

Appendix 1 – Consultation record

Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Moray Council – Gary Templeton	23 Aug 2017	27 Sept 2017	Several issues raised in email.	FCS copied into email response on 20 Oct 2017.
Scottish Natural Heritage – Shirley Reid & Mike Smedley	Meeting in FES office, 23 Jan 2014 Consultation on final draft 23 Aug 2017	3 Oct 2017	See meeting notes below Several issues raised in email.	Environment colleagues discussed issues with SNH and LMP revised to reflect these discussions.
Scottish Environment Protection Agency – Bevis Winter	23 Aug 2017	No response to date		
Royal Society for the Protection of Birds – Steph Elliott	Meeting on site, 24 Jan 2014 Consultation on final draft 23 Aug 2017	6 Oct 2017	See meeting notes below Several issues raised in email.	FCS copied into email response on 20 Oct 2017.
Dyke Landward Community Council	23 Aug 2017	No response to date		

Forest Run Series organiser	23 Aug 2017	No response to date		
Ministry of Defence	23 Aug 2017	No response to date		
Moravian Orienteers	23 Aug 2017	28 Sept 2017	Several issues raised in email.	FCS copied into email response on 20 Oct 2017.
SDAS (Sled dog rallies)	23 Aug 2017	No response to date		
Scottish Endurance Rides	23 Aug 2017	No response to date		
SSHC (Sled dog rallies)	23 Aug 2017	No response to date		
Wildthings (Bushcraft)	23 Aug 2017	No response to date		
Community woods association		2 Oct 2017	Several issues raised in email.	FCS copied into email response on 20 Oct 2017.
Members of the public	Posters put up at all main entrances giving details of consultation on FES website.			

Culbin SSSI / Forest Plan Meeting
21st January 2014
FCS Office Huntly

Present: Philippa Murphy (FCS), Alan Campbell (FCS), Mark Reeve (FCS), Shirley Reid (SNH), Mike Smedley (SNH)

Introduction

The forest plan for Culbin is under review as part of the standard 10 year review. The current SSSI plan is incorporated in to the forest plan and is therefore due for review. The new SSSI plan will form an appendix to the new forest plan.

1. Choice of Tree Species

There are currently large areas of Corsican Pine within the Culbin forest plan area and these are to varying levels, infected with Dothistroma Needle Blight (DNB). The plan is to remove the Corsican Pine but issues are what to replace it with. Agreed that we maintain Scots Pine on the most important areas for the conservation of pinewood specialist plants, fungi etc but that there would be scope to use other species (Birch, Larch, Douglas Fir) where suited to site.

AP SNH to forward results (particularly maps / locations) from 2014/15 cycle of SCM of vascular plant interest to FES as soon as practical (due summer 2014)

2. Wet Woodland

The west end of Culbin forest near to Loch Loy and Cran Loch is very wet and succeeding to wet woodland. Significant investment would be needed to drain this area effectively to allow thinning operations. FES intend to identify wettest areas and manage this area as natural reserve. Allowable operations would include deer control, removal of exotics/INNS and dealing with any dangerous trees within risk zone of roads/trails.

AP FES to survey and map extent of wettest area for inclusion in forest plan

3. Coastal Strip

The previous forest plan has a commitment to maintain a strip clear from trees at the forest / dunes interface. This strip is needing cleared again and will be incorporated into the next thinning cycle (2014/15)

AP FES to ensure this requirement is included in the workplan for the next thinning operation

4. Lichens

The main threat to the condition of the lichen interest in Culbin is shading from trees. The lichen beds would benefit from an increased thinning intensity and maintenance of open space / clearings.

AP FCS to ensure this prescription is included within the workplan for the next thinning of affected coupes

5. Great Crested Newt

FCS has a commitment within the business plan for the period 2014/15 to carry out an amphibian survey of all open water in Culbin Forest. This survey will inform management works to improve the pond and inter-pond habitat (shallowing of gradient into ponds, removing excessive shading, vegetation, creating deadwood piles etc) for amphibians, including great crested newt.

6. Invasive Non-Native Species (INNS)

There is a recognised increase in INNS in Culbin, particularly Giant Hogweed. FCS has a rolling programme of control.

AP FCS to discuss joint working on INNS, scrub with Steph Elliot @ RSPB Scotland

7. Scrub Control

A large amount of scrub (whins, gorse, Birch etc) was cleared in 2012 and 2013. Agreement that during the current thinning operation, the forwarder could be utilised to extract cut material from the dunes and deposit within the surrounding pine stands.

FCS requested whether it would be acceptable to SNH for chemical to be used on cut stumps and to control future scrub growth. This would be applied either using paint brushes or using weed-wipers which would reduce drift and contamination of dune vegetation. This would be acceptable.

8. Recreational Pressure / Damage to SSSI features

A combination of pedestrian, horse riding and illegal vehicular access are causing damage to the salt marsh. FES will look at options to encourage people to use path within forest and engage with RSPB and Highland Council to address access issues from Kingsteps

AP FES to initiate meeting with RSPB and Highland Council

P Murphy
23/1/14

Culbin Forest Plan Meeting
24st January 2014
On site

Present: Alan Campbell (FCS), Mark Reeve (FCS), Steph Elliott (RSPB)

Roosting birds/increasing high tides - We discussed felling/thinning an area of trees along the forest/saltmarsh boundary to give more room for roosting birds during exceptional high tide/surge. This could be done during our normal thinning operations over a number of years to replace the existing forest/saltmarsh hard boundary with a more natural transitional habitat. We will look into the possibility of having a trial as/when a harvester becomes available. I will contact our operations colleagues and get back to you.

Ownership of sand bars - You indicated that RSPB believes that FCS owns more of the bars at Culbin than was thought. We will check this out with our land agent to ascertain if we own this 'extra' land. If so RSPB may wish to buy/lease bar from us to add to the reserve area?

Volunteers - Discussed the possibility of FCS using RSPB volunteers to carry out conservation projects on land adjacent to the reserve that would be beneficial to FCS and RSPB. I will look into this from an FCS perspective and hopefully discuss with you further in due course. It may be that if FCS finds volunteers these could also be shared with RSPB at Culbin.

Damage to saltmarsh from Equestrian interests - Ongoing problem. We will check to see if we have any local horse riding contacts that could be included in consultation regarding the management plan in order to press home the message of the damage horses do to the fragile saltmarsh habitat.

Permissions granted to forest users - It may be that RSPB should be consulted more often regarding access permissions granted by FCS for access through the forest for activities around/on the saltmarsh. We also need to issue an appropriate permission to allow continued RSPB access.

A Campbell
24/01/14

Appendix 2 – Tolerance table

	Adjustment to Felling period	Adjustment to felling coupe boundaries	Timing of restocking	Change to species	Changes to roadlines	Designed open space	Windblow Clearance
FC Approval not normally required	Fell date can be moved within 5 year period and between phase 1 and phase 2 felling periods where separation or other constraints are met	Up to 10 % of coupe area	Normally up to 2 planting seasons after felling. Where hylobius levels are high up to four planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised.	Change within species group e.g. conifers, broadleaves.		Increase by up to 5% of coupe area	
Approval by exchange of letters and map		Up to 15 % of coupe area	Between 2 and 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised.		Additional felling of trees not agreed in plan Departures of more than 60m in either direction from centre line of road.	Increase by up to 10%. Any reduction in open ground within coupe area.	Up to 5 ha
Approval by formal plan amendment may be required	Advanced felling (phase 3 or beyond) into current or 2 nd 5 year period	More than 15% of coupe area	More than 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised.	Change from specified native species. Change between species group.	As above depending on sensitivity.	More than 10% of coupe area. Colonisation of open areas agreed as critical.	More than 5 h

Appendix 3 – Visitor experience plan

Culbin

Visitor Experience Plan

Version 2.1

March 2016

Paul Hibberd
FCS Interpretation Officer

*In 1686 a great storm smothered the fertile farmlands of Culbin with sand;
some say this was the result of the laird playing cards with the devil on a Sunday.*

1 Introduction

This planning exercise was commissioned by Moray & Aberdeenshire forest district, to review the current visitor experience within Culbin forest, and to identify opportunities to improve it.

The plan reviews the current visitor experience, infrastructure and facilities in and around the Forestry Commission Scotland (FCS) managed area of Culbin forest. The plan recommends actions for FCS to take forward, in order to maintain and improve the visitor experience.

1.1 About Culbin

1.1.1 Natural & Cultural Heritage

Culbin forest is a large coastal pine woodland, covering 3100 hectares. The area has a rich history, from Mesolithic artefacts to the more obvious infrastructure of World War 2 and the salmon fishing industry. The forest supports rich wildlife, with some 500 species of flowering plant and more than 130 species of lichen. The whole of Culbin and Findhorn Bay is a Site of Special Scientific Interest (SSSI) because of its coastal geomorphology: sand dunes, saltmarsh and shingle, as well as its invertebrate life (notably flies and beetles) and the quantity and variety of its plant, lichen and fungi species.

The adjacent Culbin Sands Nature Reserve is a dynamic system of shingle bars, sand dunes, intertidal mudflats and salt marsh totalling 1142 hectares. This area supports large wintering waterfowl and breeding bird populations. Within this area, Culbin Bar is a Special Area of Conservation (SAC) because of its shifting dunes, coastal shingle and salt meadows. The nature reserve is part of the Moray & Nairn Coast Special Protection Area (SPA) due to the quantity and variety of birds here. The reserve is also part of the Moray & Nairn Coast Ramsar site, a designation which recognises the international importance of the wetlands for water birds.

1.1.2 Recreation & Access

Culbin is a well-known and popular forest for recreation, with an estimated 65 000 visitors per year (FCS 2013). The main recreational uses of Culbin are walking, dog walking, cycling and horse riding. The main access point to Culbin forest for visitors is via Wellhill car park, where there is a large modern toilet block, information / interpretation panels, a well-stocked leaflet dispenser, rock sculpture and some picnic furniture. There is parking for 60 cars. The only waymarked trail in Culbin, the Hill 99 trail, starts from here.

There is also a small FCS car park at Cloddymoss, which has more room for larger vehicles and horse boxes. There are information / interpretation panels in this car park.

There is a large Highland Council owned & managed car park at Nairn East Beach, accessed through the Lochloy holiday park, from which visitors can walk or cycle into Culbin. There are toilets and information / interpretation panels about Culbin in the car park, and a small children's play structure.

There is a small Highland Council managed car park at Kingsteps which gives closer access to Culbin via the foreshore or through a section of woodland managed by trustees

of the Brodie estate. There is a Culbin information / interpretation panel in the car park. However, vehicle access into this car park has been the subject of a dispute. At the time of writing, Alexander Brodie has the right to restrict vehicle access and is proposing to close the barrier at night in an attempt to reduce unsocial use issues and wildfowling. FCS does not promote this car park.

There are a number of low key access points including pedestrian access across Nairn Dunbar golf course to the East Beach car park, access through Lochloy wood, access from the track at Binsness and access by boat (including water taxi in the summer months) from Findhorn. Visitors may also walk into Culbin along the beach from Nairn harbour.

1.1.3 Woodland Management

Previously an area of sand dunes, the area which is now Culbin forest was bought by the Forestry Commission between 1922 and 1931, and planted over several decades. The forest is largely a mix of Scots and lodgepole pine, with natural ingress of other species including birch, willow and alder. The Culbin Forest Plan guides the forest management, with an emphasis on thinning and small-scale group fellings. Culbin produces around 12,000 cubic metres of timber (about 400 lorry loads) each year.

1.2 Current Management

FCS manages Culbin forest, as part of the Moray and Aberdeenshire forest district, based in Huntly. There is an outstation office in Newton, near Elgin.

The Culbin Sands Nature Reserve is managed by RSPB Scotland (the area is leased from trustees of the Brodie estate), as part of the RSPB North Scotland region, based in Inverness.

The Highland Council manages the East Beach car park and toilets, and the car park at Kingsteps.

1.2 Reasons for Action

Following the 2004 Culbin Interpretation Master Plan, there was an extensive redevelopment of the visitor infrastructure between 2006 – 2008. Culbin is a high profile and popular site. Anecdotal feedback and observation suggested that the forest offers a good quality visitor experience. FCS wanted to review the visitor experience before any noticeable deterioration, and to identify opportunities to maintain or improve it.

1.4 Relevant Strategies, Plans & Reports

Strategies and plans relevant to this visitor experience plan and the proposed developments include:

- Culbin Forest Plan (2003)
- Culbin Interpretation Master Plan (2004)
- Culbin Hill 99 Accessibility Site Visit Report: (Countryside4all 2014)
- Culbin Forest Audience Research: (Rowantree 2014)
- The Role of Scotland's National Forest Estate and Strategic directions 2013 - 2016

2 Audiences

This section looks at available visitor research, and identifies the key current and potential audiences.

2.1 Available Visitor Research

2.1.1 Culbin Survey 2014

To inform this new plan, visitor research was commissioned from Rowantree Consulting in the summer of 2014. Interviews were completed at Culbin, in a variety of local off-site locations and online via a Survey Monkey questionnaire (which was advertised on and offsite, including via a press release and social media). The priorities for the research were to identify visitor motivations and attitudes, and to identify simple visitor profiles.

Results

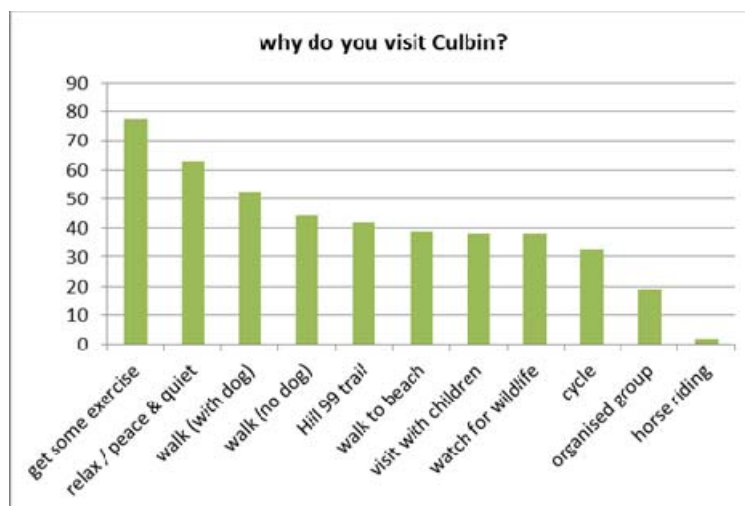
A total of 325 questionnaires were completed – 259 via face-to-face survey, and 66 via the online survey. Of the face-to-face surveys, 84 were completed in Culbin forest and 175 were completed off-site, at a variety of locations including Brodie Castle, Brodie Countryfare, Nairn town centre and Forres town centre.

The survey revealed a high visitor rate to Culbin forest – the majority (63%) of off-site survey respondents had visited Culbin (and 89% of the online survey respondents had visited Culbin; it was interesting that some people who had never visited were motivated to complete the survey). A low proportion of respondents were very regular (daily) visitors; visiting 'once a month' or 'once a year' were the most common answers.

Of those respondents who had never visited Culbin, the most common reason was that they had not heard of it, and the next most cited reason was not knowing enough about

it. Lack of transport was not cited as a reason for not going. One respondent cited the cost of car parking at Wellhill. A small number of respondents (1.4%) said the paths were too difficult.

When asked for all the reasons they went to Culbin, the most often cited response was 'to get some exercise' (77%) followed by 'to relax / enjoy the peace and quiet' (62.75). Walking (with and without a dog), visiting the viewing tower, to go to the beach, to go somewhere with children, to look for wildlife and to cycle were also all popular reasons for visiting.

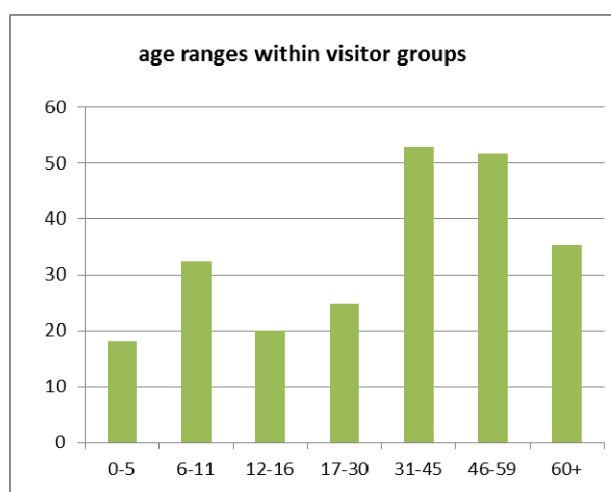
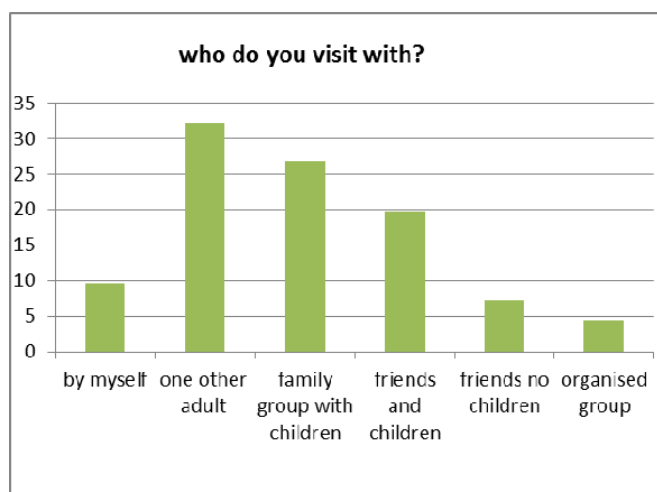


When asked what the single main reason was for visiting Culbin, walking with a dog was the most common reason (34%). Walking without a dog was the second most common reason (16%). Other reasons ('somewhere to go with children', 'visiting the viewing tower') could include walking with or without a dog. Some reasons which had featured very highly as part of the reason to go to Culbin ('get some exercise', 'to relax / enjoy the peace and quiet' and 'watch for wildlife') got very low response rates as the main reason to go.

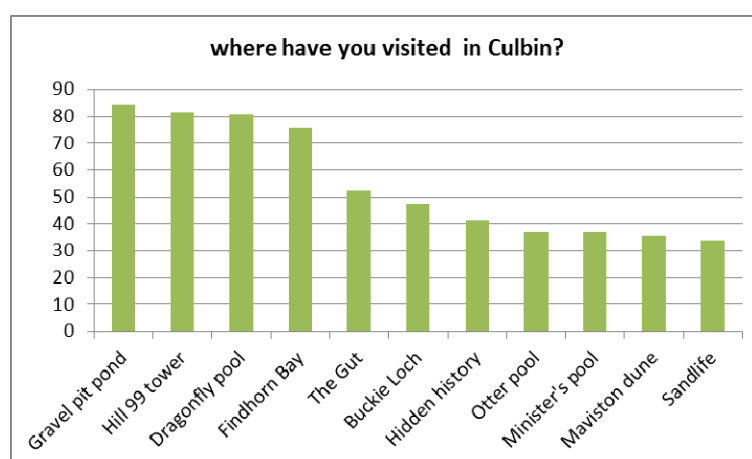
When asked about their favourite aspects of Culbin, 'peaceful surroundings' was the most common response (24%), followed by 'the woods' (17%), 'the path network' (15%) and the 'Hill 99 Viewpoint and Trail' (14%).

When asked about their least favourite aspects of Culbin, most interviewees did not make a response (i.e. they didn't appear to have any particular dislikes). The most common complaints were about dog waste being left on site, or bagged and left on paths or in trees (9%), the car park charges at Wellhill (4%), and issues with signposting (3%). Other specific comments are listed in the full research report. The most common suggestions for improvement were connected with dealing with dog waste (8%).

The vast majority (over 90%) of visitors to Culbin are with others – another adult, a family group or a wider group. This highlights the social nature of a visit to Culbin for most visitors. The age ranges were very mixed, as a result of high visitation by groups which include children – 46% of respondents said they would visit in a group which included children.



The survey revealed that many visitors have explored different parts of Culbin. The Gravel-pit ponds were the most visited destination (84%), followed by the viewing tower (81%) and the dragonfly pool (80%). 75% of the respondents had been Findhorn Bay, and around half had been to the Gut and Buckie loch; all a considerable distance from the nearest car park. The majority (over 90%) of visitors normally spend between 1 and 4 hours in Culbin.



The Culbin Forest Audience Research 2014 report contains the full survey results.

2.1.2 Culbin Survey 2004

This survey, completed onsite as part of the Interpretation Master Plan, showed that the main visitors to Culbin at the time of the survey were local people, with a high (79%) rate of repeat visits. 65% of visitors were over 40 years of age. Dog walking was the most popular activity.

Comparisons with the 2014 survey suggest that visitors come from a wider area. Although many older people do still visit, there appears to be a more mixed age profile, with more children visiting.

2.1.3 All Forests Survey

Fieldwork for the national FCS All Forests Survey 2 (AFS2) was carried out in 2012 and 2013. A total of 1,964 visitors were interviewed, including 274 in the Moray & Aberdeenshire forest district. Compared to the national average, visitors to forests within this forest district were more likely to live in Scotland, and be visiting on a local or day trip. They were also more likely to be repeat visitors, and more likely to be dog walkers.

Only 14 of these surveys were completed in Culbin itself. Most respondents had travelled less than 15 miles to get there, and were spending between one and two hours onsite. The majority of respondents were dog walking. Two of the respondents reported a disability.

2.2 Social Inclusion

Making experiences physically, socially and intellectually accessible to as wide a range of people as possible is an important aim of developments within Culbin.

Under current Forestry Commission policy, an Equality Analysis will need to be completed for this project, to assess and monitor whether the proposals are likely to disadvantage individuals and/or groups of people who have already been identified as being at a disadvantage due to:

- Age
- Disability
- Gender Reassignment
- Marriage or Civil Partnership
- Pregnancy or Maternity
- Race
- Religion or Belief
- Sex
- Sexual Orientation

Statistics for Moray suggest that in most of these areas, the area is in line with national population averages (2011 census). However there are a few notable differences:

- Only 20% of the population older than age 16 are single; nationally this figure is 35%

- 11.6% of Moray's population declared long term sickness issues or disabilities, which is lower than a 16.6% national average. This includes around 7% with deafness, 2.5% with sight loss and 5.8% with a physical disability.
- Moray has a lower than average population of Black, Asian & other ethnic minority residents: around 1.5% compared to 4.2% nationally.
- 1.5% of the population do not speak English well or at all.

19% of respondents to the 2014 research felt that there were problems with Culbin which prevented people with special needs or disabilities enjoying the site. Feedback suggested that the quality of the path surface from Wellhill was a particular issue for some visitors. This was confirmed by the Countryside4all access survey in 2014. The Countryside4all report contains a number of recommendations for improving access, a number of which are included in this plan.

10% of respondents to the 2014 research said that they, their family or friends had a disability or special needs. The AFS2 survey recorded 4% of visitors having a long term illness or disability.

2.3 Who is Visiting Culbin?

2.3.1 Local Visitors

Past and current research suggests that people living in the local area are the main visitors to Culbin. There are a number of settlements very close to Culbin, such as Kintessack and Dyke. Culbin is also close to the nearby towns of Nairn (population 8,418) and Forres (population 8,967). From the onsite respondents to the 2014 survey, 32% lived within the IV36 postcode (Forres area), and 12% lived within the IV12 (Nairn) area. It is likely that more time surveying at Kingsteps and Nairn East beach would have significantly increased the percentage of visitors from Nairn.

Culbin is also within easy reach of the larger populations of Inverness (approx. 25 miles to Wellhill) and Elgin (approx. 17 miles to Wellhill). Even though these residents do have other forests to visit which are closer than Culbin, they appear to be well represented. From the onsite respondents to the 2014 survey, 18% lived within the IV2 (Inverness) area and 11% lived within the IV30 (Elgin) area.

2.3.2 Tourists

The Moray coast, and in particular the seaside town of Nairn, is a popular holiday destination. There is a wide range of accommodation providers, including a large static caravan park close to Culbin. Brodie Castle and Brodie Countryfare are popular attractions, very close to Wellhill, which attract visitors to the Culbin area.

Visitors to the area the least likely to have heard of Culbin forest. Good offsite promotion is likely to be the best way to engage with them.

2.4 What Do Visitors Want To Do?

Activities which visitors want to do at Culbin include:

- Go for a walk
- Walk the dog
- Cycle on gravel roads and tracks
- Watch wildlife
- Go horse riding
- Attend an event / group activity
- Relax
- Spend time and explore / play with family
- Picnic

The 2014 survey results suggest that although visitors may identify a primary reason to go to Culbin, such as walking the dog, there are often a number of factors which are part of the overall experience offered by Culbin.

2.4.1 Sample Visitor Profiles

The examples below are provided, as illustrative examples, to help us visualise visitors from our current and potential markets. They help us think about what people may be looking for during a day out in Culbin. They also encourage us to think beyond current experiences and towards what might be appropriate to offer in future.

Visitor Profile A: Local adults (single / couple aged 30 – 60)

Purpose of visit	Looking for	Likes	Avoids / dislikes	Most likely to:
<ul style="list-style-type: none"> Walking or dog walking Moderate exercise 	<ul style="list-style-type: none"> Safe welcoming environment for themselves / dog Moderate outdoor activity Connection with natural world 	<ul style="list-style-type: none"> Clear information and options To be informed of changes affecting their visits 	<ul style="list-style-type: none"> Child focused environments Busy areas and times 	<ul style="list-style-type: none"> Visit at anytime inc. off-peak Be regular visitors Explore their own routes Be loyal advocates or fierce critics

Visitor Profile B: Local family with young children (1-2 adults, 1- 3 young children)

Purpose of visit	Looking for	Likes	Avoids / dislikes	Most likely to:
Something to do as a family as part of a day out	<ul style="list-style-type: none"> Something to do together, to keep the children happy Quality family time, fun Chance to engage with nature Ease of access; physical & intellectual 	<ul style="list-style-type: none"> Easy access, convenience Child friendly, safe, 'nice' environment Clear information Clean facilities including toilets Events Refreshments onsite or nearby Picnic facilities 	<ul style="list-style-type: none"> Risky or adult environments / activities Difficult parking, toileting, difficult access Long walks Dog waste or dogs out of control 	<ul style="list-style-type: none"> Generate word of mouth – good or bad Concentrate visits after school, at weekends or school holidays Be occasional repeat visitors

Visitor Profile C: Social group of older adults on holiday

Purpose of visit	Looking for	Likes	Avoids / dislikes	Most likely to:
<ul style="list-style-type: none"> Relaxation, sightseeing, social activity 	<ul style="list-style-type: none"> A space to socialise A short / moderate walk 	<ul style="list-style-type: none"> Clear information offsite and onsite Good clean facilities including toilets and seating Good value refreshments onsite or nearby Good quality level paths 	<ul style="list-style-type: none"> Unwelcoming or difficult environments Dirty / dangerous environments 	<ul style="list-style-type: none"> Visit at anytime inc. off-peak Be first time visitors

3 Aims and Objectives

3.1 FCS Management Objectives for Culbin

The Culbin Forest Plan was prepared in 2003. This is due to be substantially reviewed in 2016, to produce a new Land Management Plan for Culbin. This Visitor Experience Plan will inform, and be part of, the new Land Management Plan.

3.2 Visitor Experience Objectives

The visitor experience objectives are the things we hope visitors will **understand**, **feel** and **do**. They have been developed with reference to FCS policy, the special qualities of the site, and current & potential audiences.

3.2.1 Learning Objectives

Visitors will understand that;

- Culbin is a welcoming and accessible place to explore and enjoy
- Culbin is rich in wildlife and history
- Culbin is a very large forest, and points that seem close on a map can be a long distance away
- FCS manages Culbin forest in a sustainable way

3.2.2 Emotional Objectives

Visitors will feel that;

- Culbin is a great destination for a day out
- Culbin is a welcoming and fun place to explore and enjoy
- Culbin is a special and inspiring place
- They can explore and enjoy Culbin safely

3.2.3 Behavioural Objectives

Visitors will;

- Explore and enjoy the site safely
- Follow SOAC; respect the site and other users
- Engage with interpretation including the webpages
- Recommend Culbin to others
- Pay for parking as appropriate

4 Themes, Topics and Messages

1.1 Statement of Significance

The Statement of Significance identifies and sums up the unique characteristics of Culbin.

Culbin is a huge coastal pine forest, with a rich natural history interest amongst its trees and along its shores. The Hill 99 trail and viewing tower offer an excellent and accessible opportunity to enjoy the forest, whilst a substantial path and track network offers more adventurous visitors the chance to explore further.

4.1 A Theme for Culbin

Identifying themes helps ensure a consistent approach to providing a good visitor experience. The themes are the overall **experience** and **story** that Culbin will seek to offer.

The Culbin Interpretation Master Plan (2004) identified the overall theme of 'Culbin – where the sands of time are ceaselessly shifting'. This broad and inclusive theme allows a range of stories to be used, including the history of Culbin as well as current challenges and changes. Whilst this is still relevant, the 2014 survey highlighted that the majority of visitors want clear information about what to do onsite. The following theme and subtheme have been developed:

Main theme:

Culbin: where time, tide and shifting sand shape an oasis for wildlife, a treasure box for stories, and a place for people

Subtheme:

Culbin is a huge but welcoming forest which offers easy access or chance to explore and discover

4.2 Topics for Culbin

These topics are the identified **subject areas** we will concentrate on in offsite and onsite information and interpretation, in order to deliver the theme and cover the visitor experience objectives.

- Orientation & opportunities; where to go and what to do onsite
- Wildlife of Culbin
- The history of Culbin
- Woodland management and certified sustainable timber production within Culbin
- Enjoying the site safely and responsibly

4.3 Storylines

These are examples of potential storylines, for offsite and onsite information and interpretation. They use the topics to deliver the visitor experience objectives:

- Culbin is big! Follow the Hill 99 trail for an easy introduction to this fantastic forest.
- Discover: there is always somewhere new to visit in Culbin.
- Get a breath of fresh air at Culbin.
- Bring the bikes and explore the forest.
- Spot seals and sea birds from the seashore.
- Lookout for rare crested tits and crossbills amongst the branches.
- Enjoy the colourful carpets of fungi in the autumn.
- Did a card game with the devil really destroy Culbin's fertile farmland?
- Memories of the WW2 & historic settlements lie buried in the sand.
- 400 lorry loads of timber a year and all sustainably produced.
- Dead good - we leave dead trees for insects and woodpeckers.

5 Issues & Recommendations

5.1 Recreational and Ecological Capacity of the Site

Culbin is a very large forest, with a substantial track network. As such, the recreational carrying capacity of the forest is high – the forest very seldom if ever feels really busy, once you leave the car park areas. However, the forest is adjacent to Culbin Sands Nature Reserve. There is potential disturbance of wintering wildfowl and breeding birds along the coast, and seals at Findhorn Bay, by walkers and dog walkers. Whilst visitors have a right of responsible access to all parts of the site, the provision of information and infrastructure can significantly influence the choices that visitors make.

ACTION:

1. Liaise with FCS environment team staff and external partners to ensure the impact of recreation is considered and managed.

5.2 Marketing, Promotion & Branding

Care needs to be taken to use an appropriate brand hierarchy. There is generally a presumption to lead with the FCS brand on FCS land. For guidance on the use of the FC Brand, and working with partners, the [Brand Manual](#) is available on the intranet. There is a national FCS marketing strategy. Further advice is available from the [FCS Marketing Manager](#) and the [FCS Forest Tourism Development Manager](#).

However, two of the four car parks which currently host Culbin panels are managed by Highland Council, and RSPB is a key partner in terms of managing the foreshore. The current mapping covers the Highland Council car parks and the RSPB reserve, which is likely to be a helpful approach for visitors.

ACTION:

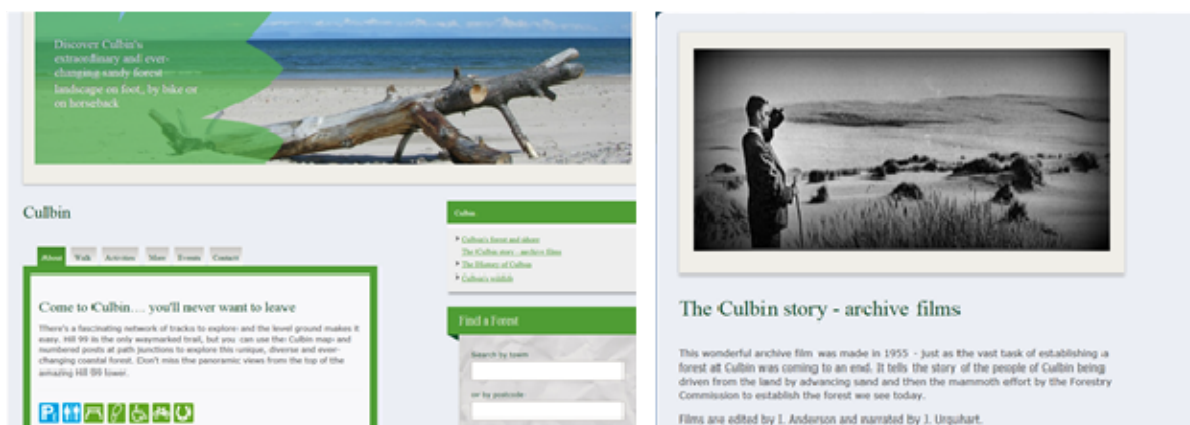
1. Follow Brand Manual guidance.
2. Liaise with partners before developing new media.
3. Recognise partners appropriately in new media.

5.3 Pre-Arrival

We want to ensure that the entire visitor journey, from first finding out about Culbin, to leaving Culbin after a visit, is easy, enjoyable and inspiring. Results from the 2014 survey clearly indicated that better promotion is likely to be the single most effective way to increase visitor numbers, if this is desired.

5.3.1 Web-based Media

An engaging, accessible and informative website is an essential part of providing a good visitor experience and forms an important part of the 'invitation' to a site.



There are a series of new 'Visit Culbin' webpages on the new FCS website. From here, there is a link to a series of pages which are a comprehensive source of information about the history, wildlife and management of Culbin (promoted as Culbin.org, which redirects to the Visit Culbin pages). The archive film footage is interesting and engaging. Since porting the pages from our old website, some of the pages here now lack any images and are rather text-heavy, so are a little dull. Some links need repairing. A narrated story about Culbin is currently hosted on the FCS WW2 [heritage pages](#).

Google analytics from 2014 showed a total of 3292 pages views over a four month period (March – July). The majority of these (86%) were to the 'Visit Culbin' pages, which provide access and general information about the site. There was a relatively high bounce rate of 67% - however the average time on these pages was over two and half minutes. This suggests that visitors may have found all the information they needed before exiting, and that the majority of web users just want basic visit information.

The 2014 survey revealed that webpages in advance of a visit was overall the second most preferred method of accessing information about Culbin. The survey showed relatively low interest in accessing information via Facebook, Twitter, an App and webpages available onsite.

The 2014 survey showed that 30% of respondents had used the Culbin webpages. The most popular use of the webpages was to find out about Culbin in advance of a visit (62%). The second most popular use had been to find out more about Culbin's history and wildlife following a visit (40%), indicating that there is a demand for the more detailed information available online. However, the new FCS webpage structure is less well suited to offering detailed interpretive content, and the additional Culbin information could be missed by visitors.

ACTION:

1. Ensure Visit Culbin pages are kept up to date.

2. Add images to the Culbin information pages.
3. Enhance the visibility and prominence of the interpretive content.
4. Move the narrated story to a more suitable location.

5.3.2 Printed Media

Printed media such as leaflets and flyers can act as both offsite marketing tools and useful onsite guides. They can contain maps and more detailed information than could easily be contained within a panel, and of course visitors can take them with them throughout their visits. Although this is a more traditional media, many people still like the reassurance that having a leaflet brings.

The 2014 survey rated leaflets as the single most popular way to access information about Culbin (26% of respondents wanting leaflets available onsite and an additional 14% wanting a leaflet in advance of the visit).

FCS currently publishes a dedicated Culbin leaflet, which covers the entire site and includes a large map showing the track network with numbered junctions. This is an attractive, informative, well written publication. It provides an essential guide for those wishing to explore the wider forest, as the map identifies the numbered junctions. The leaflet is available onsite at Wellhill. This is particularly useful to visitors who arrive without a map. The leaflet is also available in some offsite locations such as the Nairn visitor information point within Nairn community centre. Currently 12 – 15 000 are distributed annually.



Culbin and the Hill 99 trail are also promoted along with other local sites in the Forests of Moray leaflet, which is a slightly smaller publication than the Culbin leaflet. Culbin is promoted in a number of other FCS publications including the bedroom pack flyer.

ACTION:

1. Continue to provide Culbin leaflets at Wellhill.
2. Continue to distribute Culbin leaflets in Nairn and Forres.
3. Distribute the Forests of Moray leaflet in the wider area (in particular Inverness to Elgin).
4. Review and update the leaflet following any trail changes and the regrading process.
5. Continue to promote Culbin in other printed media.

5.4 Arrival Onsite

First impressions are important; we want to provide an easy, stress-free arrival. In this first stage of welcome and orientation we need to ensure that visitors can find the site, feel welcome when they do arrive, and know where to go when they arrive.

5.4.1 Wellhill car park

Wellhill is well signed from the A96, from both directions. FCS threshold signage was clear and in good condition.

The car park is generally well maintained. There are two accessible parking spaces for disabled visitors. There are some issues with gradient and connection to the toilet block and trails for these spaces.

There is a large modern toilet block with mains power in the car park, which is maintained to a high standard. There is one cubicle for visitors with disabilities, one cubicle for male visitors plus two urinals, and three cubicles for female visitors. Overall, this gives a good average provision of approximately one toilet per eight cars (considerably more provision than some FCS sites).

The hub of interpretive panels, with the leaflet dispenser, sits within the car park near the start of the trail. There could be potential to separate this area from the car park, depending on any changes to the start of the trail.

There are two picnic benches in the car park area but they are not accessible in design or position. Feedback from the 2014 survey requested more picnic benches in Culbin. With recent fellings in the car park, there could be potential to create a new, more accessible picnic area here which would benefit those unable to go further into Culbin.



ACTION:

1. Improve parking provision for disabled visitors at Wellhill.
2. Install new, more accessible picnic benches at Wellhill working with FCS landscape architect.
3. Work with FCS landscape architect to maximise the connection and easy access between the parking areas, toilets, picnic benches, information panels and trail head.
4. Maintain the high toilet standards at Wellhill.
5. Replace interpretation hub with three panel upright structure.

5.4.2 Cloddymoss car park

Cloddymoss was once a higher profile destination, with a classroom and toilets. It is now a lower profile destination, promoted as the best place to arrive with horses. It is also used by dog walkers wanting a quieter location than Wellhill. Arguably, signage from the public road to the car park is now too low key. A pond remains, which was once used for educational visits.



ACTION:

1. Continue to maintain and promote for horse access and other user groups which would prefer to avoid Wellhill.
2. Replace interpretation hub with standard FCS two panel upright structure (to include notice board).
3. Review and improve signage from the public road to the FCS car park.
4. Manage the pond for conservation rather than recreation. Plan to remove recreation infrastructure.

5.4.3 East Beach car park

East beach is a very large and good quality car park owned and managed by Highland Council, though it can be hard to find and access through the holiday park to get there may deter some visitors. The path towards Culbin can be wet in places and a little overgrown.



ACTION:

1. Plan to replace interpretation hub with a single panel upright structure, in liaison with Highland Council and RSPB.
2. Work with partners to improve signage to Culbin using fingerposts.
3. Support any partner proposal to improve the path towards Culbin.

5.4.4 Kingsteps car park

Kingsteps is well used by local dog walkers, as it offers quick and easy access into the forest or along the foreshore. There has been some dispute about dog walking in the area, with a number of 'keep your dog on a lead' signs appearing onsite. Residents from the nearby new housing estate may increase access through this point.



ACTION:

1. Plan to replace interpretation hub with a single panel upright structure, in liaison with Highland Council, RSPB and trustees of the Brodie estate.
4. Support any partner proposal to improve the path towards Culbin.

5.5 Onsite Interpretation

5.5.1 Panels and displays

Panels and displays can ensure a basic level of information, orientation and interpretation is always available. The 2014 survey showed good support for onsite information panels as a means of providing information.

There are currently Culbin panel hubs at Wellhill, Cloddymoss, East beach and Kingsteps. Highland Council has indicated a willingness to help fund panels on HC land at East beach and Kingsteps (half cost, 1k per site discussed).

The maps will need refreshing following path and destination changes, and the content and design would benefit from being refreshed. The current style of limited text content is recommended – more information is available in the leaflet and online.



ACTION:

1. Replace Culbin panel hubs at Wellhill and Cloddymoss.
2. Plan to replace panels at East beach and Kingsteps via an agreement with Highland Council.
3. Plan position of hubs at Wellhill and Cloddymoss with FCS landscape architect.

5.5.2 Interpretive Benches & Installations

Many of the destinations have custom-made benches with site specific poetry engraved into them (as illustrated in the following destinations section). As well as useful rest points, these benches confirm the destination and seek to communicate some of the special qualities of the site in a suitably low-key way. However, the engravings do retain

rain water, which has affected the usability of the benches. A solution is needed which allows the destinations to be identified, without compromising usability.

The woodwork on some of the benches has become damaged, though most remain in acceptable condition. The wood and metal bases appear to remain in good condition. The woodwork for the benches was supplied by the FCS Signs Unit.

Arguably, some of the poems on the benches are of a better quality than others. The visitor survey did not ask specifically about the interpretive benches, and there was little feedback other than one complaint about 'arty woodwork' and one about 'manmade intrusions'. The current poetry would benefit from an edit before being reused.

There are a number of 'perch points' along the trails, some of which have interpretive poetry engraved into them. The multipurpose function of these posts is not necessarily evident to visitors – more conventional benches are likely to be more user-friendly.

Adjacent to Wellhill car park there are two stone monoliths with poetry engraved in them. The effectiveness of these is unclear, but apart from an occasional clean they need little maintenance.

At the top of the viewing tower, a strip of wood with landscape details and names has been added. The accuracy of the landscape identification does depend on where the reader is standing, however this installation does give some idea of the surrounding landmarks. The woodwork has been subject to considerable graffiti, and part of it has broken off, revealing some rot in the wood underneath.



ACTION:

1. Replace any damaged bench tops immediately with the same design, available from the Signs Unit.

2. Plan to replace all custom benches with a solution which does not hold water: possibly standard FCS backless benches with edited destination / poetry routed in.
3. Replace all 'perch points' with standard FCS high backless benches.
4. Check and clean stone monoliths once a year.
5. Replace all viewpoint identification strips immediately. Check / treat rot as appropriate.

5.5.3 Guided walks and events

With its inherent flexibility, personal interpretation is often cited as the single most effective form of interpretation. From both a tourist and a local visitor's perspective, events could provide a reason to visit Culbin for the first time, or to visit again. Events can add significant interest and value to a visit. However, staff resources are very limited.

Culbin is used for events and activities by a number of external organisations including DoE, Wildthings and orienteering clubs. Some of these are covered by the FCS permissions system. Culbin is a large forest but too much use for special events and other reasons for access could spoil the enjoyment of more casual visitors.

ACTION:

1. Provide a limited number of low key events / guided walks annually.
2. Facilitate additional events by others but maintain some quality control.
3. Use the permissions system to manage timing and scale of events and access.

5.6 Exploring and Enjoying the Site

We need to ensure that the recreation opportunities available are easily understood, easily accessed and meet or exceed visitor expectations.

5.6.1 Waymarked Trails & Signage

There is currently just one waymarked trail in Culbin; the high quality Hill 99 trail. The first half of this trail was originally built to Countryside for All standards. This trail aims to give a good and easy introduction to Culbin. However, the path quality has deteriorated in some areas and has not been possible to maintain to Countryside for All standards. One issue is that the first part of the trail follows the forest road, which cannot be maintained to an acceptable standard due to lorry access. There was originally a protected path running parallel to the forest road; this has largely disappeared.

Another issue is that there are a number of gradients, cross gradients and surface issues on the Hill 99 trail which would make it very challenging to maintain to full Countryside for All access standards (full details in the Culbin Hill 99 Accessibility Site Visit Report by Countryside4all 2014). The 2015 path grading exercise confirmed the whole Hill 99 trail as a 'moderate' trail.

The most popular single destination in Culbin is the Gravel-pit Pond. This pleasant destination sits in very flat surroundings. There is potential to develop the paths around the Gravel-pit pond area as a shorter, more accessible alternative to the viewing tower.

Throughout the forest, all main junctions (45 in total) are marked with a single post with a numbered disc (corresponding to the site leaflet and map). The original posts are starting to deteriorate and some discs are hard to read. Some of the wooden Culbin symbols appear to have been chiselled off.

Fingerposts are used at key decision points to direct visitors to particular destinations.



ACTION:

1. Split the waymarking of the Hill 99 trail into an 'easy' there and back experience between the car park and the tower, and a 'moderate' circular trail.

2. Plan and build a shorter route option around the Gravel-pit pond which can be maintained to Countryside for All standards, separate from the forest road.
3. Plan and install more seating opportunities with a mix of standard FCS furniture along the easy waymarked paths.
4. Adopt colours for the waymarked trails.
5. Replace all waymarking posts with standard FCS banded waymarkers.
6. Maintain fingerposts and replace when necessary with standard FCS fingerposts.
7. Review the need for additional fingerposts throughout Culbin.

5.6.2 Destinations within Culbin

There are currently twelve distinct destinations promoted within Culbin, to tempt visitors to explore further. The 2014 survey revealed very high visitation rates to a number of these destinations – though the survey did not reveal visitor satisfaction with the destinations. Some of these destinations, such as Buckie Loch and Findhorn Bay, are attractive destinations in their own right. Others, such as Hidden History and Sandlife, rely on interpretation to provide interest and meaning.

5.6.2.1. Hill 99 Viewpoint

The Hill 99 viewpoint is the highest profile destination within Culbin, with the most infrastructure. The viewing tower seeks to give an idea of the size of Culbin, and provides an achievable and rewarding destination for visitors who would not get as far as the coast. Given the Hill 99 trail to the tower was originally built to Countryside for All standards, the experience is rather limited for visitors unable to climb the steps to the lookout deck. A number of accessibility improvements were identified in the Countryside4all report; although this destination will not be maintained to Countryside for All standards, some improvements will help all visitors.



ACTION:

1. Consider all Countryside4all recommendations.
2. Develop plan for management of surrounding forest which considers how to maintain views from tower.

5.6.2.2 Gravel-pit Ponds

The Gravel-pit ponds are a pleasant and easy to achieve destination from Wellhill car park. The visitor survey showed the high popularity of this destination. There is the potential to make more of this area. It is near enough to the car park to make an attractive destination for family and group picnics. The pond, the gravel and the surrounding trees provide excellent natural play opportunities for younger children.

A number of respondents to the visitor survey requested more picnic benches – this would be the ideal destination to provide them. Provision of some backed benches around the pond would be helpful for visitors who need back support. The FCS landscape architect should advise on positions and vegetation management.



ACTION:

1. Remove old steps to pond.
2. Plan & install five new FCS picnic benches around the pond.
3. Plan & install three FCS backed benches around the pond.
4. Plan to replace interpretive benches.

5.6.2.3 Dragonfly Pool

The dragonfly pool is an attractive low-key destination adjacent to the Hill 99 trail, giving some added interest on the return loop. However, it could easily be missed as there is no signage to it from the nearby junction.



ACTION:

1. Develop management plan to ensure the pond continues to provide good wildlife habitat.
2. Add a fingerpost sign from the junction to the pool.

5.6.2.4 Hidden History

Hidden History is a destination which relies entirely on the interpretation to give it meaning. More visitors would have visited it if it had been installed along the Hill 99 route (41% of survey respondents had visited, whereas 81% had visited the Dragonfly Pool). However, the structure has been well made and is likely to last, and the story behind it is interesting. The poem on the structure does not read as if it was written for the location, but may be difficult to remove without damaging the chimney.



ACTION:

1. Remove poetry panel.
2. Plan to rewrite poetry and replace benches.

5.6.2.5 Sandlife

Sandlife is a small depression in the forest next to the forest road. It could disappoint visitors expecting more of a destination. From the visitor survey, Sandlife was one of the least visited destinations.



ACTION:

1. Remove Sandlife as a promoted destination.
2. Remove Sandlife infrastructure onsite.
3. Remove Sandlife references in leaflet, map, new panels and online.
4. Install one standard FCS backless bench next to forest road.

5.6.2.6 The Gut

The Gut is an impressive sheltered saltmarsh area, excellent for birdwatching. The low-key bench which names the destination is appropriate: no other infrastructure is needed.



ACTION:

1. Plan to replace bench.

5.6.2.7 Buckie Loch

Buckie Loch is an attractive open grass area next to the beach, popular as a wild campsite with those willing to make the effort to walk or cycle in. Despite this, there are no noticeable issues with litter or human waste. The site is also a pleasant destination for a summer picnic, achievable from Wellhill. The picnic bench next to the fire area needs repair. The poetry bench has lost its central feature, but is in good condition.



ACTION:

1. Install replacement picnic bench.
2. Leave poetry bench as it is; remove when necessary but don't replace.

5.6.2.8 Findhorn Bay

Findhorn Bay is a very attractive sandy bay, making it a natural destination for those visitors wanting a longer walk or cycle. Kayakers and dingy sailors from Findhorn often come ashore here. During summer months, a water taxi operates on request from the

marina in Findhorn (walkers can book in advance or phone on arrival at the bay). The area suffers from considerable flood erosion: the bench has been washed away.



ACTION:

1. Consider suitable position for a new bench.
2. Manage access and vegetation.

5.6.2.9 Lady Culbin's Buried Trees

The buried trees at the Lady Culbin dune are an interesting natural feature, but it is an isolated destination and the surrounding woodland is unremarkable.



ACTION:

1. Retain Lady Culbin's buried trees as a promoted destination but remove when woodwork comes to the end of its life.

5.6.2.10 The Minister's Pool

The Minister's Pool is very close to the Kingsteps car park and is out with FCS land. The pool itself has become more of a marsh area. Despite the current text in the leaflet and on the benches, the area is likely to be too busy with dog walkers for the pool to be very valuable for birdlife. The poetry would benefit from reviewing to make it more relevant.



ACTION:

1. Review poetry and plan to replace benches, via Highland Council.

5.6.2.11 Otter Pool

Otter Pool is a pleasant, low key destination. It is relatively remote, but provides a destination for visitors accessing from Nairn or Cloddymoss. The wear on the approach path suggests at least moderate visitor use.



ACTION:

1. Repair rabbit damage in front of bench.
2. Manage vegetation around pond to open view.
3. Plan to replace bench.

5.6.2.12 Maviston Dunes

Maviston Dunes is an area rather than a distinct destination. Although the woodland and heath is pleasant, it could disappoint visitors expecting something more than the single bench onsite. The tracks in this area are getting considerable vegetation growing on them. From the visitor survey, Maviston was one of the least visited destinations.



ACTION:

1. Remove Maviston Dunes as a promoted destination.
2. Remove bench and signposts.
3. Remove Maviston Dunes references in leaflet, map, new panels and online (just name the area on the map).

5.6.3 Other paths and tracks within Culbin

In addition to the car parks, there are a number of other entry points. However, access into the forest is not all in good condition. Access for cyclists from Kingsteps is not easy, and significant lengths of forest road from the Kingsteps entrance point are very wet, and stay flooded for much of the year. For walkers following the edge of the forest, there are a number of challenging ditch crossings.

There is a proposal from Highland Council to extend the waymarked Moray Coastal Trail from Forres to Nairn. As part of this project, Highland Council may improve access between East Beach and Kingsteps, and between Kingsteps and Culbin forest. An all ability trail is proposed from the Nairn East Beach car park with a link to a viewing platform opposite the Minister's Pool.

Within the forest, some of the recent repairs to the gravel road networks have used very large and rough stones, making the roads far less easy and safe to cycle on.



ACTION:

1. Investigate ways to improve drainage on flooded tracks.
2. Support any partner proposal to improve the path towards Culbin.
3. Follow FCS Signs Manual 'Partnership Route Signage' guidance for any coastal trail waymarking on FCS land.
4. Use finer stone to repair key areas of gravel road network, using local material.

5.7 Other issues

5.7.1 Litter and dog waste

The single biggest complaint from the 2014 survey was about dog waste in Culbin (29 respondents). The most commonly suggested improvement was for the provision of more bins to deal with dog waste. A single large bin has been put into Wellhill car park by the toilets.

ACTION:

1. Share results of 2014 survey via a poster onsite.
2. Continue to use SignMaker signage to encourage dog owners to clean up.
3. Sign the bin at Wellhill for dual use - both litter and dog waste.
4. Monitor the situation.

5.7.2 Parking payment

There were a number of complaints (14, or 4% of respondents) about the parking charge at Wellhill. Given many people will remember when parking was free, this is perhaps an unsurprising result. As FCS needs parking income to help provide services, the challenge is to communicate the value of the parking payments in terms of providing the facilities at Wellhill. Season tickets give good value for regular users, but their availability is not always obvious.

ACTION:

1. Use onsite panels to promote the importance of parking payments.
2. Promote season ticket availability.

5.7.3 Horse riding

The 2014 survey did record a small number of complaints and comments about horse riding in Culbin. There is clearly potential for conflict between different user groups, in particular dog walkers and horse riders. Continuing to promote Cloddymoss as the destination for horse riders will help to manage this issue. Staff engagement with user groups, individual riders and the continued use of SignMaker posters could also help.

ACTION:

1. Engage with riders.
2. Monitor the situation.
3. Continue to use SignMaker signage to encourage responsible horse riding.

5.7.4 Access onto the saltmarsh

The 2004 plan highlighted the physical damage caused by access, particularly by horse riders, across the saltmarsh. A number of signs were erected to attempt to influence behaviour, some of which have disappeared. Dog walking in the more sensitive areas also has the potential to cause damage to the natural heritage interest through

disturbance to nesting or resting birdlife. It is unclear if these issues have increased or decreased since the last planning exercise.

ACTION:

1. Continue to promote responsible access in appropriate media.

6 Action Plan and Outline Costings

The following action plan lists the **main issues only** from Section 5 *Issues & Recommendations*. Refer to this section for background information and the full list of generic and 'business as usual' recommendations.

- Priority 1 – needs immediate attention
- Priority 2 – plan to complete within 3 years
- Priority 3 – if resources become available
- No CC = No Cash Cost, as the work will be done in-house. There is still a cost to FCS.
- PA = Per Annum, indicating an annual cost.
- Where two costs are given, the cost in **bold** assumes the entire job is contracted out, the non-bold cost assumes DIS produce the content and design.

Actions			
Ref	Project	Priority	Estimated Cash Cost
5.3.1	Update and add images to Culbin webpages	1	NCC
5.3.2	Print & distribute Culbin leaflet on and offsite	1	1500 PA
5.3.2	Distribute Forests of Moray leaflet more widely	1	500 PA
5.3.2	Update Culbin leaflet	2	NCC
5.4.1	Improve disabled parking at Welhill	2	£300
5.4.1	Create areas for and install accessible picnic benches at Welhill	3	£1000
5.4.1	Improve access between infrastructure at Welhill	2	Up to £10 000
5.4.2	Improve signage to Cloddymoss	2	NCC
5.4.3	Improve signage towards Culbin	2	NCC
5.5.1	Replace panels at Welhill & Cloddymoss	1	4000 / 600

5.5.1	Replace panels at East beach & Kingsteps	2	3000 / 400
5.5.2	Replace damaged bench tops	1	NCC
5.5.2	Plan to replace all custom benches	2	5000 / NCC
5.5.2	Replace all perch points with backless benches	2	NCC
5.5.2	Replace viewpoint ID strip	1	NCC
5.5.3	Provide limited number of walks / events	3	NCC
5.6.1	Split waymarking of Hill 99 trail	1	NCC
5.6.1	Construct a shorter all ability route	2	£30 000
5.6.1	Install extra seating along waymarked trails	2	NCC
5.6.1	Replace all waymarking posts	2	NCC
5.6.1	Replace all fingerposts	3	NCC
5.6.1	Review need for additional fingerposts	3	NCC
5.6.2.1	Consider Countryside4all recommendations	2	£500
5.6.2.1	Develop plan for maintaining views at tower	2	NCC
5.6.2.2	Remove old steps at Gravel-pit ponds	2	NCC
5.6.2.2	Plan & install picnic benches at Gravel-pit ponds	2	NCC
5.6.2.2	Plan & install backed benches at Gravel-pit ponds	2	NCC
5.6.2.3	Add a fingerpost to Dragonfly pond	2	NCC
5.6.2.4	Remove poetry panel at Hidden History	3	NCC
5.6.2.5	Remove Sandlife as a promoted destination	1	NCC
5.6.2.5	Remove infrastructure onsite	1	NCC
5.6.2.5	Install standard backless bench	2	NCC
5.6.2.7	Replace picnic bench at Buckie Loch	1	NCC
5.6.2.8	Install new bench at Findhorn Bay	2	NCC
5.6.2.11	Repair rabbit damage at Otter Pool	1	NCC
5.6.2.11	Manage vegetation at Otter Pool	2	NCC
5.6.2.12	Remove Maviston as a promoted destination	1	NCC
5.6.2.12	Remove infrastructure onsite	1	NCC
5.6.3	Investigate ways to improve drainage	3	NCC
5.7.1	Share results of 2014 survey via onsite poster	1	NCC
5.7.1	Sign the bin at Welhill for dual use	1	NCC

5.7.2	Promote season tickets	1	NCC
5.7.3	Engage with horse riders	1	NCC

Appendix 4 - Appropriate Assessment

Appropriate assessment of forestry proposals which are likely to have a significant effect on a European site under the Conservation of Natural Habitats, &c.) Regulations 1994. Regulation 48.

1. Name of European site affected by the application and current designation status, including name of component SSSI (if relevant).

Culbin Bar SAC (Culbin Sands, Forest and Findhorn Bay SSSI)
Moray & Nairn Coast SPA

2. Features of European qualifying interest, whether priority or non-priority; and conservation objectives for qualifying interests.

SAC – qualifying interests

Culbin Bar for the following **qualifying interests** (non-priority):

1. Saltmarsh
2. Sand Dunes
3. Shingle

A total area of 19ha of Culbin Bar lies within the ownership of Forest Enterprise Scotland, this is only 3% of the total area of the SAC.

SPA – qualifying interests

See Annex 4 below

Additional Proposed interests

None.

Conservation objectives for qualifying interests

To avoid deterioration and distribution of the habitats of the qualifying features (above), thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for the qualifying features.

To ensure for the qualifying species that the following are maintained in the long term:

- Distribution and extent of habitats
- Structure, function and supporting processes of habitats
- No significant deterioration of the habitats.

3. Details of proposal.

Name: Culbin Land Management Plan

Location: Morayshire

Applicant: Forestry Commission Scotland Moray & Aberdeenshire

Reference: LMP1

Description of proposal:

Use of thinning, low impact silvicultural systems and long term retentions to further increase the naturalness and biodiversity of Culbin Forest.

The proposal is in the form of a Forest Plan, as such reference to the plan maps and text should be made, as they form part of this assessment.

Operations:

- Thinning
- Natural regeneration / Restocking
- Recreation/Public Access
- Selective and small-scale group felling
- Forest road maintenance
- Knapsack application of chemicals

4. Appraisal of impact on European interest.

4.1 Is the proposal directly connected with or necessary to the management of the site?

Yes /No (if Yes go to 5.)

No

4.2 Is the proposal likely to have a significant effect on the European interest on the designated site?

Yes/No (if yes assess impact on site)

Yes

Saltmarsh – responsible public access for recreational purposes is promoted in Culbin. Waymarked trails, interpretation panels and leaflets are in place to guide visitors. Some members of the public take access on foot, bike or horse across the saltmarsh and there are also issues with illegal access by 4x4 vehicles and motorbikes. This causes damage to the saltmarsh

Sand dunes – the growth and management of trees in Culbin Forest acts as a seed source for tree regeneration on open sand dune habitat on the bars, along with scrub. This is a threat to the quality of the sand dune habitat.

Shingle – there are no negative pressures

Wintering Bird assemblage – foraging grounds for waders, seabirds and wildfowl are out with the NFE. Although most pressures are out with the control of FES, FES promotes recreational access to the NFE and grant permissions for activities in Culbin which could disturb wintering birds.

4.3 Summary of assessment in relation to possible impacts

The conservation objectives for the qualifying interests will be met by avoiding deterioration of the habitats for the qualifying species by:

- Continuing to ensure that education messages with regards to responsible access are included in leaflets and signage. FES will also continue to work with Police Scotland, other agencies and neighbours to reduce the level of 4x4/motorbike activity.

- Continuing on-going programme of scrub clearance on open habitats as detailed in the LMP proposals to maintain sand dunes as open habitat
- Carrying out all forestry operations in line with all relevant good practice and the site specific requirements of the designated features laid out in section 5.7 of this plan.
- Continue to use signage and interpretation to manage public access and inform and educate the public on the importance of the site. FES will consider the use of temporary signage during sensitive times during the year to highlight this. Permissions will be monitored and advice given to permit holders.

4.4 Any other comments – none

4.5 What would be the outcome on the site if the proposal is not approved?

- No immediate significant effect
- The management of the forest is required to maintain it's high biodiversity value and to improve the condition of designated features of the SSSI. If the proposal is not approved, the condition of some of the woodland components would deteriorate.
- Loss of open ground would occur over time if the clearance of tree regeneration and scrub is not maintained.

5. Conclusions.

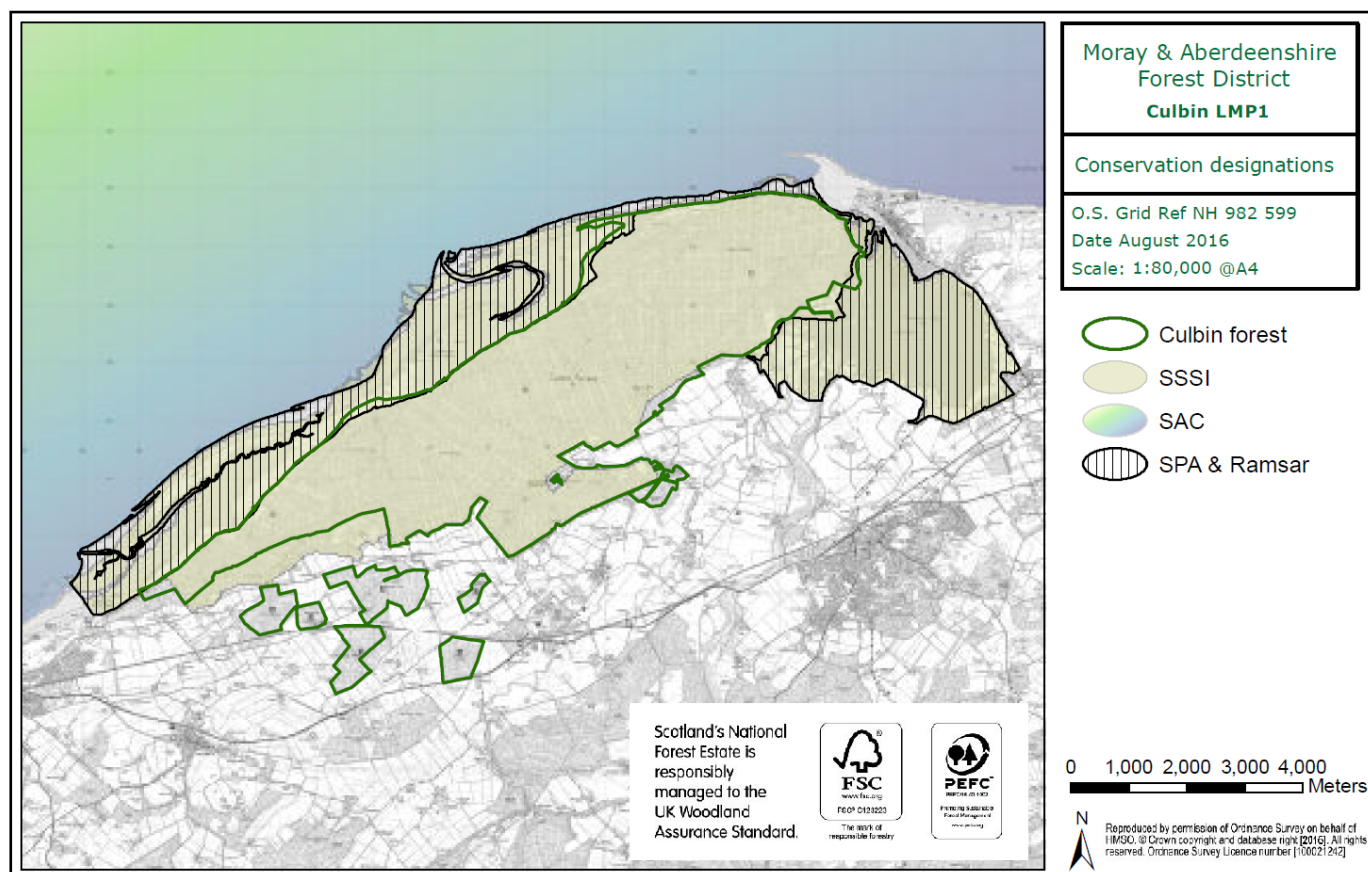
Will the proposal adversely affect the integrity of the European site?

No.

With reference to the Assessment in section 4 and subject to the Conditions in section 6, the proposal should not have any adverse impact on the integrity of the site.

Appendix 5 – Location of designated sites

The map below shows the location of the designated sites in relation to the LMP boundary and NFE management area.



Appendix 6 - SNH site documentation

Culbin Sands, Culbin Forest and Findhorn Bay SSSI (Site Code 478)

CITATION

CULBIN SANDS, CULBIN FOREST AND FINDHORN BAY
Moray, Nairn

Site code: 478

NATIONAL GRID REFERENCE: NH980620

OS 1: 50 000 SHEET NO: Landranger Series 27
1: 25 000 SHEET NO: Explorer Series 422, 423

AREA : 5016.0 hectares

NOTIFIED NATURAL FEATURES

Geological	: Coastal Geomorphology of Scotland	
Biological	: Coastlands	: Sand dune
		: Shingle
		: Saltmarsh
	: Freshwater habitats	: Mesotrophic loch
	: Fens	: Hydromorphological mire range
	: Vascular plants	: Vascular plant assemblage
	: Non-vascular plants	: Lichen assemblage
		: Fungi assemblage
	: Invertebrates	: Invertebrate assemblage

DESCRIPTION

Culbin Sands, Culbin Forest and Findhorn Bay are located along the south coast of the Moray Firth between Nairn, Forres and Kinloss. Although Culbin's sand dune system, the largest in Britain, has been extensively afforested, a large part of the original dune remains unplanted. A 7km-long series of shingle ridges run parallel with the dune coast, forming the second largest area of shingle in Scotland.

GEOLOGY

Culbin is a site of exceptional interest for the scale, complexity and diversity of its coastal geomorphology. The features of major significance include the complex history of postglacial landform evolution, the long history of sand movements, the range of dune and sandhill landforms that rest on a platform of shingle deposits and the saltmarshes with salt pans. The ancient dunes, now stabilised by afforestation, form one of the largest areas of blown sand in Britain. Furthermore, the spectacular erosional features and rapid retreat of the eastern coastal foreland, together with the highly dynamic spit and bar environments to the west whose changes are well-documented, provide excellent examples of a whole range of coastal landforms which can be clearly linked to coastal processes.

Culbin is therefore a site of outstanding importance for studies in coastal geomorphology.

BIOLOGY

Habitats

This site contains a wide variety of habitats associated with the sand-dune system. These include intertidal flats, sand and shingle bars, dunes, dune-slacks, saltmarsh, dune heath, freshwater bodies, freshwater marshes and scrub woodland.

Culbin Bar has one of the best areas of vegetated shingle in the Britain, with the richest example of northern heath on shingle. Culbin's sand-dunes include extensive areas of shifting and fixed dunes, along with dune-slacks and transitions to saltmarsh, shingle and scrub. The saltmarsh, the most extensive in north-east Scotland, includes low marsh characterised by saltmarsh grass *Puccinellia maritima* and transitions to sand dune.

Plants

The wide variety of habitats supports a diverse flora with over 550 species of flowering plants recorded. A number of nationally or regionally rare or scarce species occur, some at or near the limits of their range in Britain. These species include single-flowered wintergreen *Moneses uniflora*, twinflower *Linnaea borealis*, slender-leaved pondweed *Potamogeton filiformis*, marsh clubmoss *Lycopodiella inundata*, the eyebright *Euphrasia foulaensis*, coralroot orchid *Corallorhiza trifida*, oysterplant *Mertensia maritima*, seaside centaury *Centaureum littorale*, lesser tussock sedge *Carex diandra*, sea aster *Aster tripolium*, Baltic rush *Juncus balticus*, black bog-rush *Schoenus nigricans*, lesser water-plantain *Baldellia ranunculoides*, water lobelia *L. dortmanna*, sea rush *Juncus maritimus* and all three of the British species of eelgrass, dwarf eelgrass *Zostera noltei*, narrow-leaved eelgrass *Z. angustifolia* and eelgrass *Z. marina*. The nationally rare stonewort *Chara rudis* has been recorded in Loch Loy.

The diversity of lichens and fungi is also outstanding with 150 and over 450 species recorded respectively. One fungus species, the sand deceiver, *Laccaria maritima*, is not found at any other site in Britain. Rare lichens include the matt felt lichen *Peltigera malacea*, *Gladonia uncialis* subsp. *uncialis* and *Gladonia zopfii*.

Birds

In addition the foreshore and Findhorn Bay are important components of the internationally important Moray Firth group of estuaries and hold significant numbers of feeding and roosting wildfowl and waders for much of the year.

Invertebrates

The site is of national importance for its exceptionally diverse entomological interest including several rarer species of fly, beetle, moth and butterfly.

NOTIFICATION HISTORY

First notified under the 1949 Act: 1973.

Re-notified under the 1981 Act: 28 November 1991, with the area reduced by 59.8 ha.

Reviewed under the 2004 Act: 2 June 2011.

REMARKS

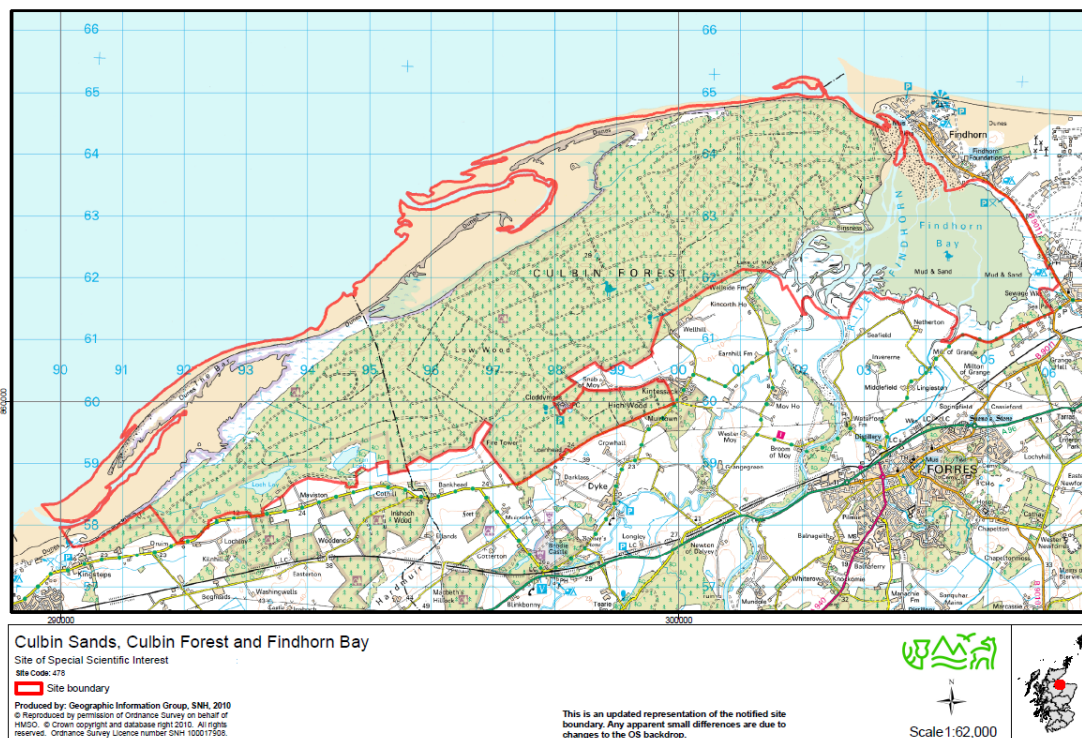
Measured area of site corrected (from 4916.42 ha).

Parts of Culbin Sands, Forest and Findhorn Bay SSSI are designated as Culbin Bar Special Area of Conservation (SAC), for the European habitats listed below and as part of Moray and Nairn Coast Special Protection Area (SPA), for the birds listed below.

Habitats: Atlantic salt meadows
Coastal shingle vegetation outside the reach of waves
Shifting dunes

Birds: Waterfowl assemblage
Bar-tailed godwit
Dunlin
Greylag goose
Osprey
Oystercatcher
Pink-footed goose
Red-breasted merganser
Redshank
Wigeon
Common scoter
Long-tailed duck
Velvet scoter

Boundary Map



List of operations requiring consents

02 June 2011

CULBIN SANDS, CULBIN FOREST AND FINDHORN BAY SITE OF SPECIAL SCIENTIFIC INTEREST

OPERATIONS REQUIRING CONSENT FROM SCOTTISH NATURAL HERITAGE

If you propose to carry out, or permit to be carried out, any of the operations listed below, you must first obtain consent from SNH unless a local authority has granted you planning permission (under Part III of the Town and Country Planning (Scotland) Act 1997) or a designated regulatory authority has given you written permission (under s.15 of the Nature Conservation (Scotland) Act 2004). If you have such a permission, you may proceed without obtaining consent from SNH for the same operation.

<i>Standard Ref. No.</i>	<i>Type of Operation</i>
1	Cultivation, including ploughing, rotovating, harrowing and reseeded.
2	Changes in the grazing regime (including type of stock or intensity or seasonal pattern of grazing).
5	Application of manure, fertilisers and lime.
6	Application of pesticides, including herbicides (weedkillers).
7	Dumping, spreading or discharge of any materials.
9	The release into the site of any wild, feral or domestic mammal or bird, fish, invertebrate, plant or seed.
11	The destruction, removal or cutting of any plant or plant remains, including tree, shrub, herb, dead or decaying wood, moss, lichen, fungus, turf etc).
12	Changes in tree and/or woodland management (including planting, clear and selective felling, thinning, coppicing, changes in species composition).
13a	Drainage (including the use of mole, tile, tunnel or other artificial drains).
13b	Modification of the structure of water courses (eg rivers, streams, springs, drains) including their banks and beds, as by realignment, regarding and dredging.

- 13c Management of aquatic and bank vegetation for drainage purposes.
- 14 The changing of water levels and tables and water utilisation (including irrigation, storage and abstraction from exiting water bodies and through boreholes).
- 15 Infilling of ditches, drains, pools, marshes or pits.
- 16a Changes in freshwater fishery production and/or management including sporting fishing and angling.
- 16b Changes in coastal fishing practice or fisheries management and sea-food or marine life collection including the use of traps or fish cages.
- 17 Reclamation of land from sea, estuary or marsh.
- 20 Extraction of minerals, including shingle, sand and gravel, topsoil.
- 21 Construction, removal or destruction of tracks, fences, banks, ditches or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground.
- 22 Storage of materials on the landforms.
- 23 Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling.
- 24 Modification of natural features including battering or grading landforms.
- 26 Use of vehicles or craft likely to damage or disturb landforms, vegetation or wildlife.
- 27 Recreational or other activities likely to damage landforms, vegetation or wildlife excluding those activities carried out responsibly in keeping with the Scottish Outdoor Access Code.
- 28 Changes in game and waterfowl management and hunting practice.

Site Management Statement



Scottish Natural Heritage
Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdair air fad airson Alba air fad

CULBIN SANDS, CULBIN FOREST AND FINDHORN BAY
Site of Special Scientific Interest

SITE MANAGEMENT STATEMENT

Site code: 478

Address: 32 Reidhaven Street, Elgin, Moray IV30 1QH

Tel: 01343 541551

email: Elgin@snh.gov.uk

Purpose



This is a public statement prepared by SNH for owners and occupiers of the SSSI. It outlines the reasons it is designated as an SSSI and provides guidance on how its special natural features should be conserved or enhanced. This statement does not affect or form part of the statutory notification and does not remove the need to apply for consent for operations requiring consent.

We welcome your views on this statement.

Description of the site

Culbin Sands, Culbin Forest and Findhorn Bay SSSI comprises Culbin Sands where marine processes and weather still influence the dunes and shingle deposits; the area of windblown sand and relict dune systems, now afforested, known as Culbin Forest; Findhorn Bay; and the Cran Loch and Loch Loy section with wetland and semi-natural woodland.

The range of coastal and woodland habitats support a great variety of animal and plant species including many that are nationally and internationally rare or scarce. The whole area is thus of considerable national and international importance. More information on the site's geological and biological interests is given in Appendix 1.

Site condition monitoring (SCM) results for Culbin Sands, Culbin Forest and Findhorn Bay SSSI

Natural Features of Culbin Sands, Forest and Findhorn Bay SSSI	Feature Condition (date monitored)	Other relevant designations
Coastal geomorphology of Scotland	Unfavourable No change (September 2001)	
Fungi assemblage	Favourable Maintained (July 2009)	
Invertebrate assemblage	Favourable Maintained (September 2000)	

Lichen assemblage	Favourable Maintained (May 2004)	
Saltmarsh	Favourable Maintained* (June 2009)	SAC
Sand dunes	Unfavourable No change (August 2001)	SAC
Shingle	Favourable Maintained (August 2001)	SAC
Vascular plant assemblage	Favourable Maintained (October 2001)	
Mesotrophic loch	Not yet assessed	
Hydromorphological mire range	Not yet assessed	

*Unfavourable Declining for SAC (August 2001)

The geomorphological feature was last surveyed in 2000 and was assessed as being in unfavourable condition. 4-5 hectares of the relict parabolic dunes had been irreversibly damaged by forestry operations (ploughing of furrows and tracking by heavy operational vehicles).

The coastal habitats were last surveyed in 2001. The sand dunes were assessed as being in unfavourable condition as they had been affected by scrub encroachment and tree regeneration. Damage to the saltmarsh, in the form of tracking from mountain bikes, horses and quad bikes, was more significant for the SAC than for the SSSI as a whole. The main habitat of interest for lichens is the dune heath. Concerns were noted in 2004 and 2009 regarding recreational disturbance and tree/shrub regeneration causing loss of lichen-rich areas, though the 2009 assessment has not yet been completed.

Natural Features of Moray and Nairn Coast SPA	Feature Condition (date monitored)
Bar-tailed godwit <i>Limosa lapponica</i> , non-breeding	Favourable Declining (November 2008)
Common scoter <i>Melanitta nigra</i> , non-breeding	Favourable Maintained (November 2008)
Dunlin <i>Calidris alpina alpina</i> , non-breeding	Favourable Maintained (November 2008)
Greylag goose <i>Anser anser</i> , non-breeding	Favourable Maintained (November 2008)
Long-tailed duck <i>Clangula hyemalis</i> , non-breeding	Favourable Maintained (November 2008)
Osprey <i>Pandion haliaetus</i> , Breeding	Favourable Maintained (April 2001)
Oystercatcher <i>Haematopus ostralegus</i> , non-breeding	Favourable Maintained (November 2008)
Pink-footed goose <i>Anser brachyrhynchus</i> , non-breeding	Favourable Maintained (November 2008)
Red-breasted merganser <i>Mergus serrator</i> , non-breeding	Favourable Maintained (November 2008)

Redshank <i>Tringa totanus</i> , non-breeding	Favourable Recovered (November 2008)
Velvet scoter <i>Melanitta fusca</i> , non-breeding	Favourable Maintained (November 2001)
Waterfowl assemblage, non-breeding	Favourable Maintained (November 2008)
Wigeon <i>Anas penelope</i> , non-breeding	Favourable Maintained (November 2008)

Numbers of wintering birds were recently assessed. Most qualifying species' average peak numbers had increased since designation, including dunlin (+65%), oystercatcher (+200%), greylag goose (+3%), pink-footed goose (+116%), wigeon (+153%), and red-breasted merganser (+81%). Numbers of redshank fell in the previous cycle of monitoring but have recovered for this cycle (+27%). Numbers of bar-tailed godwit (-36%) had fallen, as elsewhere in the UK. With recent milder winters this species is increasingly wintering closer to breeding grounds in Holland. Counts of sea ducks, common scoter (+644%), velvet scoter (+973%) and long-tailed duck (+1739%), had all increased dramatically.

Past and present management

Culbin Forest

In an effort to stabilise the area of windblown sand and to replenish timber supplies during and after the World Wars, the Forestry Commission planted conifers at Culbin. Planting ceased in the late 1960's, by which time the stabilisation of the dunes was well established. Afforestation dramatically altered a large area of the dune system and the geomorphological/ecological relationships between its different parts.

Culbin Sands & Findhorn Bay

This dynamic coastal area has long been associated with the fishing industry, especially salmon and mussel fishing. A Nature Conservation Order (NCO), placed on this area in 1995, and amended in 2006, prohibits the mechanical harvesting of cockles except for personal use or for scientific purposes. This activity had caused damage to plant and animal communities and threatened to affect bird populations through reduction in food supply and disturbance. Wildfowling is a traditional activity within this area.

Cran Loch and Loch Loy

This is an area of the site that has been more intensively managed as part of a private estate with the lochs having been popular in the past for wildfowling and angling.

Appendix 2 provides more information on Culbin's history.

Today, most of the Culbin Forest section of the site is managed by Forest Enterprise (FE) to deliver multiple benefits including timber production, conservation, recreation and education. Management is carried out in accordance with a Conservation Management Plan, agreed between FE and SNH. FE changed the management of the forest from the previous norm of clearfell and restocking to continuous cover management. Where coastal erosion is affecting FE property, trees are removed before the erosion occurs, thus preventing trees being washed away by the sea.

Culbin Forest is also an important and popular recreational resource, with car parks at Wellhill and Cloddymoss providing access for walkers and cyclists to a very extensive network of waymarked tracks and paths. Interpretative panels, supported by a leaflet, have also been installed. Occasional sporting events such as sled dog racing are permitted.

The forest is an important educational resource with many groups visiting the site for field studies, often assisted by an FE Ranger. A considerable amount of research into many aspects of the natural heritage has been carried out in the forest and many specialist natural history groups visit the site.

Culbin Sands

The majority of the coastal section of the site is leased and managed as a nature reserve by the RSPB, with positive management measures helping to safeguard the interests of the reserve. Recreational activity in this section is generally light and concentrated at the western end where Nairn provides an access point. A limited amount of wildfowling occurs in this section. Yachts occasionally anchor in the lee of the bar in the central intertidal area known as "the Gut".

A small number of drainage ditches cross the saltmarsh from the forest and the Cran Loch-Loch Loy sections of the site. A former salmon fishing bothy exists by the Gut. The sheltered intertidal flats of the Gut have been used by Aberdeen University for research on intertidal ecology.

Findhorn Bay

Findhorn Bay is designated as a Local Nature Reserve (LNR) and is also popular for a wide range of recreational activities. The LNR Management Committee includes representatives from all the major groups using the Bay. Watersports activity is concentrated in the northern section of the Bay, but some types of activity, e.g. windsurfing and canoeing, extend to the southern parts of the Bay. Walking, dog walking and bird watching tend to be concentrated on the eastern side of the bay where a hide and interpretative panel have been erected for birdwatchers.

Wildfowling in the winter months is concentrated in the southern and south-western sections of the bay and occurs mostly at dawn. In October 2009 the British Association for Shooting and Conservation (BASC), with support from the Findhorn Bay LNR Management Committee and the local wildfowling group, provided training to allow members of the local Findhorn and Nairn District Wildfowling Association to become voluntary wildfowling wardens. The wardens act in an advisory capacity to provide information and advice on good wildfowl and shooting practice across the bay to local and visiting wildfowlers.

Rod angling for salmon and sea trout is carried out by two local clubs. Seals are occasionally shot near the entrance to the bay to reduce their potential impact on salmon and sea trout numbers. This is done under licence and agreement as part of the Moray Firth Seal Management Plan.

Drainage ditches on the east of the bay previously took all drainage from RAF Kinloss until the new surface water treatment system was installed that uses reed beds as

treatment and discharges to Burghead Bay. This system was primarily required because of the chemicals associated with aircraft de-icing. The ditches still provide drainage for surface water during heavy rainfall. Approach lights for the main runway of RAF Kinloss are located on the eastern side of the bay on the saltmarsh and require regular maintenance. At the time of writing, the closure of RAF Kinloss in spring of 2011 has been announced and it is not clear what the site may be used for in the future and whether any subsequent use could affect or offer opportunities to enhance the interests of the SSSI.

Waste water (sewage) which has been treated to a secondary standard enters the bay via the Mosset Burn. Scottish Water has recently (2010) diverted the discharge from the Kinloss treatment plant to the Forres treatment plant via a pipeline that crossed areas of the SSSI to the south. This was done to improve the quality of the discharge. Latest SCM says the water quality in the area has improved in recent years largely due to better sewerage treatment.

Coastal protection (boulder rip-rap) has been installed on part of the western shore of the bay.

Cran Loch and Loch Loy

Part of the Lochloy woodland is subject to a management agreement, between the owner and SNH. The objectives of this agreement are to retain the natural development of native woodland and associated habitats on the fringes of the dune systems and to manage the area with minimum intervention. Other than occasional four-wheel drive vehicle use of rough tracks and periodic maintenance of a power line wayleave, no active management takes place.

The area around Cran Loch, under the terms of a Management Agreement between the owner and SNH, is managed as part of a sporting estate.

Objectives for management (and key factors influencing the condition of natural features)

We wish to work with the owners and occupiers of the site to protect the site and to maintain and where necessary enhance its features of special interest. SNH aims to carry out site survey, monitoring and research as appropriate to increase our knowledge and understanding of the site and its natural features and monitor the effectiveness of the management agreements.

The EU Habitats and Birds Directives oblige Government to avoid, in SACs and SPAs, the deterioration of natural habitats and the habitats of species, as well as disturbance of the species for which the areas have been designated, where such disturbance could be significant in relation to the objectives of these Directives. The objectives below have been assessed against these requirements. All authorities proposing to carry out or permit to be carried out operations likely to have a significant effect on the European interests of this SSSI must assess those operations against the relevant Natura conservation objectives (which are listed on our website through the SNHi – SiteLink facility).

- 1. To maintain the diversity of both coastal landforms and coastal, wetland and woodland habitats, and the flora and fauna that these support**

Forest Enterprise (FE) ensures that forestry operations adhere to the Forest Design Plan (FDP) and Conservation Management Plan (CMP) prescriptions. Details of all species and sensitive habitats are contained within the CMP and management of operations is decided accordingly.

A RSPB management plan covers the management of the area leased by the organisation and lists positive actions to safeguard the interests of the site.

Since there is little major disturbance across the site, intervention may well be required to remove invasive trees and shrubs and maintain the existing open areas of dune, in particular the lichen-rich areas.

- 2. To allow natural geomorphological and biological processes to continue to operate to ensure the natural evolution of the coast**

Semi-natural woodland should be allowed to regenerate where this does not conflict with other features of interest. The RSPB has implemented a programme of scrub removal to safeguard the interests of the coastal habitats.

- 3. To raise visitor awareness of the effects of disturbance and damage on sensitive habitats, and encourage the responsible use of the site**

The forest has a network of well-maintained tracks and is able to absorb, without damage, much authorised recreational activity. This is actively encouraged, along with education and legitimate research, to increase our knowledge and understanding of the natural heritage interests.

Negotiations with recreational users of the site, e.g. horse riders, agreed suitable access points. However, not all recreational users took part in negotiations and some damage continues. Unauthorised motorcycle use has damaged the relict sand dune surface within parts of the Forest and FE is taking steps to prevent this.

The majority of the sands is remote from access points, affording the more sensitive habitats protection from overuse by recreational activity. However, unauthorised use of motorcycles and horse riding is causing damage to the sensitive saltmarsh surface and the dunes. The FE and RSPB are aware of the problems and take measures to encourage responsible access which does not damage the site.

The chemistry of the lochs is an important factor to be considered. Run off from agricultural areas has, in the past, adversely affected the nearby Cran Loch by enriching the water with nutrients in a process known as eutrophication. Eutrophication can cause significant damage to aquatic plant species.

Date last reviewed: 2 June 2011.

Appendix 1

Further information on the biological and geological interests of Culbin Sands, Culbin Forest and Findhorn Bay SSSI

Geological interest

Culbin is of national importance for the exceptional scale, complexity and diversity of its coastal landforms. The oldest are shingle features which provide a detailed record of relative sea level change over at least the last 8,000 years. Before it was stabilised by afforestation, the sand dune complex capping the shingle comprised the largest wind blown sand area in Britain, and was renowned for its extremely dynamic landforms. The afforested dunes include the largest parabolic dune forms in Europe. Other superb examples of dune system reworking by wind are identifiable within the site, including high sandhills, formerly transgressive waves of bare sand and butte dunes. The sea's transport of sand along the coastal edge has created spit and bar complexes whose scale, extreme dynamism and well-documented history make them nationally important. Spectacular high scarp faces also occur along the coastal edge, forming evidence of coastal recession into the afforested sandhills.

Culbin is also of national importance for the development of extensive saltmarshes, which have accumulated under the low energy conditions in the lee of Culbin Bar and the Buckie Loch spit. These represent the most recent part of the coastal landform assemblage. They comprise one of only a few well developed, geomorphologically similar saltmarsh systems in Britain, such as those that have formed along the north Norfolk and south Lincolnshire coasts. The morphology of the Culbin saltmarshes is distinctive as it comprises unusually few creeks. The Culbin saltmarshes are extremely important in the study of the evolution of British saltmarsh systems.

In addition to their individual scientific interest, it is the complex association of these features that make Culbin an outstanding site for studies of coastal landform evolution. Research, study and interpretation at the site can integrate ancient landforms, recent forms stabilised by afforestation and those actively changing, to help us understand coastal evolution in the future.

The Culbin Sands and Culbin Forest sections of the site are listed in the 'Beaches of Lowland Scotland' and 'Saltmarsh Morphology' Blocks of the Geological Conservation Review. A comprehensive account of the site can be found in the SNH's 'Earth Science Documentation Series' report for Culbin Sands, Culbin Forest and Findhorn Bay SSSI (MacTaggart 1998).

Biological interest

Coastal features

Culbin Sands has the largest area and most complete range of sand dune habitats in Moray with a range of other coastal communities including extensive saltmarsh and sheltered intertidal flats. Areas of dune heath are also found.

Culbin Bar is a 7 km-long shingle bar with an exceptional series of shingle ridges running parallel to the coast. These support the best and richest examples of northern heath on

shingle with heather, crowberry and juniper growing on stable ridges. The natural westward movement of the bar continues depositing new ridges for future colonisation.

The saltmarsh at Culbin and Findhorn Bay is the largest and most diverse in north-east Scotland with the only examples of saltmarsh pioneer communities in Moray and Nairn, extensive stands of saltmarsh-grass and with species-rich red fescue saltmarsh with sea century and sea aster. In places the saltmarsh is interspersed slender spike-rush, grey and sea club-rushes.

The intertidal flats support a diverse invertebrate community.

Culbin Sands and Findhorn Bay are nationally and internationally important for wintering wildfowl as part of the Moray and Nairn Coast SPA. The SPA regularly supports over 20,000 wintering wildfowl with internationally important numbers of redshank, greylag geese and pinkfooted geese. It is also nationally important for foraging osprey in summer.

The Moray and Nairn Coast also qualifies as a wetland of international importance under the Ramsar Convention for its important coastal wetland habitats, and for its wintering wildfowl and wetland plants and other animals.

Woodland

Semi-natural deciduous woodland is found around the margins of Loch Loy and the Cran Loch. Wet alder woodlands are found here and by the saltmarsh. Semi-natural birch woodland is also found locally on the sand dunes, for example at Buckie Loch. Semi-natural woodland on dune substrates is very unusual in Britain.

Lochs and fens

Loch Loy and Little Loch Loy have a high degree of naturalness and transitions from nutrient-poor to nutrient-rich conditions and from open water to woodland habitats. At least eight species of pondweed are found including the rare slender-leaved pondweed and two species of bladderwort have also been recorded. Water lobelia and lesser water-plantain occur in both lochs and much of the western end of Loch Loy is covered in white water-lily.

Loch Loy and Cran Loch have fringing swamps of bottle sedge and water horsetail, followed by stands of rich and poor fen and patches of bog with hare's-tail cottongrass. Stands of rich and poor fen are also found in nearby hollows and basins along with fen-meadows of meadowsweet, purple moor-grass and bog myrtle.

Flora and fauna

The assemblage of vascular plant species at Culbin is of national importance with a number of nationally or regionally rare or scarce species occur, some at or near the limits of their range in Britain. These include single-flowered wintergreen, marsh clubmoss, twinflower, the eyebright *Euphrasia foulaensis*, coralroot orchid, oysterplant, seaside centaury, sea aster, lesser tussock sedge, black bog-rush, sea rush, dwarf eelgrass, narrow-leaved eelgrass and eelgrass.

Culbin's lichen and fungal floras are each of national importance with over 450 species recorded respectively. One fungus species, the sand deceiver, has not been found at any other site in Britain. Rare lichens include the matt felt lichen.

The site is of national importance for invertebrates with a number of rare and noteworthy species recorded. These include the bumblebee robberfly, Kentish glory moth, narrow-bordered bee hawk-moth, small blue butterfly, dingy skipper butterfly and the southern hawker dragonfly. The fly *Tetanocera freyi*, the larvae of which are predators of water snails, has been found at Loch Loy, its only site known in Scotland.

The site also supports a large number of species listed in the UK Biodiversity Action Plan.

Appendix 2

Further information on the past management of Culbin Sands, Culbin Forest and Findhorn Bay SSSI

History

Evidence of human occupation of Culbin extends back at least to the Bronze Age (1300BC) - huge numbers of stone and bronze artefacts have been recovered from the site. Until the late 17th century, part of Culbin was used for arable agriculture. In 1694 arable agriculture was abandoned due to climatic deterioration and the gradual advance of wind blown sand. The destabilisation of adjacent duneland was accelerated/caused by the stripping of turf for house building and cutting of heather and marram for thatch and animal bedding. Parts of the site remained in use for peat cutting and rough grazing with the latter use continuing in the Loch Loy & Cran Loch section and parts of the Findhorn Bay saltmarsh until the 1980's.

Culbin Forest

Trees were first planted at Culbin in 1837 and, by 1900, just over 1,200 hectares of the site had been afforested. This tree cover was removed in the First World War by logging and fire. The Forestry Commission began acquisition of the site in 1922 and started a programme of planting to stabilise the dune system. Planting was interrupted by the Second World War when the site was used as a practice beach landing area and large quantities of live rockets and shells were fired at the coastal section. At this time large numbers of anti-glider poles were also erected in the intertidal flats. Planting resumed after W.W.II and was completed by the late 1960's, by which time the forest extended to 2,560 hectares. Prior to tree planting the sand surface was initially stabilised by planting marram grass and later the technique of thatching the surface with brash from other forests was used. The main tree species planted were Scots and Corsican pines. The Forestry Commission installed coastal protection groynes on the eastern part of Culbin Sands in the late 1960s but the protection was ineffective and it has been abandoned.

Culbin Sands

The coastal waters of Culbin and Findhorn have long been an important fishery. Salmon netting, latterly carried out from a number of bothies, continued until the 1980's. Commercial collection of mussels was formerly important, particularly as a source of bait for the long-line fishery, but ceased earlier this century. RSPB acquired the mussel fishing rights in 1991 in order to ensure that commercial mussel fishing did not become re-established at the site. Mechanised commercial cockle harvesting occurred in the 1980's until, in 1995, a Nature Conservation Order prohibited the activity.

Findhorn Bay

The village of Findhorn was an important sea trading and boatbuilding centre in the 18th century. Watersports have become increasingly important in Findhorn Bay since W.W.II and in 1975 the Fairways Committee was established to manage these activities in the Bay. Wildfowling in the coastal and freshwater parts of the site is a long-established activity.

Cran Loch and Loch Loy

The Cran Loch and Loch Loy section of the site was used for a combination of rough grazing, rough shooting, wildfowling and angling. These activities have largely ceased on the Loch Loy part. Management in the 1980's included the partial deepening of Loch Loy for fishery reasons and the installation of an agricultural irrigation system. Attempts were also made to control the water level in the loch and a variety of works associated with sport shooting were undertaken.

Culbin bar SAC (Site code 8238)

Notification documentation

**CULBIN SANDS, FOREST AND FINDHORN BAY
SITE OF SPECIAL SCIENTIFIC INTEREST
MORAY DISTRICT, GRAMPIAN REGION**

**THE CULBIN SANDS AND FINDHORN BAY NATURE CONSERVATION ORDER
1995**

Whereas the land which is hereinafter described is in the opinion of the Secretary of State of special interest and of national importance by reason of its flora, fauna and geological and physiographical features; And whereas it appears to the Secretary of State expedient to apply section 29(3) of the Wildlife and Countryside Act 1981 to the said land for the purposes of conserving its flora, fauna, and geological and physiographical features; And whereas the Secretary of State has consulted Scottish Natural Heritage; Now therefore the Secretary of State, in exercise of the powers conferred on him by section 29(1) and (3) of the said Act of 1981 and of all other powers enabling him in that behalf, hereby makes the following Order:-

1. Section 29(3) of the said Act of 1981 shall apply to the two areas of land at Culbin Sands and Findhorn Bay described in the Schedule to this Order, which areas are shown delineated and hatched in red on the plans numbered 1 and 2 annexed to and forming part of this Order.
2. Each of the operations specified for the purposes of the said Act of 1981 in Article 3 of this Order appears to the Secretary of State to be likely to destroy or damage the flora, fauna, and geological and physiographical features of the areas of land referred to in Article 1 of this Order.
3. The specified operations are:-
 - (a) The killing or removal of any marine invertebrate animal (including mollusca, crustacea or annelid) by mechanical means.
 - (b) The fishing for, or collection of shellfish.
 - (c) The use of vehicles or craft by persons surveying the shellfish resource or collecting or transporting shellfish..

4. This Order may be cited as the Culbin Sands and Findhorn Bay Nature Conservation Order 1995.

J. W. Randall

New St Andrew's House
Edinburgh
EH1 3TG

Assistant Secretary
Scottish Office
Environment Department

22 June 1995

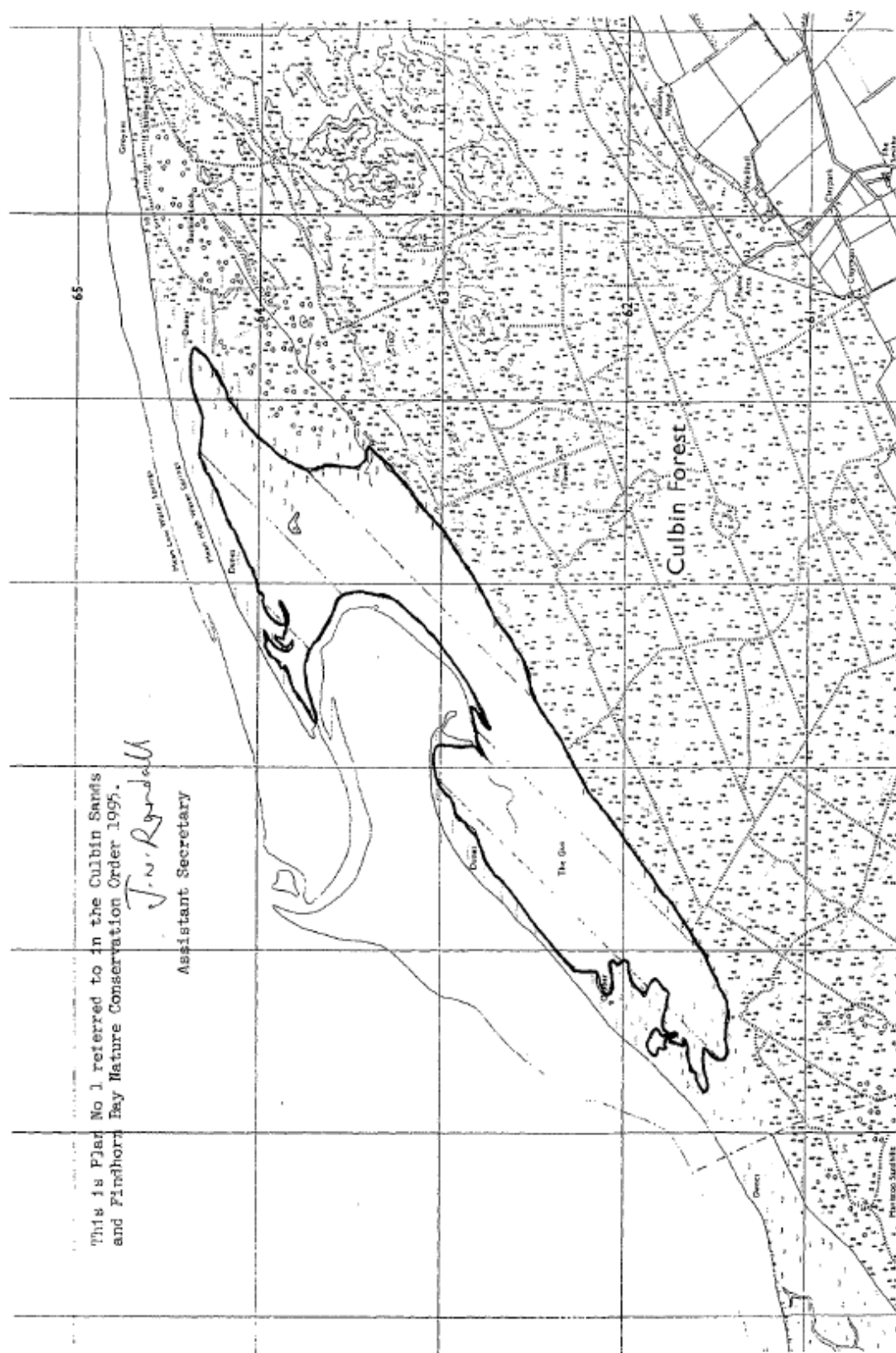
Register on behalf of the Secretary of State for Scotland in the Registers of the Counties of Moray and Nairn.

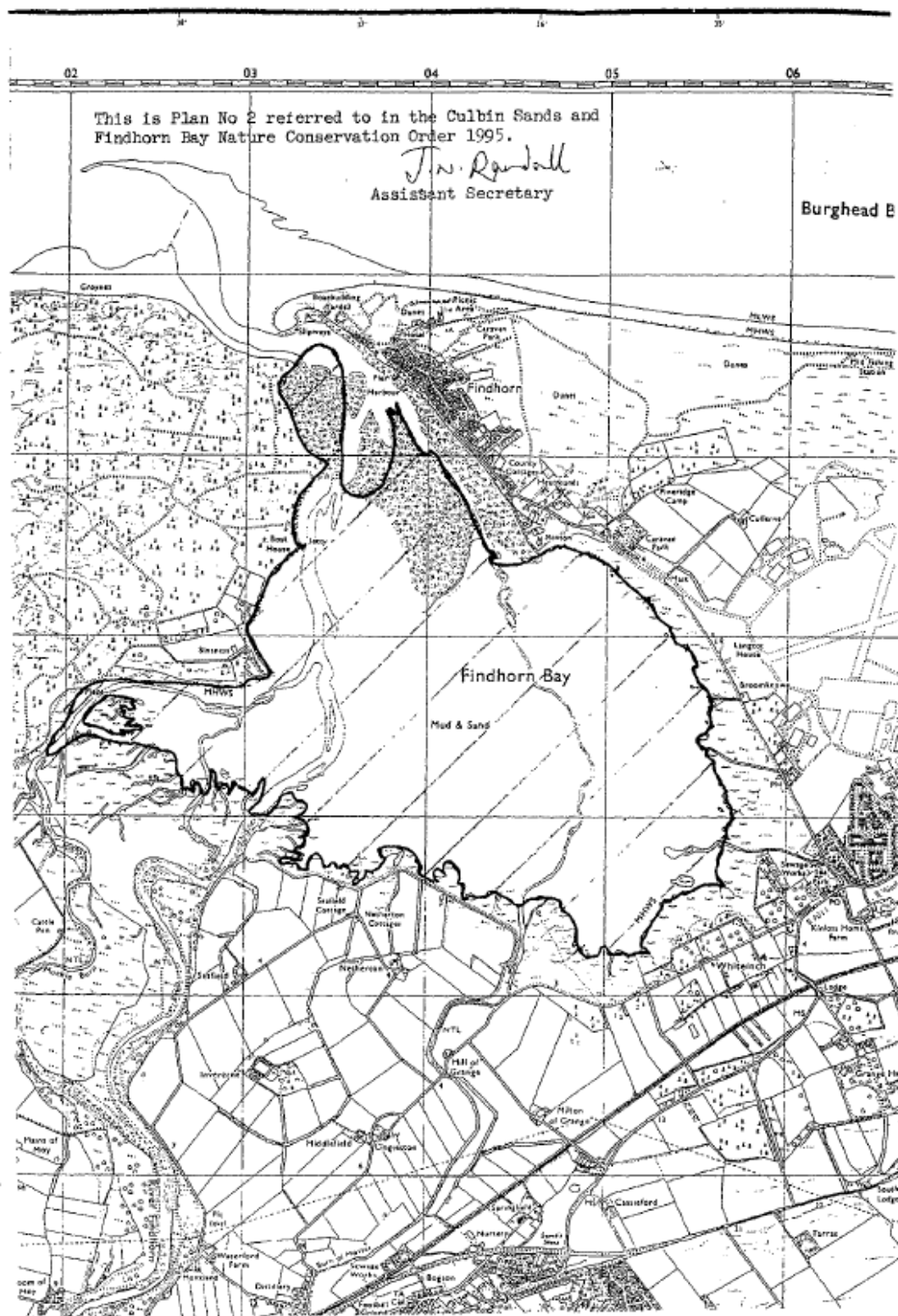
Solicitor
Edinburgh, Agent

Schedule

Description of Areas of Land

(ONE) that area of the intertidal lands forming part of Culbin Sands adjacent to Culbin Forest extending to 255 hectares or thereby in the Counties of Moray and Nairn, being the subjects delineated and hatched in red on Plan No 1 annexed and executed as relative hereto and
(TWO) that area of the intertidal lands of Findhorn Bay extending to 655 hectares or thereby in the County of Moray being the subjects shown delineated and hatched in red on Plan No 2 annexed and executed as relative hereto.





**CULBIN SANDS AND FINDHORN BAY
SITE OF SPECIAL SCIENTIFIC INTEREST
MORAY DISTRICT, GRAMPIAN REGION
THE CULBIN SANDS AND FINDHORN BAY NATURE CONSERVATION ORDER
1995 (AMENDMENT) ORDER 1996**

Whereas in exercise of the powers conferred on him by section 29(1) and (3) of the Wildlife and Countryside Act 1981 the Secretary of State made on 22 June 1995 the Culbin Sands and Findhorn Bay Nature Conservation Order 1995, which Order was registered in the General Register of Sasines for the County of Moray on 30 June, 1995; and whereas the Secretary of State thinks it appropriate in the light of recommendations made to him by Scottish Natural Heritage; now therefore the Secretary of State in exercise of the powers conferred on him by section 29(1) and (3) of the said Act and of all other powers enabling him in that behalf hereby makes the following Order:-

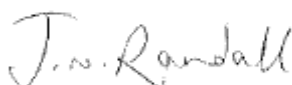
1.(1) the Culbin Sands and Findhorn Bay Nature Conservation Order 1995 (hereinafter referred to as "the 1995 Order") shall be amended in accordance with the following provisions of this Article:

(2) In Article 3(b) of the 1995 Order, after the word "shellfish" there shall be inserted the words "by mechanical means".

2. This Order may be cited as the Culbin Sands and Findhorn Bay Nature Conservation Order 1995 (Amendment) Order 1996.



J Doddie (Witness)
The Scottish Office Agriculture,
Environment and Fisheries Department
Pentland House
Edinburgh
EH14 1TY
19 March 1996



J N Randall (Assistant Secretary)
The Scottish Office Agriculture,
Environment and Fisheries Department
Pentland House
Edinburgh
EH14 1TY
19 March 1996

**CULBIN SANDS, CULBIN FOREST AND FINDHORN BAY
SITE OF SPECIAL SCIENTIFIC INTEREST
COUNTY OF MORAY
THE CULBIN SANDS AND FINDHORN BAY NATURE CONSERVATION ORDER
1995 AMENDMENT ORDER 2006**

Whereas, in exercise of the powers conferred on him by section 29(1) and (3) of the Wildlife and Countryside Act 1981, the Secretary of State made, on 22 June 1995, the Culbin Sands and Findhorn Bay Nature Conservation Order 1995, which Order was registered in the General Register of Sasines for the County of Moray on 30 June, 1995; and whereas that Order was amended by the Culbin Sands and Findhorn Bay Nature Conservation Order 1995 (Amendment) Order 1996 dated 19 March 1996; and whereas the Scottish Ministers now think it appropriate in the light of recommendations made to them by Scottish Natural Heritage to further amend that Order; now therefore the Scottish Ministers, in exercise of the powers conferred on them by section 24 of the Nature Conservation (Scotland) Act 2004 and of all other powers enabling them in that behalf hereby make the following Order:-

1. The Culbin Sands and Findhorn Bay Nature Conservation Order 1995 is amended –

(a) by inserting after the second “shellfish” in article 3(c), “other than for scientific purposes”;

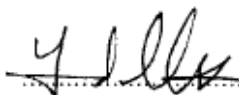
and


(b) by inserting after article 3(c) –

“(d) The collection, gathering or harvesting, by whatever means, of cockles for any purpose other than personal use or scientific purposes.”

2. This Order may be cited as the Culbin Sands and Findhorn Bay Nature Conservation Order 1995 Amendment Order 2006.

IN WITNESS WHEREOF

 Date 18/10/06
Branch Head, Marine Management Division
Scottish Executive Rural Affairs Department
Victoria Quay, Edinburgh, EH6 6QQ

 Witness
PHIL ALCOCK Name
MARINE POLICY Designation
OFFICER

DAVID MALLON Name
BRANCH HEAD Designation

Moray & Nairn Coast SPA (Site code 8550)

Notification documentation

EC Directive 79/409 on the Conservation of Wild Birds

SPECIAL PROTECTION AREA (SPA) CITATION FOR PUBLIC ISSUE

MORAY BASIN FIRTHS AND BAYS, HIGHLAND & GRAMPIAN (162) 5: MORAY AND NAIRN COAST, HIGHLAND & GRAMPIAN (162E)

The Moray and Nairn Coast is an integral part of the Moray Basin Firths and Bays Special Protection Area. It comprises the Culbin Bars, Findhorn Bay and Spey Bay which together form the easternmost estuarine component of the Moray Basin ecosystem. The boundary of the site generally follows the shoreline within the Culbin Sands, Forest & Findhorn Bay SSSI, the estuarine limit of Spey Bay SSSI, and the whole of the Lower River Spey SSSI. Moray and Nairn Coast Special Protection Area supports a diverse assemblage of wintering waterfowl of outstanding nature conservation and scientific importance.

The site qualifies under Article 4.1 of the EC Wild Birds Directive by providing foraging grounds for nationally important numbers of breeding osprey *Pandion haliaetus*.

The site qualifies under Article 4.2 by regularly supporting over 20,000 wintering waterfowl in the late 1980s/early 1990s with a mean of 24,000 waterfowl comprising 9,500 waders and 14,500 wildfowl.

The site further qualifies under Article 4.2 by supporting internationally important wintering populations (1988/89-92/93 winter peak means) of Icelandic/Greenlandic pink-footed goose *Anser brachyrhynchus* (7,538, 4% of total population, all of which winters in Great Britain), Icelandic greylag goose *Anser anser* (3,023, 3% of total population, all of which winters in Britain) and redshank *Tringa totanus* (1989/90-93/94 winter peak mean of 1,690, 2% of British and 1% of East Atlantic Flyway wintering populations).

Notable also are nationally important wintering populations of velvet scoter *Melanitta fusca* (3% of GB), red-breasted merganser *Mergus merganser* (1% of GB), bar-tailed godwit *Limosa lapponica* (2% of GB).

The breeding bird assemblage includes an important breeding population of common tern *Sterna hirundo*, an Annex I species

This citation is accompanied by the citation for the entire Moray Basin Firths and Bays Special Protection Area which explains the overall international importance of the wintering waterfowl and breeding bird populations of the Moray Basin.

Area: 2,410 ha
Grid Ref: NH 990695, NJ 325660
Longitude and Latitude: 57°42'15 -3°41'42, 57°40'46 -3°7'52
OS Sheets 1:50,000 - 27, 28

RJ/GPM
December 1995
Research and Advisory Services Directorate
Scottish Natural Heritage

EC Directive 79/409 on the Conservation of Wild Birds

**SPECIAL PROTECTION AREA (SPA) CITATION
FOR PUBLIC ISSUE**

MORAY BASIN FIRTHS AND BAYS, HIGHLAND & GRAMPIAN (162)

The Moray Basin proposed SPA is a complex area of coastal and estuarine habitats, extending from Loch Fleet in the north to Spey Bay in the south-east. It includes the Dornoch, Cromarty, Beauly and Inverness Firths, Loch Fleet, Culbin Bars, Findhorn Bay and Spey Bay, together with intervening stretches of more open coast and the freshwater Loch Eye. It is one of the most northerly major wintering waterfowl sites in Western Europe.

The Moray Basin SPA qualifies under Article 4.1 of the Wild Birds Directive by regularly supporting a nationally important breeding population of common tern (720 pairs, 6% of GB), providing foraging grounds for around 27 pairs of osprey (27% of GB), and by regularly supporting internationally important wintering populations (1989/90-93/94 winter peak means) of around 57 Slavonian grebe (14% of GB, 1% of North West (NW) European) and 721 whooper swan (4% of the total population, 14% of GB).

The Moray Basin SPA qualifies under Article 4.2 by regularly supporting in winter over 20,000 waterfowl. In the five-year period 1991/92 to 1995/96 the average peak count was around 116,000 wintering waterfowl, comprising approximately 73,500 wildfowl and 42,500 waders.

The Moray Basin SPA further qualifies under Article 4.2 by regularly supporting in winter, in the early 1990s, internationally important populations of 10 waterfowl species: 2,137 pink-footed geese (1% of the total population, all of which winters in Britain), 13,226 Icelandic greylag geese (13% of the total population, all of which winters in Britain), 31,745 wigeon (4% of NW European, 11% of British), 3,930 teal (1% of NW European, 3% of British), 1,629 red-breasted merganser (2% of NW European, 16% of British), 10,362 oystercatcher (1% of the NW European population, 3% of British), 5,396 knot (2% of GB and NW European), 3,676 bar-tailed godwit (4% of Western European, 7% of British), 4,719 curlew (1% of East Atlantic Flyway (EAF), 4% of British) and 4,448 redshank (3% of EAF, 4% of British).

Notable also on the Moray Basin is the largest wintering concentration of seaduck in Britain including nationally important populations of red-throated diver, scaup, eider, long-tailed duck, common scoter, velvet scoter, goldeneye, red-breasted merganser and goosander.

Other waterfowl wintering in nationally important numbers on the Moray Basin are mute swan, cormorant, shelduck, pintail, tufted duck, ringed plover, knot and dunlin.

During severe winter weather the site assumes even greater international importance as a cold weather refuge. Waterfowl from other parts of North West Europe concentrate here, attracted by the relatively mild climate and abundant food resources available. The Moray Basin also supports nationally important breeding populations of cormorant and redshank.

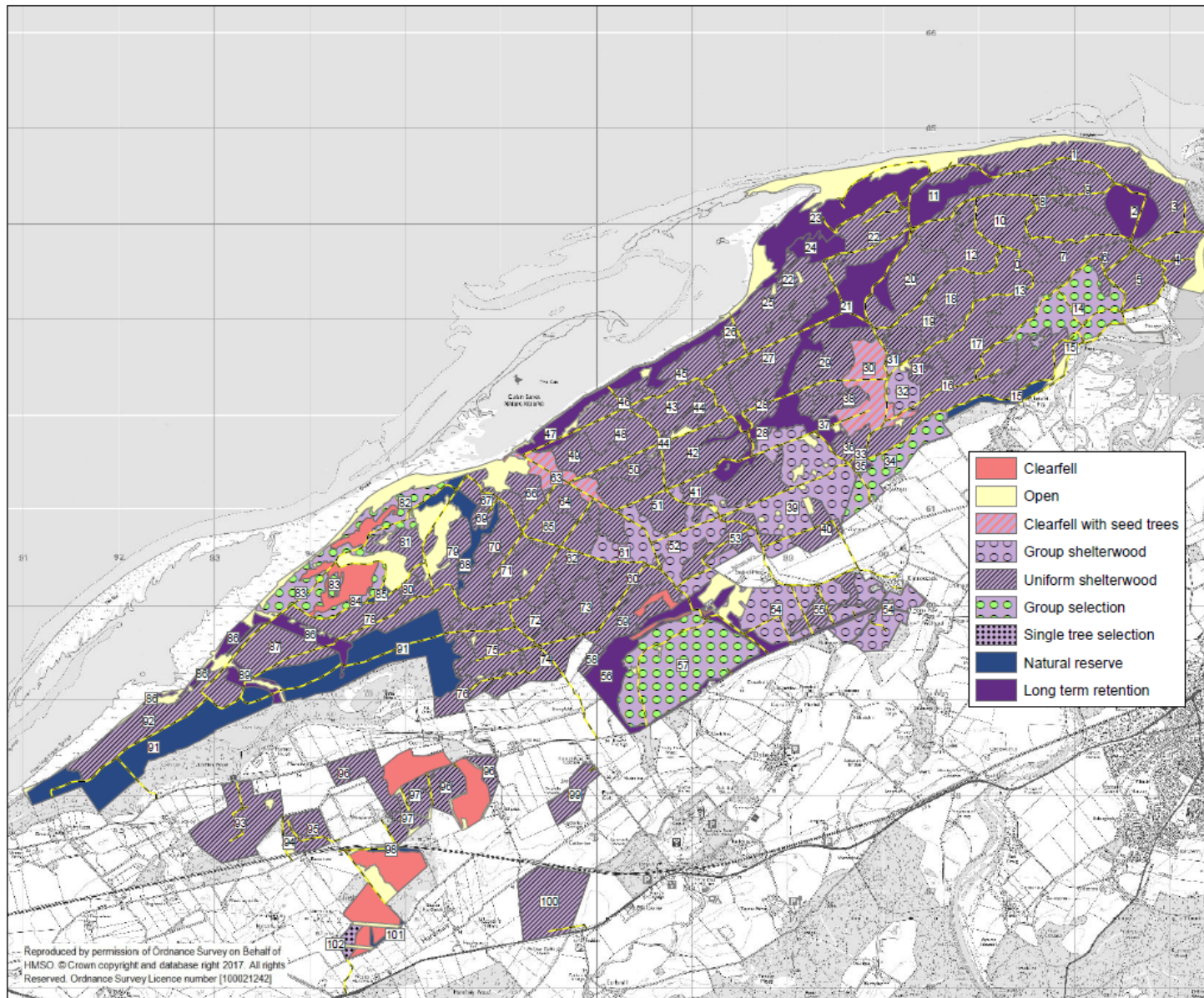
Area: 17,761 ha
OS 1:50,000 sheets: 21, 26, 27, 28
October 1996,
RASD, SNH

Moray & Nairn Coast Ramsar (Site code 8447)

No documentation available on SNH website.

Appendix 7– LISS prescriptions

- The size and number of groups in the group selection is indicative only. The actual size will depend on the conditions found in each coupe.
- The shape of the groups in the group selection coupes do not have to be circular. Oval shaped with the long axis orientated to receive the most light is preferred.
- The location of the felling areas in the group selection coupes will be located to reflect the conditions in each coupe. Felling areas will be located to:
 - expand existing groups,
 - start new groups taking advantage of existing natural regeneration,
 - start new groups in areas where there is currently no natural regeneration.
- The preferred restocking method is by natural regeneration. However if restocking by natural regeneration is not successful within 10years of felling then the option of replanting will be discussed with FCS.



	Coupe ref. (See map above)		Management objective/Reason for selection	Long-term structure and desirable species	Age Trans. period and return time (years)	Regeneration and ground flora	Observations (e.g. likely barriers to achieving objective)	Next treatment required
1	2, 11, 21, 23, 24, 31, 35, 37, 47, 56, 86, 89	Long term retention 321.5ha total	Retain current tree cover beyond economic maturity for conservation and landscape value.	Simple structure. SP 50%, CP 20%, MB 20%, MC 10%	Age – Up to 60yrs 30% Over 60yrs 70% Return time – 10 years.	None – low light level. Heather	Light levels	Thinning where appropriate.
2	15, 68, 85, 91, 98, 101	Natural reserve 189.4ha total	Retain tree cover in perpetuity by allowing natural process to dominate for conservation value.	Complex structure. SP 55%, MB 35%, MC 10%	Age – Up to 25yrs 25% 25 to 60yrs 25% Over 60yrs 50%	None – low light level. Heather with grass in wetter areas.	Light levels	Non-intervention
3	14, 33, 34, 57, 82, 83, 84	Group selection 243.9ha total	Diversify age and species structure. Timber production.	Complex structure. SP 80%, MB 10%, MC 10%	Age – Up to 60yrs 25% Over 60yrs 75% Trans period – 150 years. Return time – 10 years.	Regeneration successful in groups already felled. Regen restricted by low light level in other areas. Heather	Light levels	Matrix thin with 0.1ha of group felling per ha of thinning. (0.5ha groups)
4	1, 3, 4, 6, 7, 8, 9, 10, 12, 13, 17	Uniform shelterwood 378.2ha total	Timber production using natural regeneration for restocking.	Simple structure. CP 90%, SP/MB 10%	Age – Up to 60yrs 5% Over 60yrs 95% Trans period – 150 years. Return time – 10 years.	Some regen in areas where light levels are higher (roadsides etc...) Heather	Light levels	Crown thinning

5	5, 42, 43, 46, 48, 50, 58, 59, 62, 65, 67, 71, 73, 74, 76,	Uniform shelterwood 348.7ha total	Timber production using natural regeneration for restocking.	Simple structure. SP 90%, MC/MB 10%	Age – Up to 60yrs 5% Over 60yrs 95% Trans period – 150 years. Return time – 10 years.	Some regen in areas where light levels are higher (roadsides etc...) Heather	Light levels	Crown thinning.
6	18, 19, 20, 22, 27, 29, 79, 80, 81, 87, 93, 94, 96, 99, 100	Uniform shelterwood 443.6ha total	Timber production using natural regeneration for restocking.	Simple structure. SP 65%, CP 25%, MC/MB 10%	Age – Up to 60yrs 20% Over 60yrs 80% Trans period – 150 years. Return time – 10 years	Some regen in areas where light levels are higher (roadsides etc...) Heather	Light levels	Crown thinning.
7	32, 39, 52, 54, 61	Group shelterwood 247.4ha total	Timber production using natural regeneration for restocking.	Complex structure. SP 85%, MC/MB 15%	Age – Up to 60yrs 45% Over 60yrs 55% Trans period – 150 years. Return time – 10 years	Regeneration successful in groups already felled. Regen restricted by low light level in other areas. Heather	Light levels	Matrix thin with 0.1ha of group felling per ha of thinning. (0.5ha groups)

8	102	Single tree selection 4.2ha	Diversify age and species structure of SBI area.	Complex structure. SBI100%	Age – Up to 25yrs 100% Trans period – 60years. Return time – 10 years.	None – too young.	None at current time.	First thin when adjacent coupe thinned.
9	16, 25, 26, 28, 36, 38, 40, 41, 44, 45, 49, 51, 53, 55, 60, 64, 66, 69, 70, 72, 75, 95, 97	Uniform shelterwood 507.7ha total	Timber production using natural regeneration for restocking	Simple structure. SP 80%, CP 15%, MC/MB 5%	Age – Up to 25yrs 75% 25 to 60yrs 25% Trans period – 150 years. Return time – 10 years	None – too young.	None at current time.	First thin at or before 12m top height.
10	30, 63	Clearfell with seed trees 58.7ha total	Timber production using natural regeneration for restocking	Simple structure. SP 55%, CP 40%, MC/MB 5%	Age – Over 60yrs 95% Trans period – n/a Return time – n/a	Some regen in areas where light levels are higher (roadsides etc...) Heather	Light levels	Clearfell retaining an average of 120 seed trees per hectare in 2020.

Appendix 8 – LISS management

LISS is an approach to forest management in which the forest canopy is maintained at one or more levels without clearfelling.

The word 'approach' is important because:

- we are not following a system;
- there are no standard prescriptions; and
- flexibility is important – to take advantage of opportunities as they arise.

Any preconceived ideas about systems of managing forests can act as a 'straight jacket' to thinking about CCF.

Stands that have been regularly thinned are more likely to be successful with CCF. Crown thinning will be undertaken when transforming stands to CCF rather than low or intermediate types, as used in plantations. The basis of crown thinning is to remove competition from around selected trees (Frame trees), even if the trees to be removed are as big. Using crown thinning usually increases the average tree size, so there is potential for more income.

There are two main types of structure:

- Simple – in which there will be one or two canopy layers of trees
- Complex – where there are three or more canopy layers of trees

1. Transformation of a young (<40 yrs) stand to a simple structure

The objective is to achieve reasonably even regeneration of the desired species and then remove the canopy in a number of thinnings.

- Early crown thinning will be heavier (10-20%) than management table intensity and aim to develop 100 equally distributed 'frame' trees per hectare.
- 'Frame' trees are well-formed dominant trees with good crowns at reasonably even spacing.
- When the trees begin to cone (see table 1 below) stands will be thinned to the basal areas shown in table 2 to develop good conditions for regeneration to establish.
- If/when natural regeneration occurs it will be more variable than on a planted site, giving more variability in age, density and species.
- Canopy removal will aim to maintain a leader-to-lateral ratio of >1 in the regeneration (see figure 1), generally this will be achieved using the basal areas in table 2.
- The final removal of the overstorey may not involve all the trees depending on management objectives and windthrow considerations (green tree retention).
- If natural regeneration is only partially successful in terms of number and species mix planting will be undertaken. Planting will be concentrated so the location of trees is known

and they can be maintained. This will be by using a minimum of 16 trees in distinct group with the trees planted at 1.5 m x 1.5 m to form robust groups.

- If natural regeneration has been completely unsuccessful and CCF is still seen as appropriate planting will be undertaken to form the new canopy layer.
- Before planting the stand will be thinned to the basal areas for 'seedling growth' in the table 2.
- The felling and extraction of the canopy trees will be considered when deciding where to plant.
- Planting will be at 2500 trees per hectare in a well-defined pattern so they can be found for subsequent maintenance. 'Blanks' will be left when the planting position is close (<1 m) to canopy trees. This should ensure restocking compliance with OGB 4, as the area under the canopy is not part of the net area.
- Attention will be paid to site preparation, vegetation management, plant quality and reducing the impact of mammals to make sure of successful establishment. In general opportunities for site cultivation will be constrained by the overstorey.
- If the established crop is between the ages of 20 and 40 years, a transformation period of up to 50 years is expected.

Table 1. Species seed production details.

Species	Age of first good seed crop	Age of max seed production	Interval between good seed crops (yrs)
Sitka spruce	25-35	40+	3-5
Scots pine	15-20	60+	2-3
Douglas fir	30-35	50+	4-6
European larch*	25-30	40+	3-5
Japanese larch*	15-20	40+	3-5
Hybrid larch*	15-20	40+	3-5
Western hemlock	25-30	40+	2-3
Corsican pine	25-30	60+	3-5
Lodgepole pine	15-20	30+	2-3
Norway spruce	30-40	50+	**
Noble fir	30-40	40+	2-4
Grand fir	35-45	40+	3-5

Table 2. Basal area guidance for natural regeneration

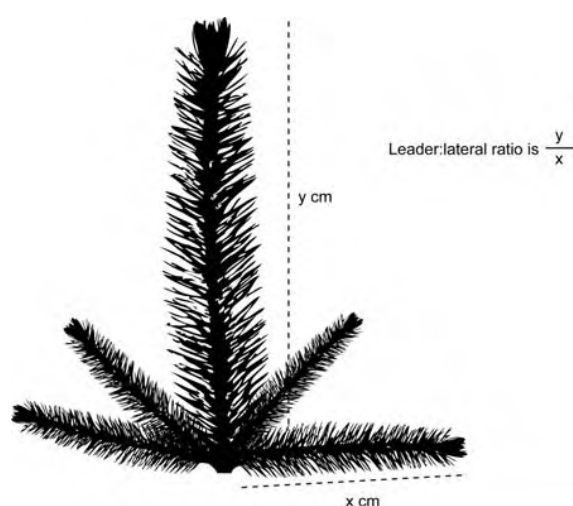
Species/ group	Shade tolerance of seedlings	BA (m ² ha ⁻¹) Establishment*	BA (m ² ha ⁻¹) Seedling growth**
Larches	Intolerant	20-25***	15-20
Pines	Intolerant	25-30***	20-25
Sitka spruce	Intermediate	30-35	25-30
Douglas fir	Intermediate	35-40	30-35
Norway spruce	Tolerant	40-45	35-40
Western hemlock	Tolerant	40-45	35-40

* On moderate to fertile sites where vegetation regrowth will be faster and more severe the BA for establishment will be increased.

** Seedlings and saplings are growing well under a canopy when the ratio of the length of the leader to the length of laterals in the upper whorl is ≥ 1 , as shown in figure 1.

*** Stands of larch and pine at these basal areas will usually have well-developed ground vegetation layer and control or cultivation will be needed to start regeneration.

Figure 1. Leader-to-lateral ratio.



2. Transformation of a young (<40yrs) stand to a complex structure

The objective is to create a wider dbh range than under a simple system by:

- retaining small trees; and
- encouraging fast growth of selected frame trees
- The pattern of regeneration will be different to a simple structure, and will be arranged in groups that only cover up to 20% of the area at any one time.
- Up to 50 'Frame' trees will be selected per hectare and these will be crown thinned so as to keep as many small trees as possible.
- 'Frame' trees are stable, well-formed dominant trees. They may need to be present on the site for a long time; spacing should be 'clumpy' and not regular. Stable trees will have a larger diameter for a given height.
- The stand will be thinned to a residual basal area of about 18-25 m² per ha for larches and pines, and 25-35 m² per ha for spruces and Douglas fir. The choice within this range will depend upon the site and the balance between the overstorey and any regeneration. If there is little or no regeneration a higher value will be chosen to provide suitable conditions for seedlings to establish. If there is enough regeneration, which needs to be released, then a lower value will be favoured. The aim at each thinning is to remove enough trees to achieve the chosen residual basal area.
- If there is too much regeneration thinning will be concentrated on releasing the best regeneration and attempting to hold it back in other areas.
- Planting in complex structures will be considered to increase chances of success.
- Trees will be planted in canopy gaps of 0.1 ha minimum size.
- Trees will be planted in half the area of the gap in the centre.
- Close spacing (1.5 m x 1.5 m) will be used to make the groups robust. For example, when planting a canopy gap of 0.1 ha 200 trees will be planted at 1.5 m spacing on half the area in the middle of the gap. Close spacing will ensure rapid canopy closure and planting only half the area ensures minimal competition from the canopy trees, allowing opportunities for natural regeneration and increasing operational access.

3. Transformation in older (>40yrs) stands

Transformation of stands older than 40 years may be possible, especially on wind-firm sites, but the opportunity to steer the development of the young stand in thinning has been lost.

The main implications of this are:

- for simple systems there will be reduced opportunities for developing the crowns of 'Frame' trees and the window for natural regeneration is reduced. Therefore more 'frame' trees will be retained and a longer regeneration period used.
- in complex systems the main risks are that 'Frame' trees will become too large to be marketable, and the stand will still be quite uniform when windthrow starts. The aim is to establish groups of regenerating seedlings under an irregular overstorey while older trees are progressively felled.