

Mud, sand, marsh, reeds and birds

The inner estuary of the River Tay, from its confluence with the River Earn to the Tay Rail Bridge, is a haven for geese and other waterfowl. Some spend the whole winter here, others use the Tay for 'refuelling' on migratory journeys. The attraction is the mudflats that are exposed at low tides, the sandbanks, saltmarshes and reedbeds where they can feed and roost.

The populations of goldeneye, cormorant, pink-footed and greylag geese and other birds are both nationally and internationally important. For this reason, the inner estuary of the Tay has been notified as a *Site of Special Scientific Interest*.

This site is one of four SSSIs in the Firth of Tay which, with the Eden Estuary in Fife, is being proposed as a *Special Protection Area* under the provisions of the European Union's *Wild Birds Directive*. The directive is part of *Natura 2000*. SNH is consulting widely on the proposal and also considers that the area meets the criteria for designation as a *Ramsar* site under the Convention (held at Ramsar, Iran) on Wetlands of International Importance.

Conserving the estuary and its shores means working with the local community to agree how best to manage the habitats in the interests of the birds and plants – and of the people who live and work in the area.



Cormorants hang out their wings to dry after diving for fish.



Scottish Natural Heritage is the government agency that works to conserve and enhance Scotland's natural heritage of wildlife, habitats and landscapes. It aims to help people enjoy this natural heritage responsibly, understand it more fully and use it wisely so that it can be sustained for the future.

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The Tay Rail Bridge forms the eastern boundary of the Inner Tay Estuary.

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Inner Tay Estuary

A SPECIAL SITE FOR WILDLIFE



A special place for birds

On a good winter's day, you'll see great skeins of pink-footed and greylag geese as they make their way to and from the farmland along the Firth of Tay. From time to time, a cloud of bar-tailed godwit will take off from the mudflats. Redshank, lapwing, grey plover, sanderling, other waders and shelduck will be searching for food in the mud while merganser, eider and other ducks ride out on the water, sometimes diving for fish and molluscs.



Laurie Campbell

Bar-tailed Godwits probe continuously for crabs, shrimps and worms.

Large numbers of cormorants roost on the sandbanks and fish for eels, smelt and other fish in the surrounding water. Smelt are now rare fish, living in only two or three estuaries in Britain. In the reedbeds, water rail make use of muddy patches for finding worms and other invertebrates; flitting among the reeds (called *Phragmites*), sedge and grasshopper warblers chase insects for food.

Sedge Warblers hide among the reedbeds waiting to dart out and catch insects.



Working waters

Nearly 2000 years ago, the Romans crossed the River Tay from their fort at Carpow. The monks of Balmerino almost certainly crossed the river by boat. Ferries plied their way until the late 1900s when, like most fishing boats and salmon-netters, they became a memory.

But the Tay is still a working waterway. Cargo vessels sail to and from Perth, passing agricultural land and small settlements scattered along the estuary. There's now little commercial fishing – most salmon have a free run up to the spawning waters but a few men still net them.

The reedbeds are harvested from December to March and the reeds are then dried, trimmed and dispatched to thatchers throughout Britain. Farmers graze cattle on the saltmarsh and this is good for wild flowers.

Wildfowlers still enjoy dawn expeditions along the estuary to shoot geese and ducks for their own tables.



Harvested reeds near Errol are prepared for sale to thatchers all over the country.

A river for all reasons

Most people know something about the River Tay, one of Scotland's longest rivers. It gathers Highland waters in Loch Tay and offers anglers and canoeists considerable challenges in its upper reaches. It appeals to artists and photographers as it meanders towards Perth from where it provides a route for seaborne cargo in its Firth.

In the inner estuary – the *Site of Special Scientific Interest* – the river broadens, creating great sandbanks with names like Carthage Bank and Sure as Death Bank on which ships came to grief until high tide. Mugdrum Island, which is fringed by reeds and has a sea wall to stop the grazing land from being flooded by the tide, separates the North and South Deeps, the channels safe for ships. All the channels along the Firth are excluded from the SSSI but are home to shoals of smelt, a small, salmon-like fish that tastes of cucumber.

Reeds used for thatching houses grow along both river banks – the beds on the north bank are the largest in Britain. Beyond them lie saltmarshes and intertidal mudflats, rich in food for wading birds. The Local Nature Reserve at Invergowie is a good place to see them.

The rich farmland along both shores of the Tay results from glacial action which left fertile deposits at the same time as it carved out the bed of the river. To the north lies the Carse of Gowrie which is famed for its raspberries and to the south you can still see ancient woodland at Flisk Wood and Ballinbreich.



SNH

Fertile, mixed farmland borders both banks of the inner Tay estuary.

Do you know about ... who eats what?

The Tay, like any habitat, contains a web of life. Invertebrates in the mudflats and sandbanks eat tiny organisms (and sewage), birds and fish feed on invertebrates, cormorants, seals and people eat the estuary's fish. Many species of insect live in the reedbeds and saltmarshes, providing food for birds. The reeds give protection to nesting birds, including water rail and the grasslands along the river are feeding grounds for geese.

This diversity is one of the reasons why the SSSI is so important – and it's equally important that the balance of species is not disturbed by human activity.



Redshanks, with their distinctive piping call, eat salt-marsh invertebrates.

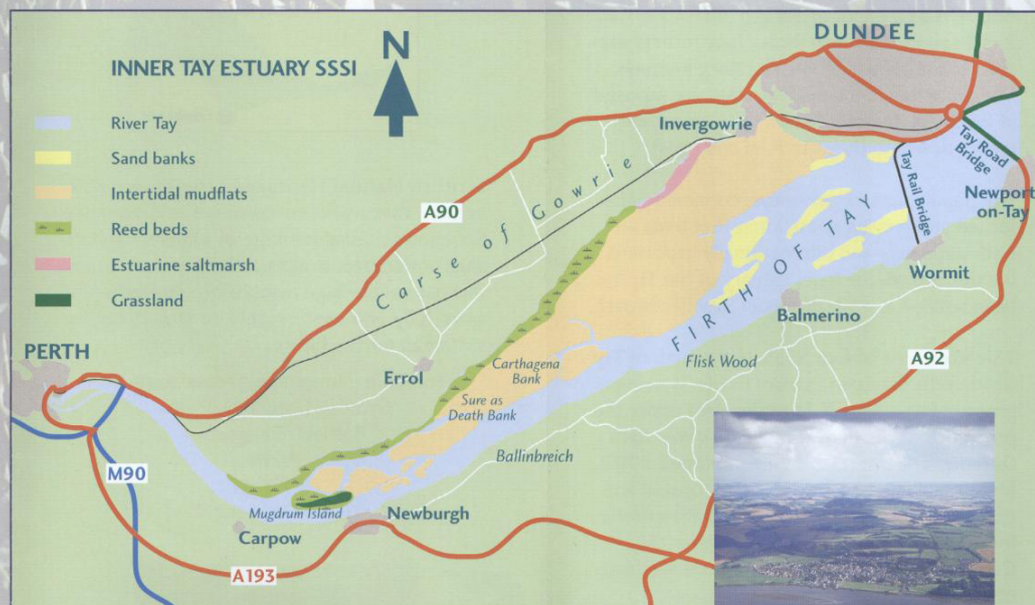
Laurie Campbell

Oystercatchers eat worms and shellfish, stabbing open mussels with their beaks.

It's strange but true ...

Sewage and other nutrients flow into the estuary and improved treatment of this effluent will make the estuary cleaner. But, because worms and molluscs feed on the sewage and lots of birds eat these invertebrates, cleaner water could mean less food and fewer birds. On the other hand, too much sewage and other nutrients increases the amount of algae, smothering the invertebrates. This could also affect the numbers of birds feeding in the estuary.

The challenge for the environment here is to maintain a balance where birds and people can live together.



The big picture

Viewpoints along the estuary provide spectacular panoramas of the Tay – one of the best is on the south bank at the layby on the coast road west of Ballinbreich. At low tide, you see the whole spread of sandbanks, saltmarshes and distant mudflats which make the estuary such an important habitat.

Private land restricts access to many stretches of the foreshore and it's best to ask locally for advice where there are no rights of way.



The Tay's patterns of land, water and sandbank are seen best from the air.

Birds, birds and more birds – or fewer?

Laurie Campbell



Pink-footed geese flying to their roost is a regular winter spectacle.

Goldeneye and cormorant, redshank and bar-tailed godwit, eider and shelduck, pink-footed and greylag geese congregate to feed and roost on the mudflats and saltmarshes at low tide.

If the Firth of Tay is to continue to support these birds, then conserving and managing their habitats is essential. Scottish Natural Heritage advises and helps public, private, voluntary and local organisations, and individual landowners, to achieve good management for effective conservation.

Conservation at work

The Tay reedbeds are commercially important and 40% is harvested each year. This reduces habitat temporarily but prevents scrub invasion and helps regrowth. The cutting machine wheels leave muddy areas where water birds can feed. It's a good example of commercial activity and conservation working in partnership.

The local wildfowlers' association manages Mugdrum Island as a bird refuge where grazing of cattle and sheep improves the wet grassland habitat. This encourages geese to feed and wading birds to breed there. The association has a voluntary agreement not to shoot birds on the island.

SNH works in partnership with many organisations to resolve potential conflicts between the interests of the community and those of the natural world.

Waders and other waterfowl

Within the Firth, the Inner Tay Estuary Local Nature Reserve lies on the outskirts of Dundee and is used by a variety of birds all year round. You can see and hear curlew, redshank, oystercatcher, lapwing, bar-tailed godwit and dunlin, each with their distinctive calls. Shelduck and other birds nest in and near the reeds. In winter, huge numbers of pink-footed and greylag geese wheel overhead before flying north in spring to breed in Greenland and other Arctic countries.

One of the best routes into the reserve is the path from Invergowrie Station.

Do you know about potential threats to the birds?

New homes and industrial development near the shores of the Tay could lead to more people, cats and dogs disturbing wildlife; increased noise and pollution could damage habitats. Oil spills are a risk in coastal areas and can lead to oiling of birds and contamination of their food.

However, along the inner Tay estuary, sensible use of the area has meant that the SSSI has maintained its importance for birds and other wildlife. With care and sensitive management this should continue into the future.

SNH plays an important advisory role on the needs of wildlife when new developments are being considered. It is always consulted on planning issues affecting the Inner Tay Estuary SSSI.

What about the future?

The future of the SSSI for wildlife – and for people's enjoyment of the estuary – depends on different interests working together – farmers, reed cutters, local people and businesses, wildfowlers, fishermen, government agencies and voluntary bodies. So far, cooperation has worked well. It has to continue if people and wildlife are to live in harmony.