Amenity grassland (including Airport)

North arrow and scale bar (0 to 1.8 Kilometers).  
 Projection: Transverse\_Mercator  
 False\_Easting: 40000.000000  
 False\_Northing: 70000.000000  
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 Linear Unit: Meter  
 ISO A3

States of Jersey logo

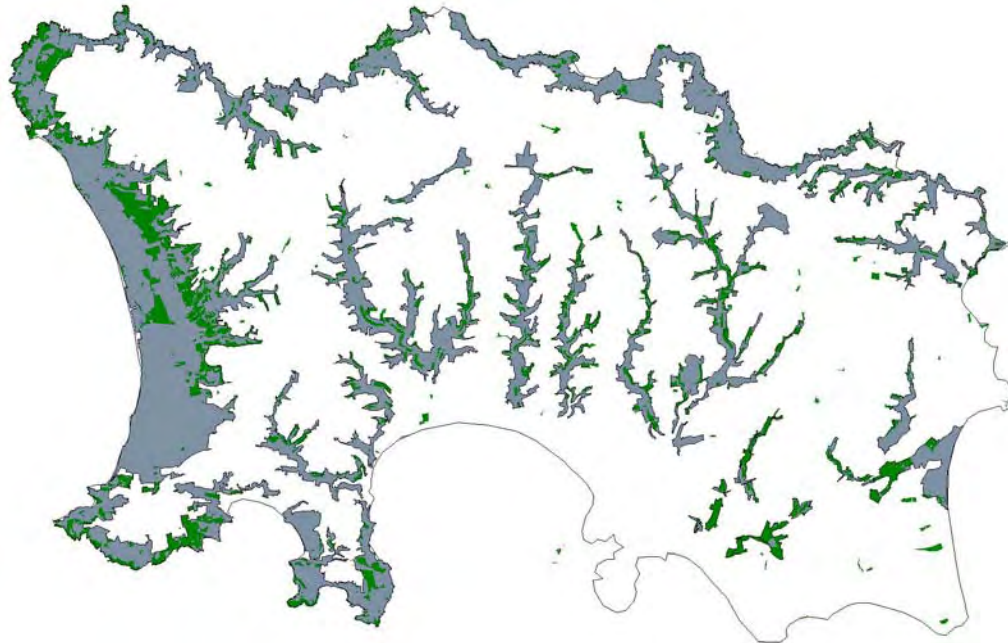
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Project Name: Jersey PESAP Project  
 Discipline: Ecology  
 Title: Key Habitat Zones (KHAs) and ESAs

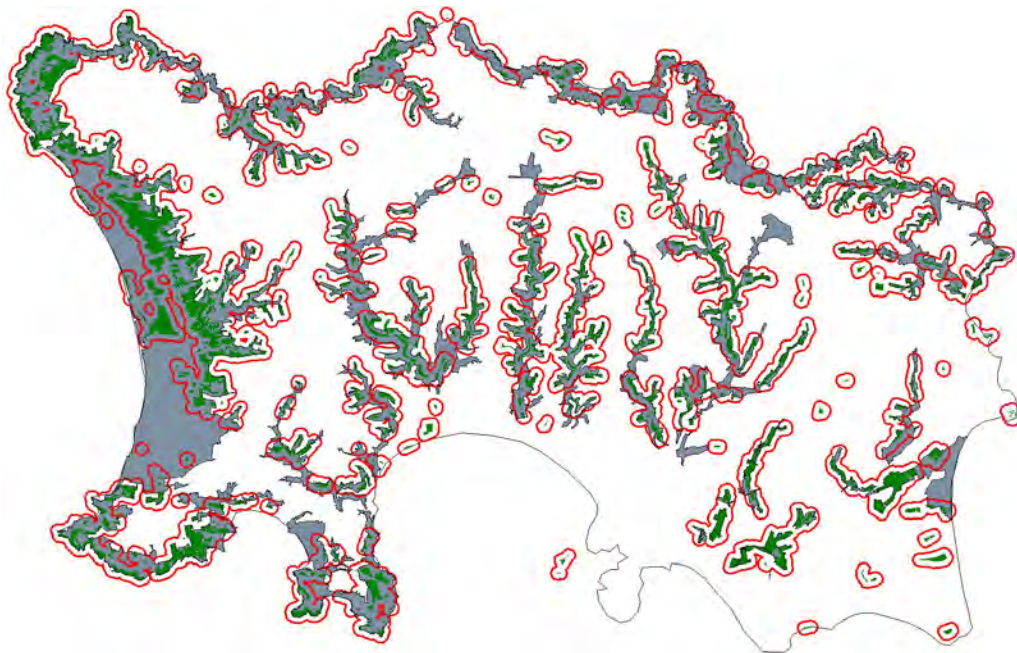
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Drawn By: JS	Originator: PA/GJH Date: JUNE 2010
PAA Ref: Jersey_PESAP_Project/Maps/US1_Jersey 2010	Revision: A

**Opportunity Mapping**

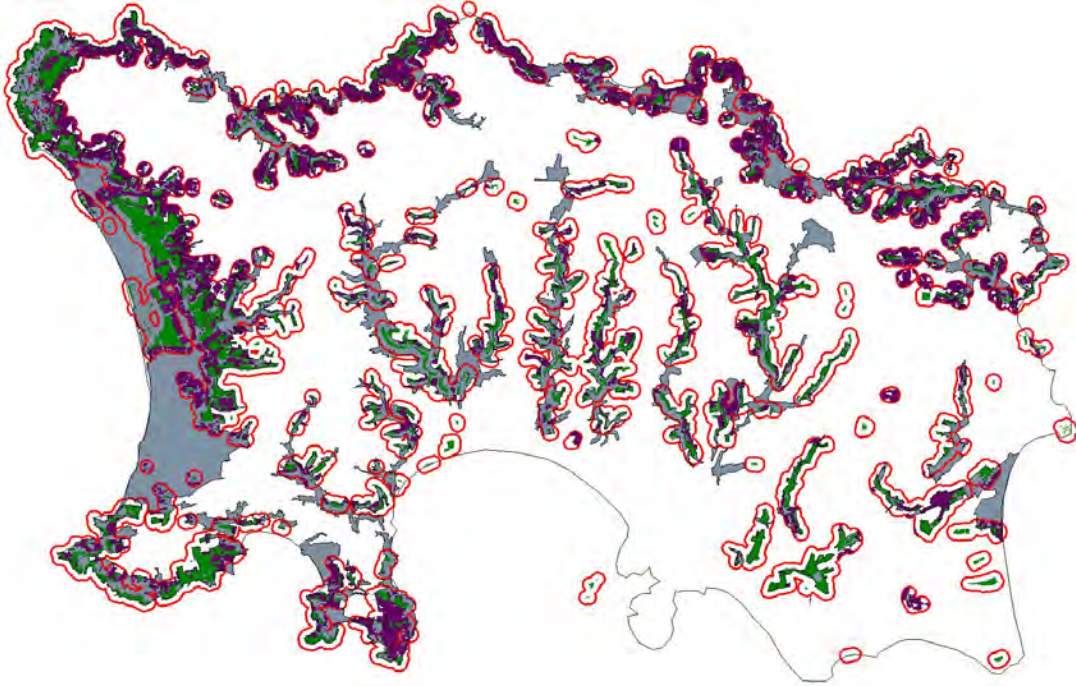
**Figure 4-1: Grassland patch network overlaid on ESAs (grey).**



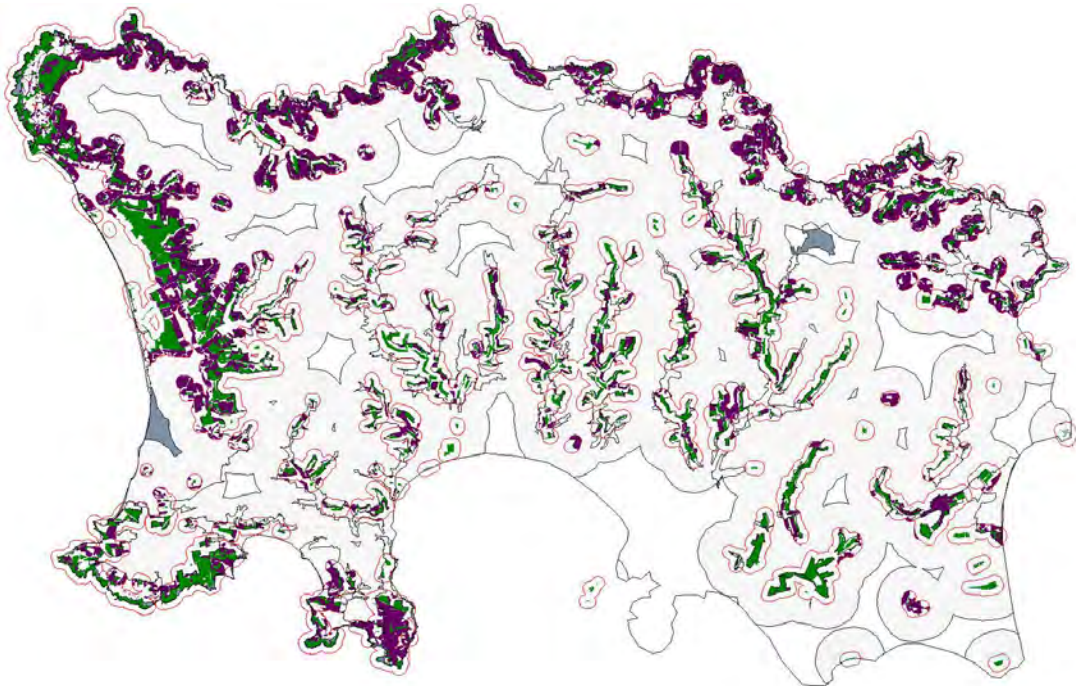
**Figure 4-2: Stepping Stone Habitat Enhancement Area search zone (red line indicating the 100 buffer of each grassland habitat patch). Completed polygons represent individual grassland networks following targeted habitat enhancement.**



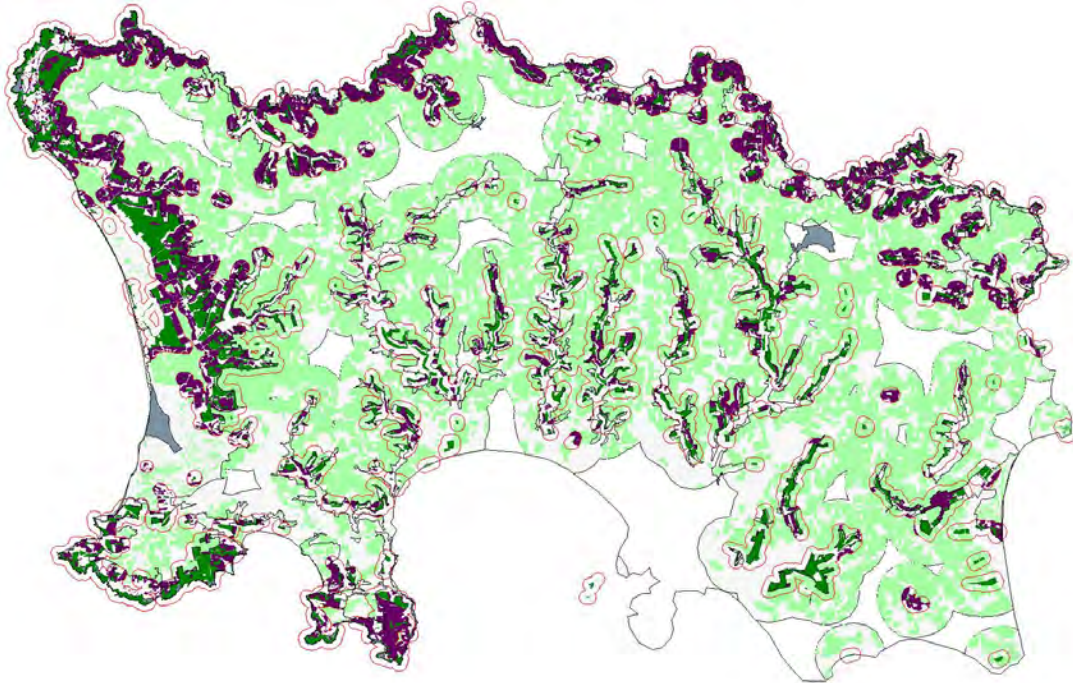
**Figure 4-3: SSHEAs identified within the stepping stone search area (purple) for grassland habitat enhancement/restoration/(re)creation.**



**Figure 4-4: Grassland network buffer zone (dotted area). These areas are those considered important for the targeting of sensitive management activities (i.e agri-environment schemes) and the imposition of planning constraints related to key habitats.**

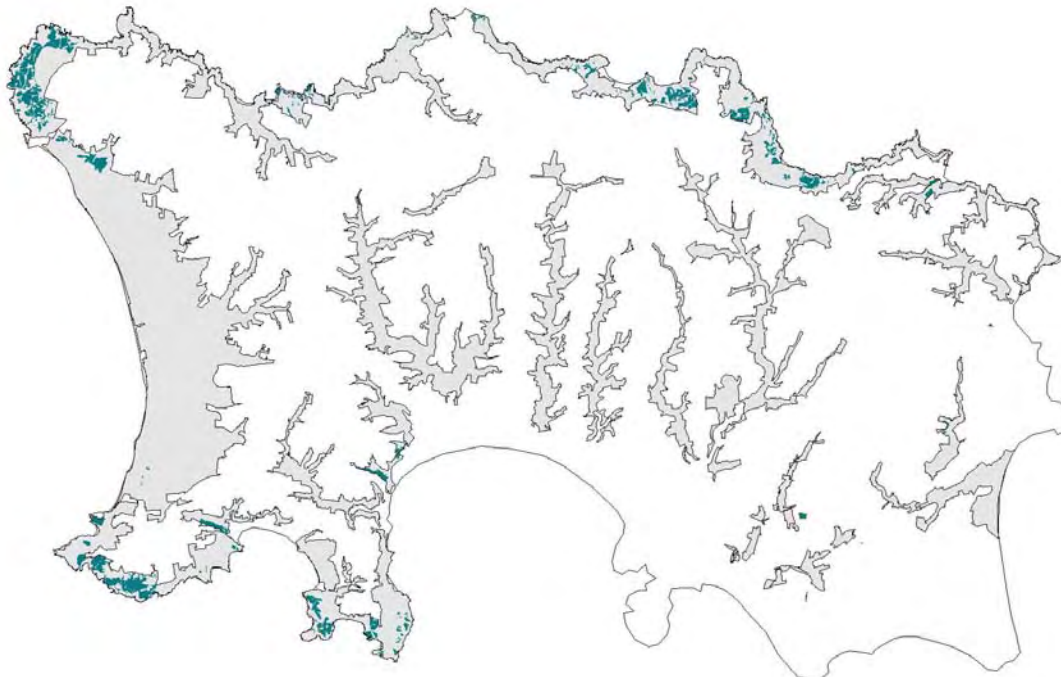


**Figure 4-5: Grassland network target habitat patches within the buffer (specific target patches for sensitive management to increase matrix hospitability/ permeability for grassland species).**

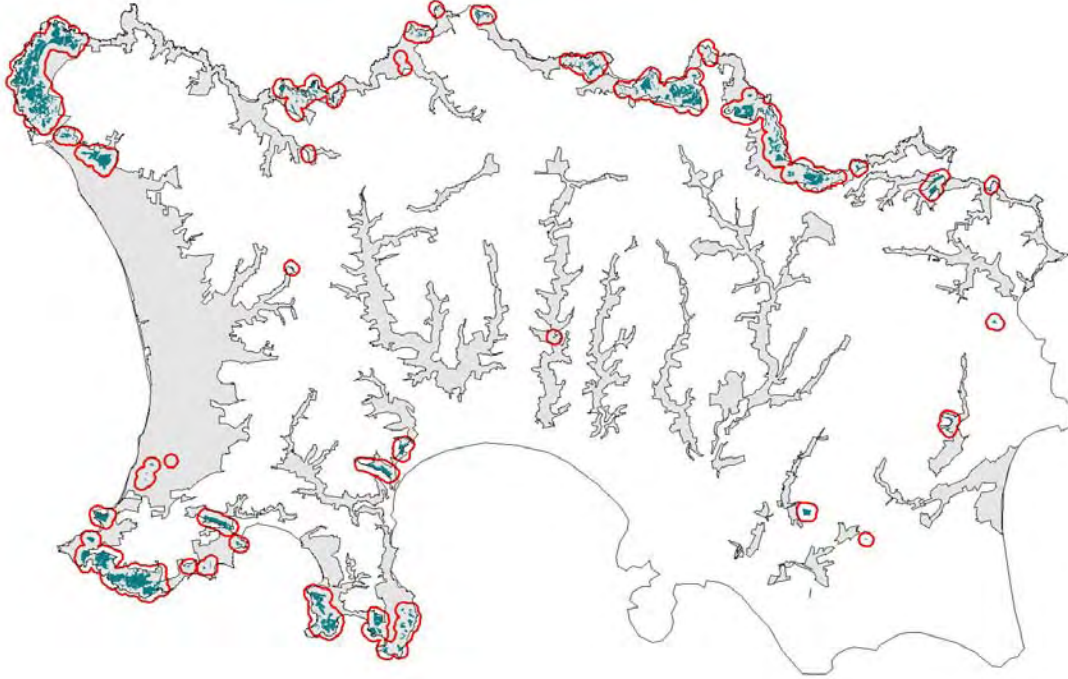


**Coastal heathland**

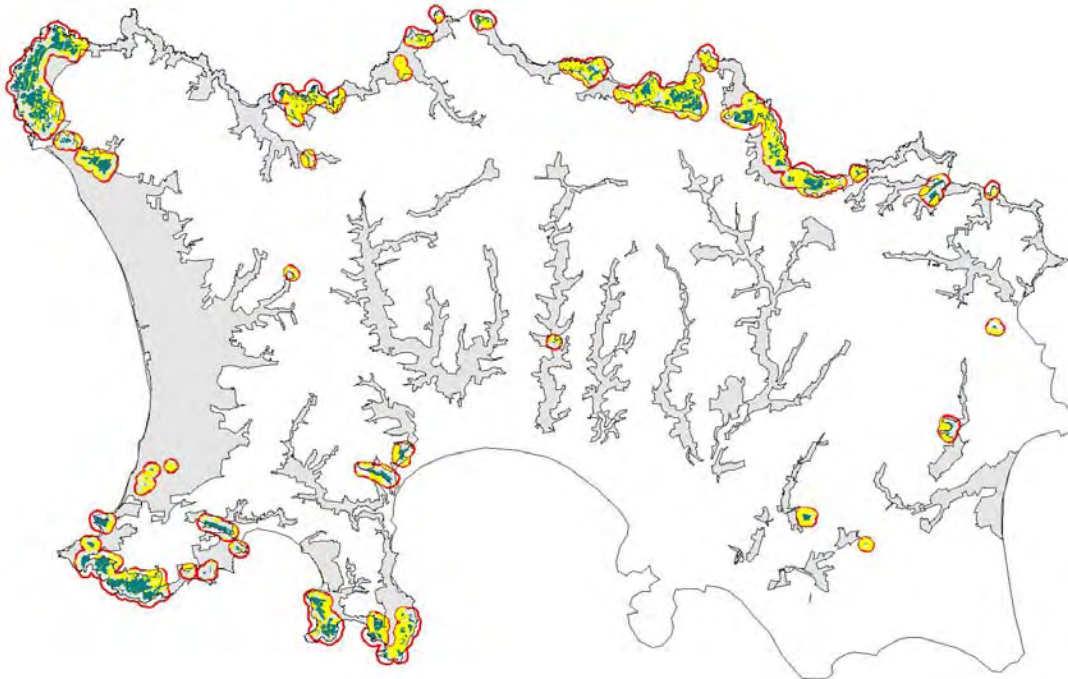
**Figure 4-6: Heathland patch network overlaid on ESAs (grey).**



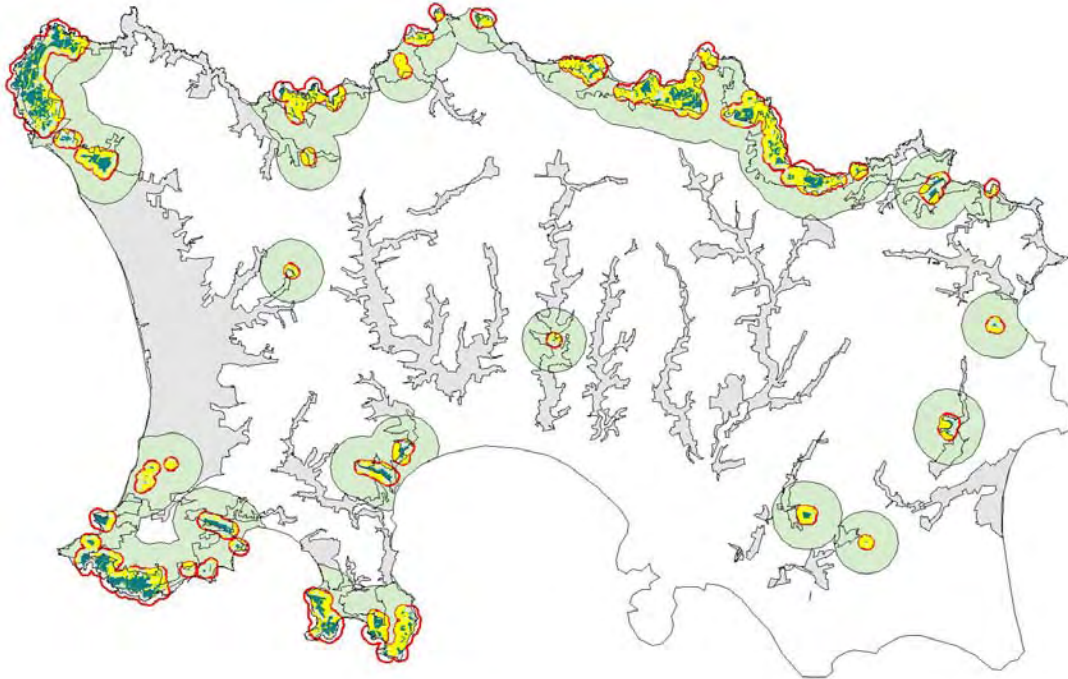
**Figure 4-7: SSHEA search zone (red line indicating the 100 buffer of each heathland habitat patch). Completed polygons represent individual grassland networks following targeted habitat enhancement.**



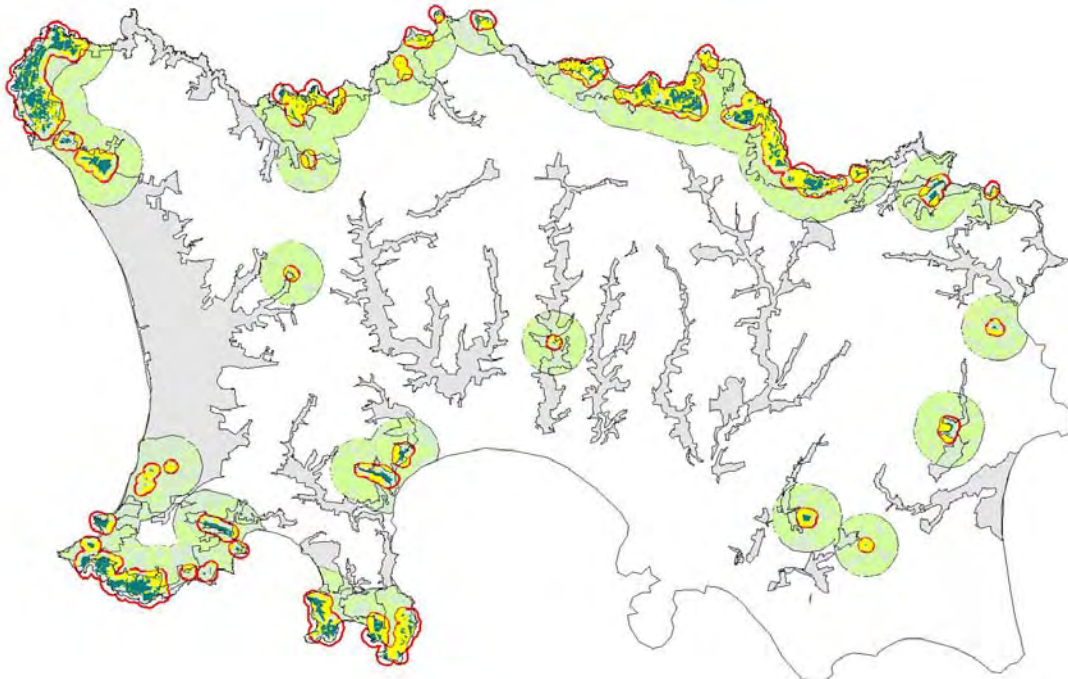
**Figure 4-8: SSHEAs identified within the stepping stone search area (purple) for heathland habitat enhancement/restoration/(re)creation.**



**Figure 4-9: Heathland network buffer zone (dotted area). These areas are those considered important for the targeting of sensitive management activities (i.e agri-environment schemes) and the imposition of planning constraints related to key habitats.**

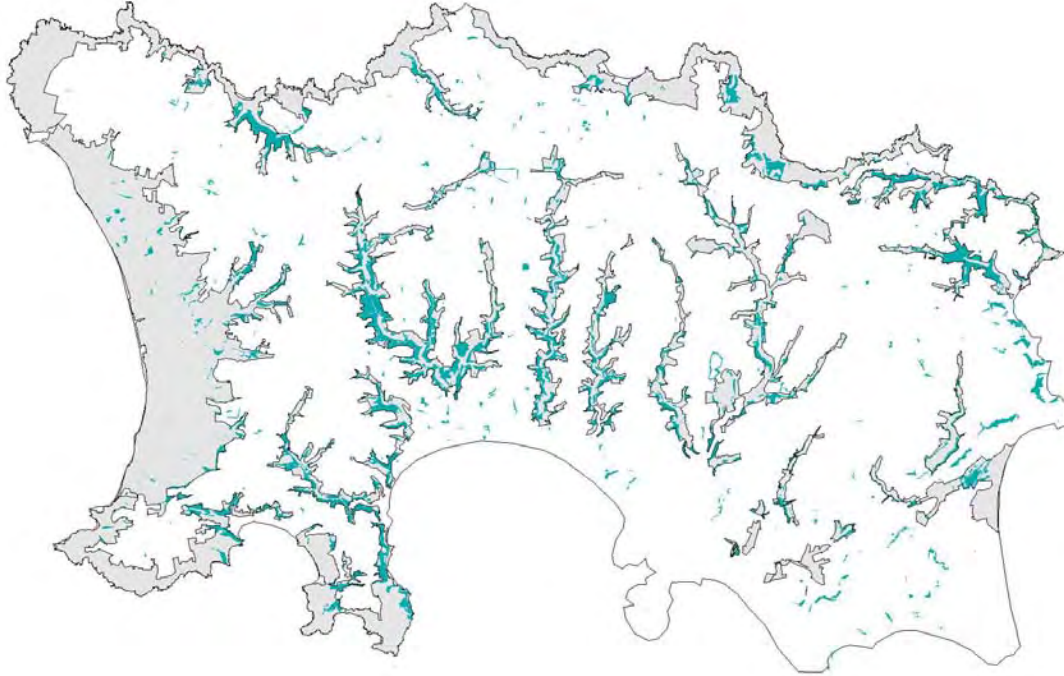


**Figure 4-10: Heathland network target habitat patches within the buffer (specific target patches for sensitive management to increase matrix hospitability/permeability for heathland species).**

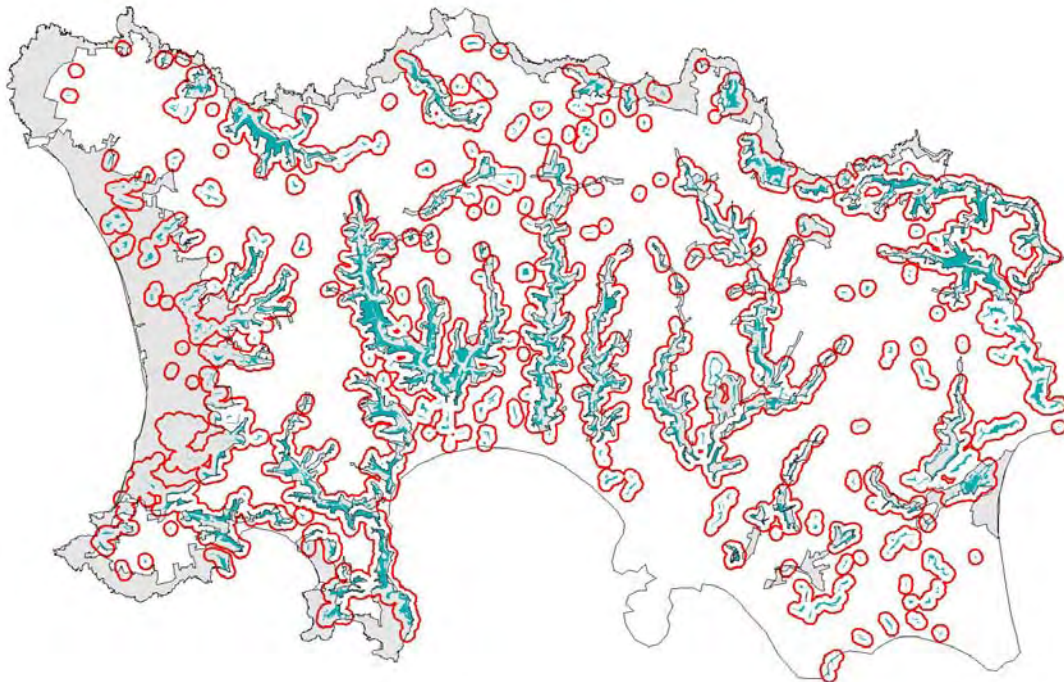


**Woodland Networks**

**Figure 4-11: Woodland patch network overlaid on ESAs (grey).**

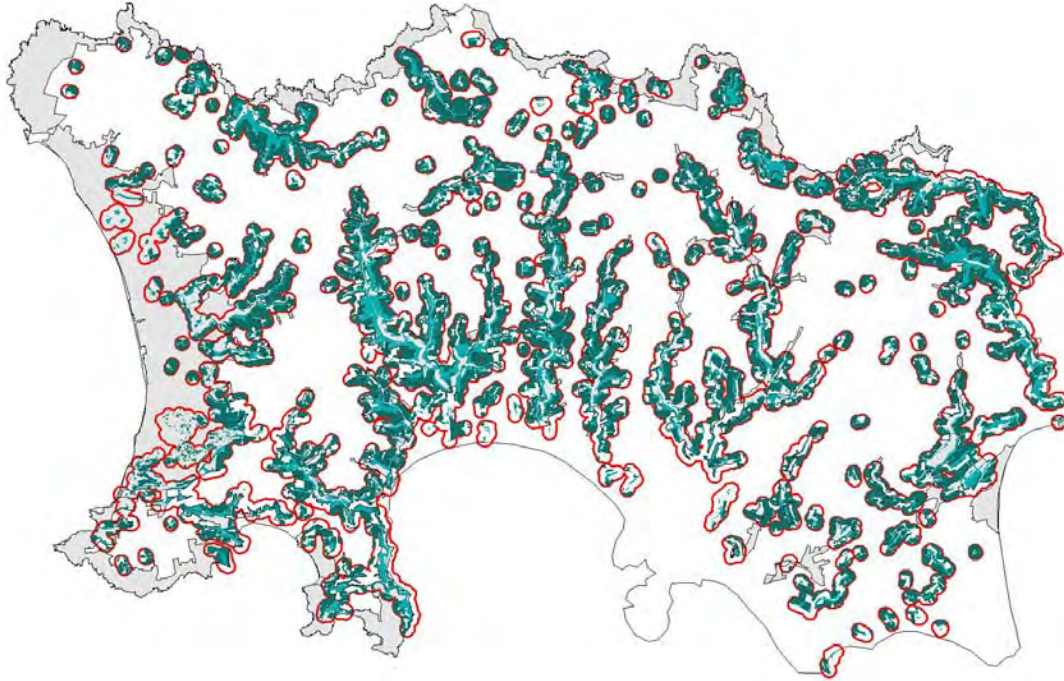


**Figure 4-12: SSHEA search zone (red line indicating the 100 buffer of each woodland habitat patch). Completed polygons represent individual woodland networks following targeted habitat enhancement.**

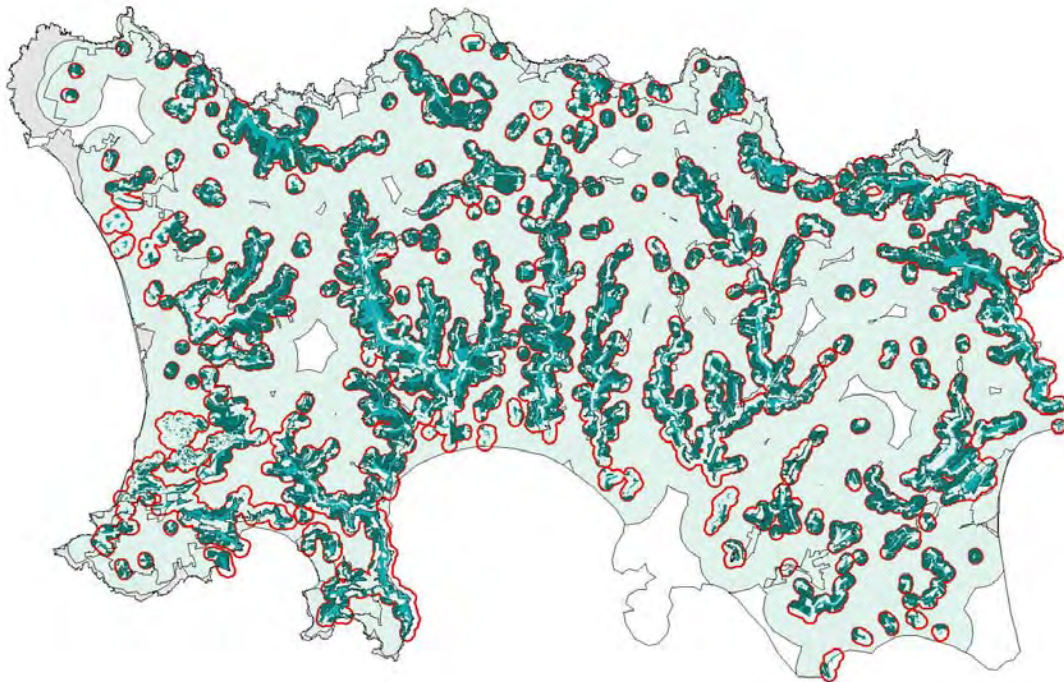




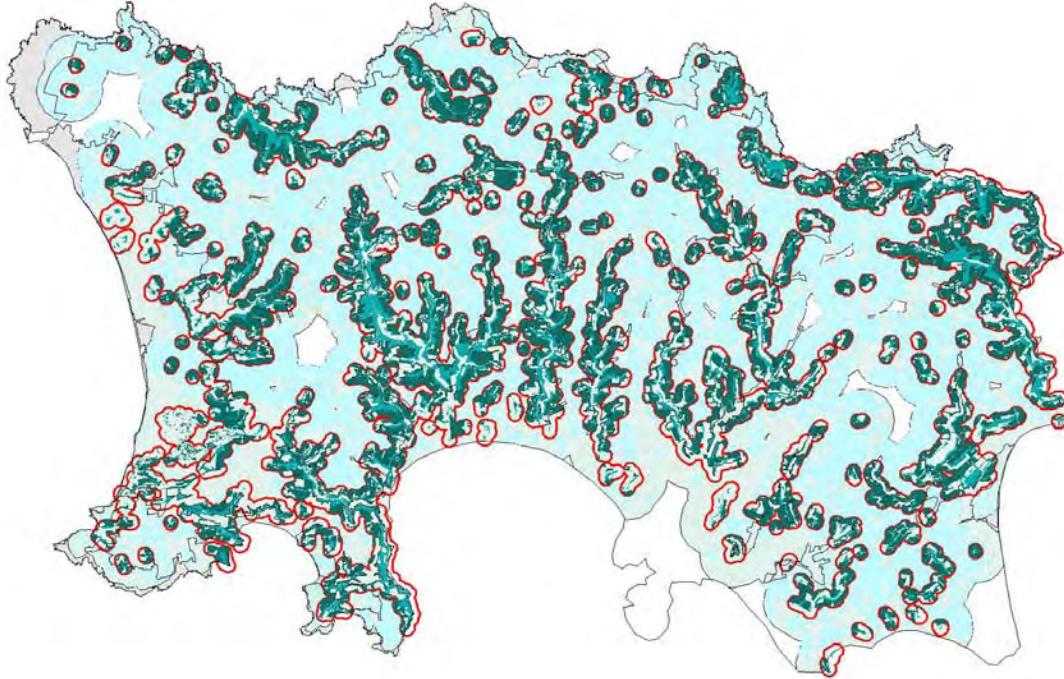
**Figure 4-13: SSHEAs identified within the stepping stone search area (purple) for woodland habitat enhancement/restoration/(re)creation.**



**Figure 4-14: Woodland network buffer zone (dotted area). These areas are those considered important for the targeting of sensitive management activities (i.e agri-environment schemes) and the imposition of planning constraints related to key habitats.**

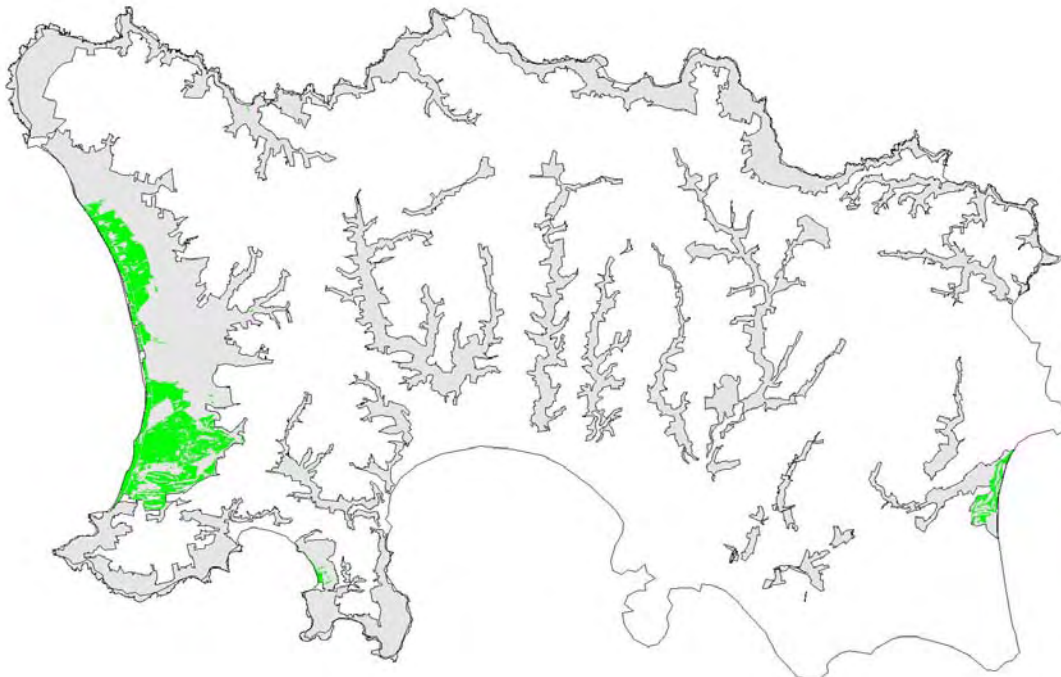


**Figure 4-15: Woodland network target habitat patches within the buffer (specific target patches for sensitive management to increase matrix hospitability/permeability for woodland species).**

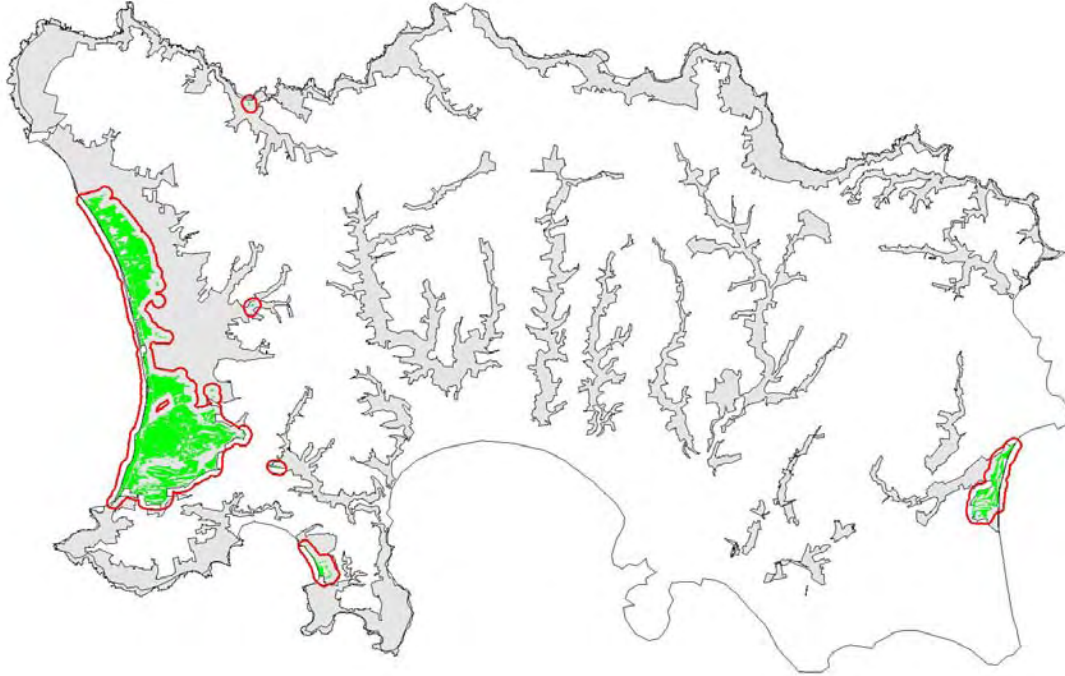


**Dune Habitats**

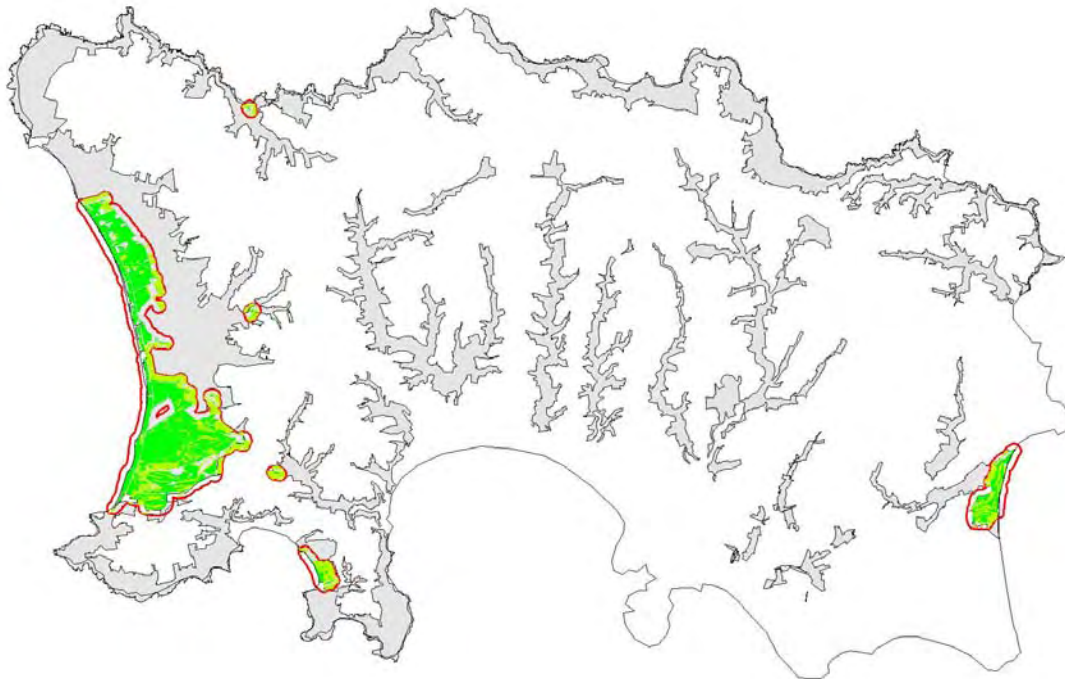
**Figure 4-16: Dune patch network overlaid on ESAs (grey).**



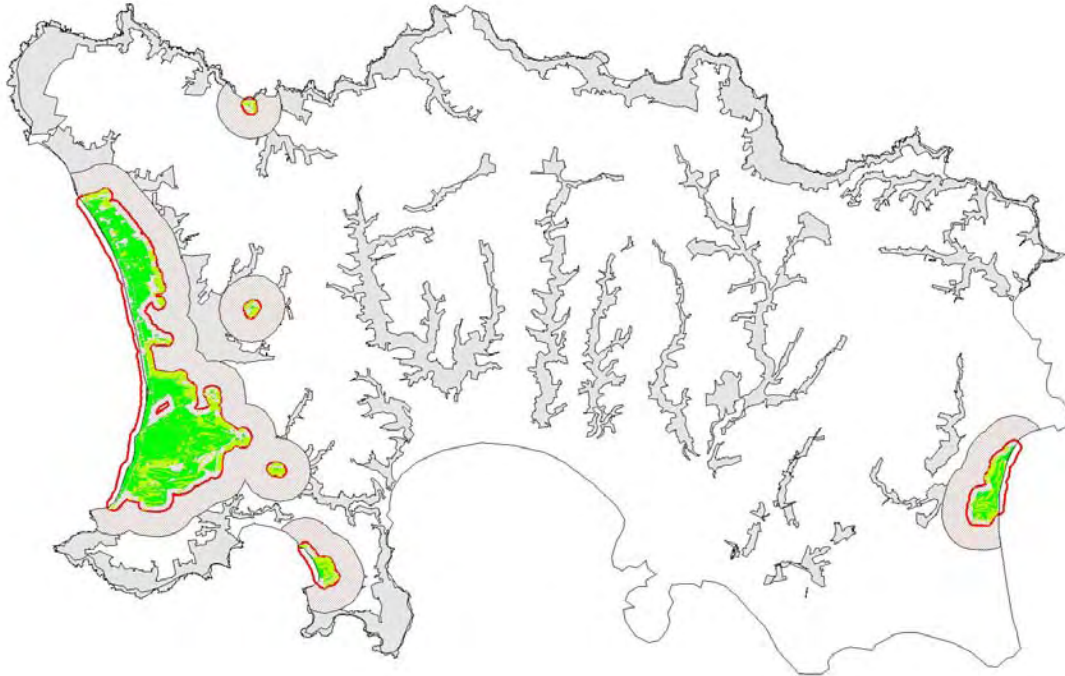
**Figure 4-17: SSHEA search zone (red line indicating the 100 buffer of each dune habitat patch). Completed polygons represent individual dune networks following targeted habitat enhancement.**



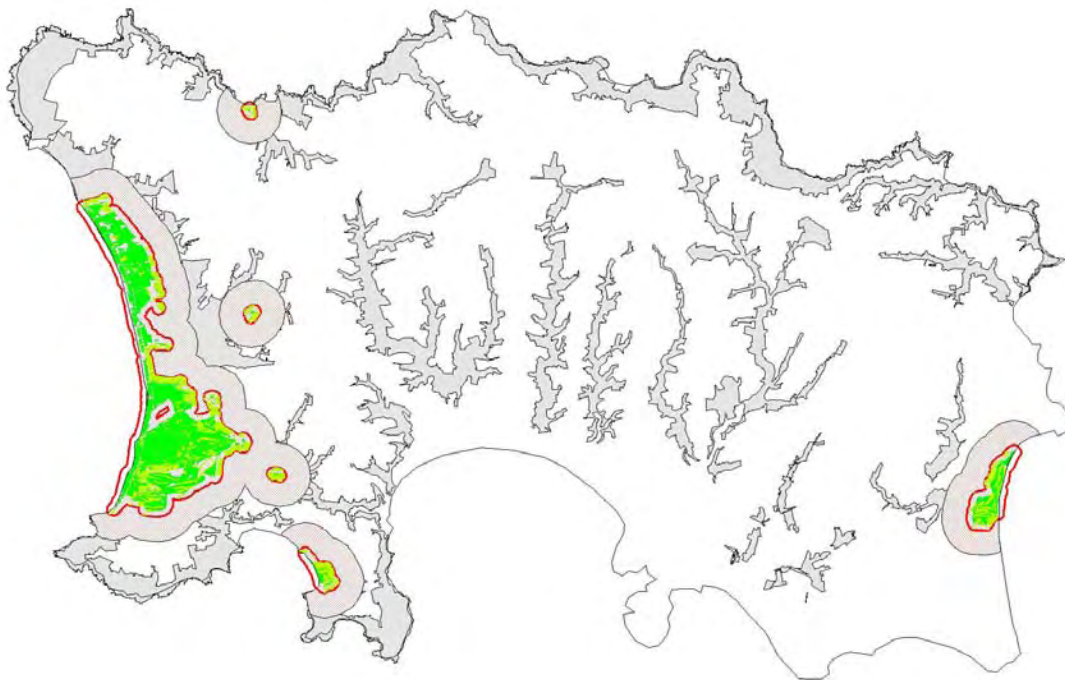
**Figure 4-18: SSHEAs identified within the stepping stone search area (purple) for dune habitat enhancement/restoration/(re)creation.**



**Figure 4-19: Dune network buffer zone (dotted area). These areas are those considered important for the targeting of sensitive management activities (i.e agri-environment schemes) and the imposition of planning constraints related to key habitats.**



**Figure 4-20: Dune network target habitat patches within the buffer (specific target patches for sensitive management to increase matrix hospitability/permeability for dune species).**



**Saltmarsh Habitats**

**Figure 4-21: Saltmarsh patch network overlaid on ESAs (grey).**



**Figure 4-22: SSHEA search zone (red line indicating the 100 buffer of each saltmarsh habitat patch). Completed polygons represent individual dune networks following targeted habitat enhancement.**



**Figure 4-23: SSHEAs identified within the stepping stone search area (purple) for saltmarsh habitat enhancement/restoration/(re)creation.**



**Figure 4-24: Saltmarsh network buffer zone (dotted area). These areas are those considered important for the targeting of sensitive management activities (i.e. agri-environment schemes) and the imposition of planning constraints related to key habitats.**



**Figure 4-25: Saltmarsh network target habitat patches within the buffer (specific target patches for sensitive management to increase matrix hospitability/permeability for saltmarsh species).**

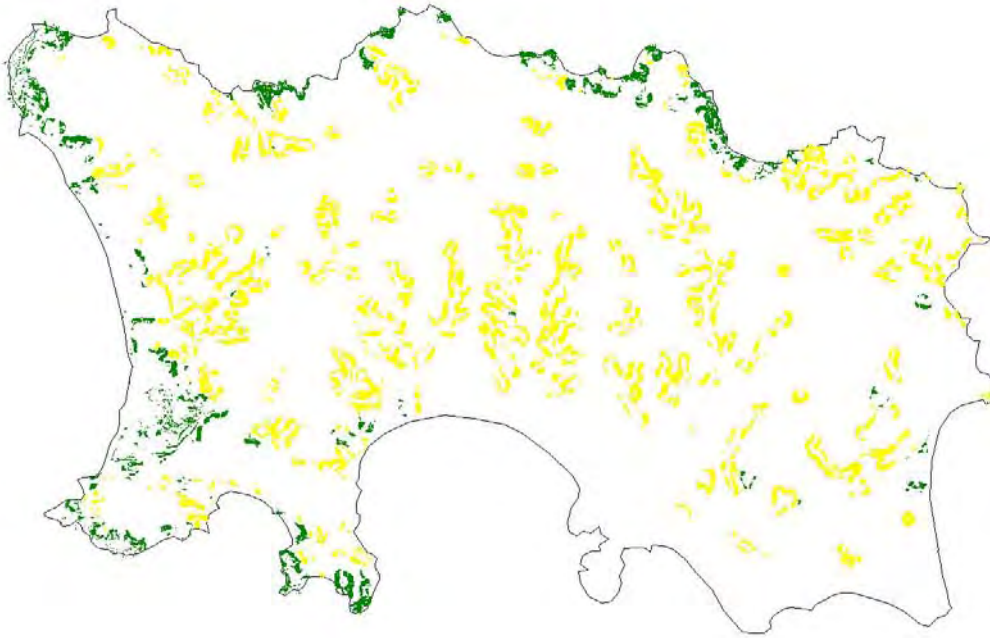


**Priorities for the SSHEA**

**Figure 4-26. Combined SSHEA for all habitat types colour coded according to the number of habitats per patch (palest brown = 1 habitat; darkest = four habitats).**



**Figure 4-27. Areas of the combined SSHEA area where there is a conflict between two of the five habitat types. Yellow areas refer to conflicts between woodland and grassland habitats (yellow). Green shaded patches refer to other habitat conflicts.**

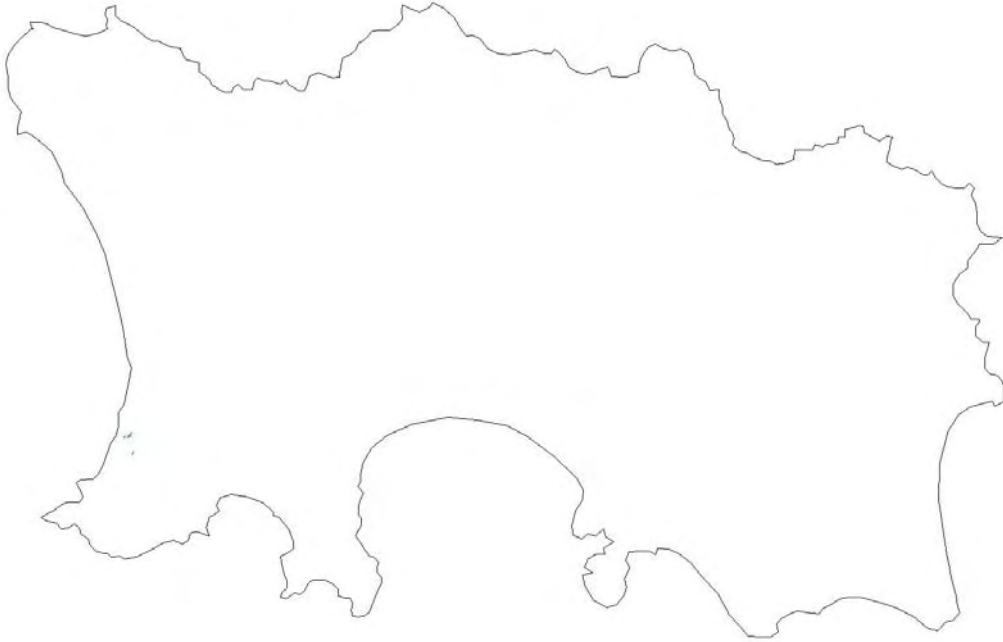


**Figure 4-28. Areas of the combined SSHEA area where there is a conflict between three of the five habitat types. Dark grey: woodland/grassland/heathland. Pale grey: woodland/grassland/dune. Pale red: grassland/saltmarsh/dune. Dark red: woodland/heathland/dune.**

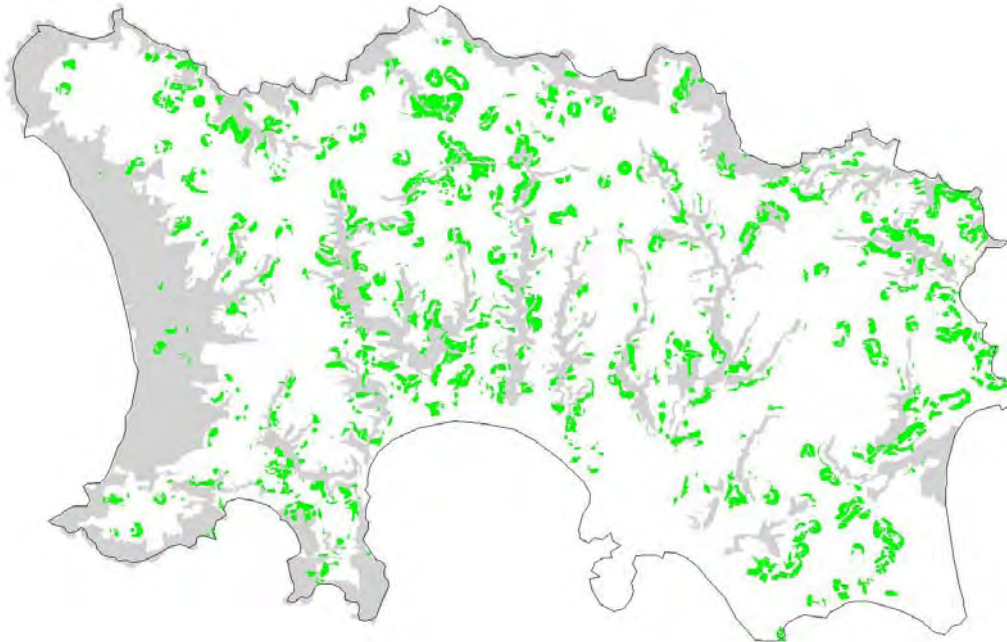




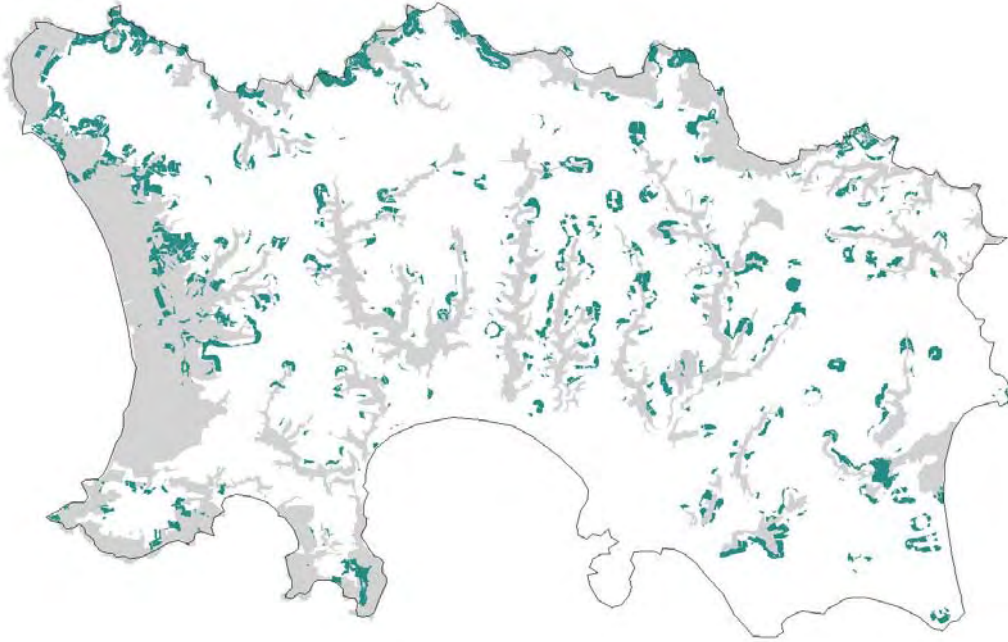
**Figure 4-29. habitat patches selected as SSHEA for four of the five habitats concurrently.**



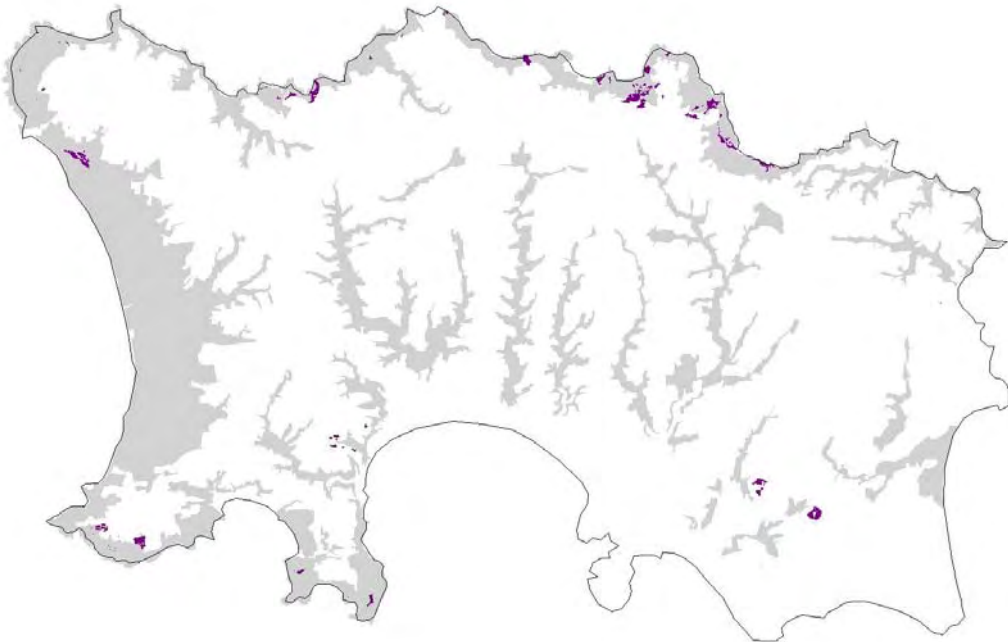
**Figure 4-30. Unique woodland SSHEA.**



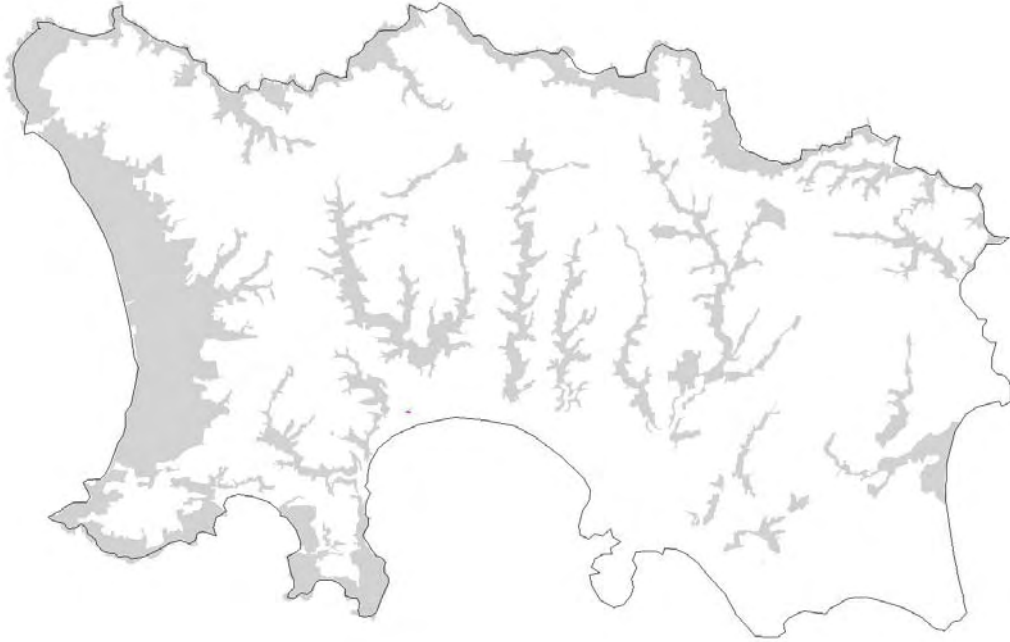
**Figure 4-31. Unique grassland SSHEA.**



**Figure 4-32. Unique heathland SSHEA.**



**Figure 4-33. Unique saltmarsh SSHEA.**



**Figure 4-34. Unique dune SSHEA.**

