NatureScot
Scotland's Nature Agency
Buidheann Nàdair na h-Alba

LOWER RIVER SPEY – SPEY BAY SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE

Site Details

Site name:	Lower River Spey - Spey Bay
Map:	https://sitelink.nature.scot/site/8311
Location:	Highlands and Islands
Site code:	UK0019978
Area (ha):	654.26
Date designated:	17 March 2005

Qualifying features

Qualifying feature	SCM assessed condition	SCM visit date	UK overall Conservation Status
Alder woodland on floodplains* (Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0]	Unfavourable No change	20 June 2013	Unfavourable - Bad
Coastal shingle vegetation outside the reach of waves (Perennial vegetation of stony banks) [H1220]	Favourable Declining	27 September 2013	Unfavourable - Bad

Notes:
Assessed condition refers to the condition of the SAC feature assessed at a site level as part of NatureScot's Site Condition Monitoring (SCM) programme.
Conservation status is the overall condition of the feature throughout its range within the UK as reported to the European Commission under Article 17 of the Habitats Directive in 2019.
* Habitats Directive priority habitat

Other overlapping Protected Areas:

Spey Bay Site of Special Scientific Interest (SSSI), Lower River Spey SSSI, River Spey SSSI
River Spey SAC
Moray and Nairn Coast Special Protection Area (SPA)
Moray and Nairn Coast Ramsar site.

More information about these protected areas is available on Sitelink.

Key factors affecting the qualifying features

Alder woodland on floodplains

This habitat of riverine woods are often just narrow strips or lines of trees due to clearance of woodland along rivers that has removed most of the true alluvial forests, leaving just fragments, many of which are relatively recent in origin. As such, these residual alder woods on floodplains frequently occur in association with other woodland types or with other wetland habitats such as fens. This is a Habitats Directive priority habitat.

Alder woodland on floodplains comprises woods dominated by alder *Alnus glutinosa* and willow *Salix* spp. on flood plains in a range of situations from islands in river channels to low-lying wetlands alongside the channels. The habitat typically occurs on moderately base-rich, eutrophic soils subject to periodic inundation.

As this woodland habitat is dynamic in nature, the structure and function are best maintained within a larger unit that includes the open communities, mainly fen and swamp, of earlier successional stages

The Lower River Spey in north-east Scotland is unique within Britain in comprising an extensively braided channel along the whole length of the river. The active river channel provides a mosaic of substrates which reflect a range of habitats at different stages of colonisation. This includes areas of recently deposited bare shingle, to grassland and wetland, scrub and finally In more stable, damper situations, large stands of valley alder *Alnus glutinosa* woods occur, along with willows *Salix spp*., ash *Fraxinus excelsior* and bird cherry *Prunus padus*. The ground flora includes both southern and northern species such as wood speedwell *Veronica montana* and wood stitchwort *Stellaria nemorum*.

Key management issues include the abundance of invasive non-native species and man-made interventions to manage for flood and erosion risk.

The feature has been assessed through NatureScot's site condition monitoring programme as being in unfavourable condition at this SAC due to to the extent of non-native species and a lack of native species natural regeneration.

Further information about alder woodland on floodplains can be found here.

Coastal shingle vegetation outside the reach of waves

This habitat occurs on shingle structures which develop when a sequence of foreshore beaches is deposited at the limit of high tide. More permanent ridges are formed as storm waves throw pebbles high up on the beach, from where the backwash cannot remove them. Several beaches may be piled against each other and extensive structures can form.

The ecological variation in this habitat type depends on stability, the amount of fine material accumulating between pebbles, climatic conditions, width of the foreshore, and past management of the site. The ridges and lows formed also influence the vegetation patterns, resulting in characteristic zonation of vegetated and bare shingle.

Historically, Lower River Spey – Spey Bay in north-east Scotland formed part of the same shingle aggregation as Culbin Bar to the west. Although sea-level rise has separated the sites, they are still linked, being maintained by the same coastal processes. Lower River Spey – Spey Bay and Culbin Bar are, individually, the two largest shingle sites in Scotland and together form a shingle complex unique in Scotland. They represent this habitat type in the northern part of its range in the UK. Lower River Spey – Spey Bay contains significant areas of both bare and naturally vegetated parallel shingle ridges, although some of these have been planted with trees. The most significant feature of the site is the complex of wet and dry vegetation types, depending on the physical relief of the shingle ridges and hollows. Species-rich dry heath and grassland occurs on the ridges, while in the wetter hollows there is species-rich wet heath and transitions to a vegetation type comparable to that of dune slacks. Large areas of scrub, mainly of gorse *Ulex europaeus*, also occur.

NatureScot's programme of Site Condition Monitoring has found it to be in favourable declining condition. The declining status is attributed to the extent of gorse present on the site.

Further information about coastal shingle vegetation outside the reach of waves can be found here

Conservation Priorities

Alder woodland on floodplains is a priority qualifying habitat. In circumstances where the establishment of a priority between the two qualifiers is necessary, alder woodland on floodplains should generally be prioritised over coastal shingle vegetation outside the reach of waves. However there is unlikely to be any conflict in management between the two features of the SAC and any decisions made on a case by case basis, subject to a Habitats Regulations Appraisal.

This site has other overlapping designations and the features of these sites need to be taken into account when making decisions on Lower River Spey - Spey Bay SAC. Overlapping SPA/RAMSAR features are the breeding populations of osprey, wintering populations of bar-tailed godwit, pink-footed goose, greylag goose, redshank and a wintering assemblage of wildfowl and waders. Ramsar habitat features also include dune, mudflat and saltmarsh.

The River Spey SAC has Atlantic salmon, otter, sea lamprey, and freshwater pearl mussel.

None of these other features are prioritised over any of the Lower River Spey - Spey Bay SAC features, nor vice versa. Management for these features is largely compatible.

Overarching Conservation Objectives for all features of Lower River Spey - Spey SAC

1. To ensure that the qualifying features of Lower River Spey – Spey Bay SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.

Favourable Conservation Status (FCS) is considered at a European biogeographic level. When determining whether management measures may be required to ensure that the conservation objectives for this site are achieved, the focus should be on maintaining or restoring the contribution that this site makes to FCS.

When carrying out appraisals of plans and projects against these conservation objectives, it is not necessary to understand the status of the feature in other SACs in this biogeographic region. The purpose of the appraisal should be to understand whether the integrity of the site (see objective 2) would be maintained. If this is the case then its contribution to FCS across the Atlantic Biogeographic Region will continue to be met. Further details on how these appraisals should be carried out in relation to maintaining site integrity is provided by objective 2 (including parts a, b, and c). If broader information on the feature is available then it should be used to provide context to the site-based appraisal.

Note that "appropriate" within this part of the conservation objectives is included to indicate that the contribution to FCS varies from site to site and feature to feature.

2. To ensure that the integrity of Lower River Spey – Spey Bay SAC is restored by meeting objectives 2a, 2b and 2c for each qualifying feature.

The aim at this SAC is to maintain, or where appropriate restore, the qualifying habitats in a favourable condition as a contribution to their wider conservation status. Therefore any impacts to the objectives shown in 2a, 2b, or 2c below must not persist so that they prevent the achievement of this overall aim. When carrying out appraisals of plans or projects the focus should be on restoring site integrity, specifically by meeting the objectives outlined in 2a, 2b and 2c. If these are met then site integrity will be restored. Note that not all of these will be relevant for every activity being considered. Any impacts on the objectives shown in 2a, 2b, 2c below must not persist so that they prevent the restoration of site integrity. Temporary impacts on these objectives resulting from plans or projects can only be permitted where they do not prevent the ability of a feature to recover and there is certainty that the features will be able to quickly recover.

This objective recognises that the qualifying habitats are exposed to a wide range of drivers of change. Some of these are natural and are not a direct result of human influences. Such changes in the habitats' extent, distribution or condition within the site which are brought about by natural processes, directly or indirectly, are normally considered compatible with the site's conservation objectives. An exception to this is when the favourable condition of a habitat is dependent on halting or managing natural succession. An assessment of whether a change is natural or anthropogenic, or a combination of both, will need to be looked at on a case by case basis.

Conservation Objectives for alder woodland on floodplains (alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)

2a. Maintain the extent and distribution of alder woodland on floodplains within the site

The extent of the alder woodland on floodplains feature, taken from the Standard Data Form, has been estimated at 65ha for this site. This figure represents an estimate of an amount of often complex, yet limited, mosaic of several individual stands of habitat. The extent at any given time should be maintained or allowed to increase through natural regeneration.

There should be no measurable net reduction in the extent of the habitat and its distribution overall at any given point in time. The extent of alder woodland should be considered in the context of other transitional habitats from open shingle, neutral grassland, scrub and willow carr.

This will include the avoidance of actions that could lead to a permanent reduction in the extent or distribution of the habitat such as river engineering and gravel extraction.

The habitat is a dynamic one, with continual accretion and erosion of shingle. Consequently, the amount and location of the habitat within the site boundary will change through time.

2b. Restore the structure, function and supporting processes of alder woodland on floodplains

In order to restore the structure, function and supporting processes of alder woodland on floodplains, the natural dynamic processes creating transitions from wet to drier woodland and from open to more closed communities should be maintained. The structural diversity also needs to be improved, natural regeneration of native tree species needs to occur and non-native trees, need to be removed. The structural diversity will improve with time as over-mature and veteran trees occur. These trees should be retained.

Non-native trees, including their regeneration, should be removed.

This habitat depends on hydrological conditions that lead to a high water table, wet conditions and sufficient variation to allow channel dynamics and vegetation succession to occur. This should allow for an abundance of key tree species that:

- Can colonise the floodplain substrate (wet, unstable) and thrive (tolerance of high water table)
- Can create important habitat structure for freshwater invertebrates and fish
- Can support a wide variety of terrestrial invertebrates, whilst overhanging the water surface (providing food for fish and other aquatic predators)
- Can provide leaf litter with a rapid decomposition rate
- Provide moderate shade, especially over the water surface
- Can provide a natural defence against erosion and flooding

These conditions are achieved through maintaining hydrological conditions that allow the river channels to move through the natural processes of erosion and deposition, an absence of invasive species which compromise the critical characteristics of the habitat, and grazing levels that allow trees, shrubs and ground flora to colonise and develop naturally to flower and fruit (particularly important on drier margins). It should be noted that grazing levels are not affecting the condition of this feature at the current time.

2c. Restore the distribution and viability of typical species of alder woodland on floodplains

Many alder woods on floodplains are dynamic, being part of a successional series of habitats. In the UK this Annex I habitat falls mainly within the following NVC types:

W5 *Alnus glutinosa – Carex paniculata* woodland
W6 *Alnus glutinosa – Urtica dioica* woodland
W7 *Alnus glutinosa – Fraxinus excelsior – Lysimachia nemorum* woodland

The key tree species found in this habitat are alder *Alnus glutinosa*, ash *Fraxinus excelsior* and willow *Salix* spp. At this SAC, alder is the dominant species, with willow; ash is a relatively minor component, with downy birch *Betula pubescens* being more frequent.

These transitions from wet to drier woodland and from open to more closed communities provide important ecological variation.

With increasing stability come drier shingles which have developed a mosaic of mixed scrub (gorse, broom, rose etc) with a variety of heath plants and open neutral grassland, which in places is species rich and includes species such as birds foot trefoil *Lotus corniculatus*, ladies bedstraw *Gallium verum*, Devil's bit scabious *Succisa pratensis,* common knapweed *Centaurea nigra* and species associated with more coastal habitats (e.g. sea campion *Silene maritima*), or montane habitats (e.g. alpine lady's-mantle *Alchemilla alpina*). Willows are abundant, particularly around recently abandoned channels which are also rapidly colonised by fringing and aquatic plants including curled pondweed *Potamogeton crispus*, marestail *Hippuris vulgaris*, bottle and water sedge *Carex rostrata* and *C. aquatilis*.

Some stands of woodland are dominated by tall herbs and grasses, for example great wood-rush *Luzula sylvatica*, sweet cicely *Myrrhis odorata*, red campion *Silene dioica*, common nettle *Urtica dioica*, and meadowsweet *Filipendula ulmaria.* Others have lower-growing communities with dog's mercury *Mercurialis perennis*, greater stitchwort *Stellaria holostea*, ground ivy *Glechoma hederacea* and marsh-marigold *Caltha palustris*. Wood stitchwort *Stellaria nemorum* and wood speedwell *Veronica montana* are species of local distinctiveness for this site. In the old river channels themselves fen vegetation exists, including greater tussock sedge *C. paniculata* occurs below a canopy of alder and willows.

The site should contain seedlings, saplings, mature trees and standing deadwood, rather than being dominated by mature trees. The woodland should not require active management to achieve this, rather the dynamism of the site needs to be maintained, and any non-native species removed to ensure that suitable conditions exist for regenerating floodplain woodland. The most recent monitoring has shown that grazing levels are low and not a cause for concern at this site.

Non-native trees and their regeneration should not be present e.g. sycamore.

Ensure colonisation of the habitat by invasive non-native species such as giant hogweed, Japanese knotweed and Himalayan balsam is minimal to prevent loss of the typical species.

The alder woodland habitat also supports osprey during the breeding season.

Conservation objectives for coastal shingle vegetation outside the reach of waves (perennial vegetation of stony banks)

2a. Maintain the extent and distribution of coastal shingle vegetation outside the reach of waves within the site

The extent of the coastal shingle outside the reach of waves habitat has been estimated at 65ha. This should be maintained within a reasonable range, taking into account natural changes.

However, this habitat is ephemeral with extent dependent on variations in seed sourcing and the provision of organic growing medium and nutrient, and it is vulnerable to storm damage even when established, as the usual substrate typically occurs in exposed situations. Therefore, restoration of extent should only be applied where changes can be attributed to human intervention.

2b. Maintain the structure, function and supporting processes of coastal shingle vegetation outside the reach of waves

This habitat occurs on shingle structures which develop when a sequence of foreshore beaches is deposited at the limit of high tide. More permanent ridges are formed as storm waves throw pebbles high up on the beach, from where the backwash cannot remove them. Several beaches may be piled against each other and extensive structures can form but periodic movement of the shingle can occur during storm events which can result in the natural movement of the bar creating new ridges for colonisation.

This habitat will generally have a range of zonation patterns ranging from the areas which tolerate periodic movement through to the more stable areas and this natural structure and function should be maintained.

The natural mobility and transition of the coastal shingle outside the reach of waves should be maintained and not disrupted by coastal defences, artificial (man-made) linear constraints, or extraction of sand or gravel.

At this site, there has been a loss of open habitats due to encroachment by gorse *Ulex europeus*. Ongoing gorse control is required to prevent the feature from further decline.

2c. Maintain the distribution and viability of typical species of coastal shingle vegetation outside the reach of waves

This habitat typically has a range of habitat zones present within the shingle community from unstable strand, through pioneer vegetation to stable strand vegetation, grassland, heath and scrub. On this site all of these habitat zones are found. The active shingle ridge is highly dynamic, there are relic ridges of lichen covered shingle and shingle areas with a deeper organic layer supporting grassland, heath and scrub. There are wetter areas supporting dune slack communities.

Typical species that colonise the strand vegetation on this site, include oraches *Atriplex spp*,, thrift *Armeria maritima* and silverweed *Potentilla anserina*.

Typical species that colonise the vegetated shingle above the strandinclude marram *Ammophila arenaria,* lyme grass *Leymus arenarius,* fescue grasses *Festuca spp.,* wavy hair-grass *Deschampsia flexuosa,* crowberry *Empetrum nigrum*, heather *Calluna vulagaris,* bell heather *Erica cinerea,* burnet rose *Rosa pimpinellifolia,* and gorse *Ulex europaeus*.

In the wetter hollows there is species-rich wet heath and transitions to a vegetation type comparable to that of dune slacks. There are two main NVC types in the slacks: silverweed

Potentilla anserina - common sedge *Carex nigra* dune-slack community and an unusual community consisting of black bog-rush *Schoenus nigricans*, creeping willow *Salix repens* and silverweed *Potentilla anserina*, with other sedges and rushes.

A particular feature of this SAC's vegetated shingle habitat is lichen covered stone. This occurs at the landward edge of the active shingle ridge and across the relic ridges.

Excessive tracking/trampling by visitors or vehicles can contribute to a deterioration in the habitat structure, leading to a reduction or loss in the typical/indicator species for this habitat. It is also detrimental to the geomorphological component of Spey Bay SSSI.

Colonisation of the coastal vegetated shingle by invasive species such as thistles *Cirsium spp,* common ragwort *Senecio jacobea* and conifers from the adjacent plantation woodland could result in loss of the typical species. Although gorse is a component species of the vegetated shingle habitat, there are large areas of dense gorse which are encroaching on open habitats, potentially leading to loss of typical species.

Conservation Measures

Lower River Spey – Spey Bay SAC overlaps with two Sites of Special Scientific Interest (Lower River Spey and Spey Bay) and management changes described on their SSSI lists of Operations Requiring Consent must have prior consent from SNH (NatureScot).

Current and recommended management for alder woodland on floodplains and coastal shingle vegetation outside the reach of waves

Issue	Measure	Responsible party
Water management	Any flood and erosion risk management actions should not negatively impact the natural hydrology and geomorphology of the River Spey.	Land Manager SEPA
Invasive species	Surveillance for new species and spread of existing into new areas particularly along the coastal shingle.	Land manager, Forestry and Land Scotland NatureScot
	Biosecurity best practice measures adopted during any works.	Land manager, Forestry and Land Scotland NatureScot
	All anglers and other water users (such as canoeists or researchers) should follow the Check, Clean, Dry biosecurity procedures to help prevent the spread of problem non-native species.	All anglers and other water users.
	Ensure colonisation of the habitats by invasive native and non-native species, is minimal to prevent loss of the typical species.	Land managers, NatureScot,

	For the woodland feature, this includes sycamore, giant hogweed, Japanese knotweed and Himalayan balsam. For the vegetated shingle, this includes thistles, trees and scrub. Note that gorse is a component species of this habitat – some gorse is desirable but extensive stands of dense gorse can negatively impact on open habitats.	
Avoidance of introduction of known pathogens – alder woodland on floodplains	Discussions on options available to avoid any introduction of known disease organisms e.g. Phytopthora, alder dieback.	Land manager, NatureScot, Scottish Forestry
Habitat Management	Keep management plans updated as required and ensure that these include any measures required for maintenance or restoration of SAC features.	SWT, Forest and Land Scotland, NatureScot,
Bulk litter collection and disposal	Encourage the removal of marine litter in such a way that does not damage the shingle habitats and structure. This will include ensuring that any vehicular access is via surfaces which are sufficiently robust.	Land managers, volunteers, NatureScot
Climate change	Raise awareness during routine liaison that the situation at the river mouth and along the coast will not get better in terms of river and coastal flooding and geomorphic changes. Adaptation is likely the only management option.	Land manager, Local authority, Scottish/UK government, NatureScot
	Work with land managers to develop a strategy to increase resilience and reduce barriers to landward migration of coastal habitats resulting from sea level rises.	Land manager, Local authority, Scottish/UK government, NatureScot
Future threats	Flood and erosion management to protect properties in Garmouth, Tugnet, Kingston-on-Spey both from the sea and river could disrupt the natural processes supporting the habitats. A coordinated resilience planning process should be developed to respond to anticipated future threats to the habitat. Management actions arising from the resilience planning process, and site-level plans, should be implemented to anticipate future threats to the habitat on the site, such as changing species	NatureScot Land managers

	composition in the woodland due to tree pathogens (alder and ash). This resilience work may also include further research to understand the vulnerabilities of the habitat.	
Coastal defences	Discourage built coastal defences and promote more sustainable options such as beach recharge to avoid disrupting the natural mobility of the shingle foreshore.	Land managers, NatureScot,
Excessive tracking/trampling by visitors or vehicles	Ensure tracking/trampling is minimal to prevent loss of typical species.	Land managers, NatureScot,
	Prevent any vehicular access on bare shingle ridges.	Land managers, NatureScot,
Habitat Management	Identify funding streams to aid collaborative management between land managers, for example Biodiversity Challenge Fund, LIFE.	NatureScot, land managers.

Contact details:

NatureScot
Alexander Fleming House
8 Southfield Drive
Elgin
IV30 6GR
Tel: 01343 541 216
tayside_grampian@nature.scot

Document approved on 14 April 2020 by

Greg Mudge	**Denise Reed**
Principle Advisor	Area Manager
International Designations	Tayside & Grampian