



Scottish Natural Heritage
Dualchas Nàdair na h-Alba

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SPEY BAY

Site of Special Scientific Interest

SITE MANAGEMENT STATEMENT

Site code: 1461

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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

Spey Bay SSSI is notified for its geological and biological features. At the mouth of the River Spey, adjoining the Lower River Spey SSSI, the site experiences dramatic coastal and river forces. These dynamic conditions are fundamental to maintaining the rare habitats found at Spey Bay.

Spey Bay SSSI is intimately linked in terms of geomorphic processes with the Lower River Spey SSSI. Both SSSIs are exceptional sites both in Scotland and the UK, in their own right, but particularly in combination as one complex integrated geomorphological system.

The Spey Bay area is the largest vegetated shingle complex in Scotland, and has been notified as a SSSI and designated a Special Area of Conservation (SAC) because of the wide variety of associated plant communities.

Fifteen species of butterfly have been recorded on the Wildlife Reserve of the Scottish Wildlife Trust (SWT) including the declining small blue, grayling and dingy skipper.

Seven species of dragonfly have been identified in ponds within Lossie Forest.

Breeding birds include common and arctic terns that breed on the bare shingle at the mouth of the Spey.

Annexes 1 & 2 provide further information on Spey Bay's geological and biological features.

Natural Features of Spey Bay SSSI	Feature Condition (date monitored)	Other relevant designations
Coastal Geomorphology of Scotland	Unfavourable, no change (September 2001)	
Hydromorphological mire range	Unfavourable, declining (July 2004)	
Saltmarsh	Favourable, maintained (August 2001)	Ramsar

Shingle	Unfavourable, no change (October 1998) [#]	SAC
Wet woodland	Unfavourable, declining (August 2010) [*]	SAC, Ramsar
Vascular plant assemblage	Not yet assessed	
Small blue butterfly	Not yet assessed	
Dingy skipper butterfly	Not yet assessed	

[#] Assessment of SAC feature. Assessment of SSSI feature was Favourable, maintained in August 2001.

^{*}Assessment for SAC only

Features of overlapping Natura sites that are not notified as SSSI natural features	Feature Condition (date monitored)	SAC or SPA
Atlantic salmon	Unfavourable, recovering (October 2004)	SAC
Otter	Favourable, maintained (September 2004)	SAC
Redshank	Favourable, recovered (November 2008)	SPA
Bar-tailed godwit	Favourable, declining (November 2008)	SPA
Red-breasted merganser	Favourable, maintained (November 2008)	SPA
Osprey	Favourable, maintained (April 2001)	SPA

The geomorphological feature was last monitored in 2001. The feature was found to be in unfavourable condition because the natural evolution of the river channel has been influenced by various bank protection works put in place to reduce erosion. Some damage to relict shingle ridges, caused by military vehicles, was also recorded. The equivalent SSSI and SAC habitat features were also assessed in cycle 1. The SAC feature was assessed as being in unfavourable condition, mainly due to the removal of shingle at the back of the beach near Boars Head Rock, but the shingle SSSI feature was assessed as being in favourable condition as extraction was not taken into account at that time.

The woodland feature for the Lower River Spey - Spey Bay SAC was recently assessed as Unfavourable, declining. This was mainly due to the apparent increase of invasive non-native species including sycamore in the canopy and giant hogweed, Himalayan balsam and Japanese knotweed in the field layer.

The hydromorphological mire range was last surveyed in 2004 and was assessed as being in unfavourable condition. The extent of open wetland is declining and the area of fen woodland is currently increasing. This indicates that the feature is drying out. The wetland may also be suffering from nutrient enrichment. More recent visits to the site have confirmed that the feature is still declining.

Past and present management

Aggregate extraction for concrete has been a historical activity at Spey Bay and has had a significant physical impact on the geomorphological interest of the shingle ridges.

Structural wartime defences remain at Spey Bay. Their presence will have influenced coastal sedimentation patterns.

Previous coastal and river engineering works are likely to have influenced the natural geomorphology and the dynamic processes of the fluvial and coastal systems.

A section of Lossie Forest is within the SSSI and trees were planted to help stabilise the dunes that cap some of the shingle ridges and may have diminished the ecology of the ridges. Thinning and felling operations have potential to disrupt the shingle ridges.

Spey Bay and Lower River Spey were important sites for salmon netting.

Annex 3 looks back at Spey Bay's history in more depth.

The Forest section of the site, part of Lossie Forest, is managed by Forest Enterprise (FE). Management is carried out in accordance with a Conservation Management Plan (CMP), agreed between FE and SNH. The CMP prescribes clear objectives for the management of the forest section. Recently this has included the sensitive removal of gorse scrub from several shingle ridges. This is to increase the extent of open shingle and slow the spread of scrub onto adjacent open bare shingle.

Sections of the SSSI owned by Forestry Commission Scotland (FCS) are leased to the Ministry of Defence (MOD) as firing and training ranges.

Part of the SSSI, known as the Lein, is managed by the SWT as Spey Bay Wildlife Reserve. SWT's management objectives for the reserve help secure and enhance the habitat and the rare plant and animal communities found on the shingle deposits at the Lein.

Crown Estate (Fochabers Estate) have consent to carry out 'minor river works' to help alleviate erosion along the river banks in areas where this could contribute to flooding. This work involves using machinery to relocate tree debris that has naturally washed down the river and deposited up and downstream of the viaduct. This work is done occasionally, avoiding times of year when breeding birds may be present.

Spey Bay is popular with locals and tourists visiting Moray. Facilities at Tugnet have been significantly improved under the stewardship of the Whale and Dolphin Conservation Society (WDCS) and SWT, attracting more visitors and providing valuable educational resources.

Annex 4 provides further information on the present management of Spey Bay.

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

We wish to work with the owners and managers of the SSSI 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 to monitor the effectiveness of the various approved plans and 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 extent, diversity and quality of habitats within the site

This includes:

- (i) allowing all areas of substantially unmodified shingle and marsh habitats and their associated vegetation to develop without intervention by man or non-native species
- (ii) where necessary, manage areas of modified shingle to maintain examples of early successional communities (principally wet slack, heath, and open water).
- (iii) manage for the benefit of nationally or regionally rare species as far as this is compatible with i) and ii).

Natural succession of vegetation on the Lein reduces the extent of rare habitats in particular heath. Scrub control is required.

2. To ensure the continuation of natural coastal and river processes as far as practical unless there is a threat to life or avoidable damage to property

Management of either Spey Bay SSSI or Lower River Spey SSSI may have consequences for the other and should take into account the effects that management may have on the natural processes and the SAC, SPA and Ramsar designations that straddle the sites.

Natural coastal and river processes are to be encouraged. Where, however, there is a risk to life or property and measures can be identified to help manage such risk, SNH will work closely with SEPA, Marine Scotland and the Moray Council to help advise on the likely consequences. SNH will take into account both the impact of the proposed measures on all of the scientific interests, but also their likely effectiveness given the dynamism of the river and the coastal processes.

This objective could be facilitated by developing an integrated river and coastal management plan of the Lower River Spey and Spey Bay SSSIs. SNH is also committed to working with other agencies, the Moray Council and the local communities to support sustainable flood risk management, which may include adaptation and flood resilience.

3. To maintain the physical and visual integrity of the land-forms, including the ancient shingle ridges

Commercial forestry operations on shingle ridges obscure and can disturb the shingle ridges so sensitive planning during thinning and felling operations is needed.

FE continues to remove gorse from shingle ridges to increase the extent of open shingle areas.

MOD exercises on shingle ridges outwith the firing range can cause damage to the geomorphological interest and should continue to be avoided.

Unauthorised motorised vehicular use (predominantly motorbikes) causes some tracking across shingle areas and this can be tackled through management of access and education locally. The delivery of this is assisted greatly by the presence and management of SWT and the WDCS at Spey Bay.

4. To promote public understanding & enjoyment of Spey Bay where appropriate and to manage visitor pressure sensitively.

To help ensure this SNH will continue to work with SWT and FE as land managers and also WDCS where appropriate.

Date last reviewed: 11 January 2012.

ANNEX 1

Geomorphological feature

The Spey Bay - Lower River Spey complex

The Spey Bay SSSI is intimately linked in terms of geomorphic processes with the Lower River Spey SSSI. Both SSSIs are exceptional sites both in Scotland and the UK, in their own right (as below). However, when considering these two complex geomorphological systems as one integrated system the real importance of the area is highlighted. In a national context this system is unique. Nowhere else in the UK is there an example of such a dynamic, actively abrading gravel-bed river entering a wide coastal shingle strandplain, with a suite of raised shorelines relating to adjusting sea-level following the last glaciation. The scale and magnitude of the landforms within the two SSSIs allow a unique insight into the Holocene (the last 10 000 years) development of this part of the Scottish coastline. The inter-relationship of this fluvial and coastal system is unique in a Western European context and therefore of international significance.

The Spey Bay SSSI complex

Spey Bay is one of the most important physiographic sites in Britain for several reasons. The active shingle ridge complex is recognised as the finest in Scotland, extending over 8 km, providing superb evidence for present day dynamic, coastal processes. The Spey mouth delta and related forms (shingle spits, bars, banks and lagoon), have a complex and well documented history of dramatic change. They provide an excellent example of fluvial-coastal interactions, as the actively abraded gravel-bed river enters the high-energy coastal environment, at the mouth of the Spey. In addition, the active coastal margin is backed by the magnificent strandplain of shingle ridges mentioned above.

ANNEX 2

Biological features

On the well drained shingle ridges the vegetation ranges from pioneer shingle heath to birch and Scots pine woodlands, and in the damp hollows from shingle slacks to fen and carr woodland. The artificial hollows have outstanding slack and freshwater marsh vegetation. Species-rich dry and wet heath habitats in the unafforested areas of both the disturbed and undisturbed shingle represent probably the only significant example of heath on shingle in Great Britain.

The Speymouth delta complex has extensive areas of mobile shingle and brackish saltmarsh along with areas of tidal and riverbank scrub woodland.

The flora of the whole area is extremely rich (over 380 vascular plants and 45 bryophytes have been recorded) with many local species. It has long been recognised as one of the most exceptional localities in Moray and the vegetated shingle is now recognised as important on a European scale.

In the summer, ospreys fish around the mouth of the Spey and common and arctic terns have bred on the bare shingle there but are thought to be particularly prone here to human disturbance and nest predation.

Seven species of dragonfly (including four damselflies), have been identified in the ponds in Lossie Forest, an excellent number for such a northerly site, and fifteen species of butterfly have been recorded on the SWT Reserve. Two of the latter, the small blue and the dingy skipper are important on a Scottish scale and two more, the grayling and speckled wood are important in a local context. These insects are dependent on the diversity of habitats.

ANNEX 3

Past Management

Aggregate extraction

Gravel mining began west of Kingston in 1935, with extraction from the bare shingle beach. Following the purchase of part of the suite of raised shingle ridges, the mining was extended over the Lein. A stone crushing and pre-cast concrete plant were in operation until 1960, when they closed due to severe flooding. This extraction has created a substantial human impact within the SSSI. It is estimated that 60% of this shingle area has been reduced to damp shingle lows, of between 2-3 metres below the natural beach level. A lowering on this scale has marked consequences for the level of the freshwater table, potential saline seepage and the nature of the vegetation cover. In March 1998 the sea breached the active shingle ridge, inundating part of the extracted area. Such events may increase in frequency with rising sea levels. On a biologically positive note, colonisation of the extraction pits has led to the development of particularly varied flora and fauna, with certain habitats unique to the shingle at this site as well as being of European importance.

Sand has been quarried from the degraded Holocene cliffline near the east entrance to Lossie Forest. It was transported along the coastal tracks for use at the concrete works. Although the quarry is outwith the SSSI, this human impact is significant as the Holocene cliffline is the natural geomorphic boundary of the landform unit.

Forestry

Forestry plantations cover 152 ha (30.4%) of the western part of the SSSI. Much of the area near the present day rifle range was planted prior to 1903. Replanting and extensive new planting was carried out during the 1940s and 1950s, with additional small areas in the 1970s. This afforestation has caused significant impact upon the landforms. The sand dunes and sand capping of the shingle ridges have been stabilised by forestry, effectively 'freezing' the dune forms *in situ*. The raised shingle ridges are still identifiable although they have been modified in places by forestry operations, such as ditch and furrow digging during the pre-planting and planting stages. Significant impacts upon the habitats are also likely although no records of the pre-forest vegetation cover and land usage are known. The construction of forest tracks has led to some modification and damage to the shingle ridges. However, they do provide a ready means of access to the core areas of geomorphic interest. However, records from the western Lossie Forest, outwith the SSSI, may be similar. At the time of acquisition by the Forestry Commission in 1937, the vegetation of Innes Link was mainly dune heath, with cross-leaved heath on the wetter patches, marram grass on the dunes, and patches of lichens.

Coastal engineering

The coast of Spey Bay SSSI is erosional from Porttannachy in the east, to west of the Lein where it becomes depositional. There are several sections of man made coastal defence and protection works which impact upon the SSSI interest of natural coastal processes (for example reducing the already naturally diminished supply of shingle from the east). The erosional section of coast is therefore likely to continue to recede as its sediment supply is diminished. Structures include: a sea wall along the front of Portgordon, two pipe outfalls, 200m of boulder rip-rap on the beach in front of the Spey Bay Hotel, 500m of rip-rap at Tugnet and a man made embankment by the Lein (the latter two are placed at the back of the beach and have minimal interference with the coastal processes).

River engineering

River bank protection works have been carried out along several stretches of the river and a railway viaduct was constructed in 1886. Bank protection works are intended to preserve the current channel configuration and prevent erosion. Such works may constrain the river to a fixed channel and remove one of the most important geomorphological features of the lower River Spey: the actively braiding and changing channel pattern. Engineering works at one location, especially in high energy rivers with large sediment loads such as the Spey, will likely have impacts at other locations further downstream and upstream.

Speymouth cuts

The historical westerly growth of the Speymouth spit diverts the natural course of the river mouth westwards over time. This diversion consistently causes flooding and coastal erosion problems at Kingston. Several attempts to realign the river outlet have been made throughout recorded history due to the clear threat to land, property and life. There have been eight recorded man made cuts in roughly the last 100 years, the most recent in around 1998. The natural geomorphology and process dynamics of both the fluvial and coastal systems have been extensively influenced by these cuts.

War time defences

Various military activities were carried out in the Spey Bay area during the Second World War. The likely impacts of these activities are, in the main, buried under both dunes and trees. The most noticeable impact of former activities is the line of pill boxes (approximately 300m) connected by concrete blocks. The erection of these concrete structures would have caused considerable disruption to the landforms, and therefore sedimentation patterns adjacent to them may be in part, unnatural. This line of defences also provides an indication of coastal movement since their erection. Several of the pill boxes have been vandalised and littered with bottles and cans.

Fishing

Between the mid 19th and mid 20th centuries, the Spey Bay coast was important for fixed engine fishery. Historically net and cobble fishing was permitted to a limit approximately 2km upstream of the Fochabers road bridge. This ceased in August 1993. Angling is the only remaining legal fishing within the Spey Bay SSSI. The importance of rod and line fishing on the River Spey has steadily increased, probably over the last 150 years, while that of the net fishing declined.

Grazing

Old drainage ditches and post and wire fences provide evidence for at least part of the Lein having been grazed at one point in the past.

ANNEX 4

Present Management

Forest Enterprise Plantation

This plantation consists of predominantly Scots pine, with some Corsican and lodgepole pines. It is part of a larger plantation, the Lossie Forest, which covers 808ha in total and encompasses the suite of raised shingle former shorelines which extend outwith the designated area. The geomorphology beneath the forest can be identified and plays an important role in the health of the trees, with a distinct difference in the height and health of trees growing on the shingle ridges compared to the troughs. It is managed by Forest Enterprise and FE Conservation Management Plan is agreed with SNH in periodically. The Plan states: *'The objective of the Management Plan is to preserve and conserve the geomorphological and biological features of the SSSI. Timber production will be carried out as a secondary objective where it does not conflict with the conservation interest. Subsidiary objectives will be the continued use of the Firing Range, and group activities in the surrounding forest such as orienteering and military training.'* Details of prescribed management within the FE owned land are found in this Plan.

SWT Nature Reserve

As previously mentioned the colonisation of the shingle extraction pits, has led to the development of particularly varied flora and fauna, with certain communities unique to the shingle at this site and of European importance. This area of the Lein as well as the foreshore and estuary up to the viaduct is leased and managed by the Scottish Wildlife Trust for nature conservation. There is a 10-year Site Management Plan for the area written by SWT.

Ministry of Defence

The Binn Hill Firing Range is let by FE to the MOD. The natural geomorphology within the firing range has been modified with several of the natural ridges disturbed and several ridges being artificial. The unvegetated shingle expanses on either side of the range offer the most impressive and visible views of the undisturbed suite of shingle ridges. This is an important feature especially as many views of the shingle ridges are hindered by forestry.

Rod fishing

The angling rights down to the mouth of the Spey are owned by the Crown Estates and let to the Speymouth Angling Association.

Recreation and tourism

The area is popular with locals and visitors alike, with open access over the majority of the site. Immediately adjacent to the site are the villages of Kingston, Garmouth and Spey Bay, two golf courses, the Speyside Way, car parks at Tugnet and Kingston, the Tugnet ice-house museum and WDCS and SWT Spey Bay Wildlife Centre. Most of the recreational activities are low pressure but there has been adverse impact in the past by vehicles on vegetation on the Lein and probably also by human disturbance to nesting terns on the shingle.

GLOSSARY

Carr - a woodland that develops at the end of succession from open water.

Delta - triangular tract of deposited earth, alluvium, etc. at the mouth of a river, formed by its diverging outlets.

Fen - a low marshy or flooded area of land.

Fluvial - of or found in a river or rivers.

Geomorphology - the study of the physical features of the surface of the Earth and their relation to its geological structures.

Strandplain - a wave cut platform that has been raised above sea-level since the end of the last ice-age.