

Report of the *Forth Naturalist and Historian* Man and the Landscape  
Conference Saturday November 15th 2014

**The Inner Forth: Formed by Nature, Shaped by People**

For this year's conference, the *Forth Naturalist & Historian* was partnered by the Heritage Lottery Funded *Inner Forth Landscape Initiative* (IFLI) partnership in exploring the past and present dynamics of this constantly changing landscape.

The Inner Forth estuary has changed out of all recognition over the last 500 years or so. Land has been claimed and protected from tides and storms. Farming has become increasingly commercial. Major industries in the past, such as salt-making, coal mining and iron-working have needed the Forth as a gateway to international trade. As a result the natural world has been forced to retreat, communities have turned their backs on the river, and often the outside world sees only the refineries and power stations that now dominate the landscape. The Inner Forth Landscape Initiative aims to reawaken our pride and understanding of this complex mix of the old and the new, the natural and the built, aims clearly central to those of the *Forth Naturalist & Historian*.

**Anne McCall**, Regional Director of the RSPB, the lead body in IFLI, opened the meeting and **Jess Dolan**, Programme Manager of IFLI described the scope and scale of the initiative ([www.innerforthlandscape.co.uk](http://www.innerforthlandscape.co.uk)) in the next 4 years, the purpose, to create an holistic and balanced approach to the management of our heritage and the vision to make an Inner Forth landscape where the natural, cultural and historical wealth of the area is revealed, valued, enhanced, and made accessible to both residents and visitors and better able to cope with change. The Inner Forth is an area of 200 km<sup>2</sup> from the Forth estuary and intertidal zone to the floodplain and coastal margins and settlements on both banks. IFLI will deliver 50 discrete but interlinked projects around the Inner Forth to reveal, protect and enhance its unique natural and historic heritage.

**Donald McLusky**, formerly of the University of Stirling, described the changes to pollution levels of the waters of the estuary since the 1960s. These have been overwhelmingly beneficial, a 'good news' story. In the 1960s the water from just below Stirling to Grangemouth was anoxic, with dissolved oxygen at 20-25 % in which fish could not survive. By 1979 values were greater than 60 %. The Cornton reach of the estuary, which is saline to the M9, is now the richest salmon beat in Scotland and the Forth is now a nursery for fish, the single most important in the North Sea, so significant that commercial fishing is banned. Mercury and cadmium releases were stopped entirely in 1983 with changes in industrial operations, with funding for better water treatment: pollution is reversible.

**Yvonne Boles**, RSPB Conservation Officer for Central Scotland, talked about the significance of the Inner Forth for bird populations. The Firth of Forth Special Protection Area regularly supports a wintering waterfowl assemblage of European importance, in particular a winter population of 95,000 waterfowl, some 45,000 wildfowl and 50,000 wading birds. It is the second most important estuarine area for wintering birds in Scotland, and 12th in the UK. Most of the wildfowl and waders in the Firth of Forth are found at internationally or nationally important levels. The invertebrate-rich mudflats are used for feeding at low tide whilst higher ground, including saltmarsh, provides high tide roosts and feeding sites. The largest expanses of mud are in the inner Forth at Kinneil Kerse, Skinflats, Torry Bay and Alloa Inches. The internationally important wintering species within the Forth are shelduck, which includes an important post-breeding moult flock, a rare feature in Britain. At Kinneil Kerse, bar-tailed godwit, knot, golden plover, redshank and pink-footed geese are found.

There are many threats and pressures. There has been about a 50 % loss of intertidal habitat in the past 300 years, through industry, land claim and coastal squeeze. Global warming led sea level rise, increasing storminess and wave heights threaten to become major drivers of biodiversity loss. Encouraging floods to spill onto reclaimed land, as at Skinflats near Grangemouth, should enable management to keep pace. A range of local projects should, delivered through genuine partnerships, lead to the collective desire to future-proof the Inner Forth.

Brownfield sites are any places that have been altered by human activity and are not currently fully used. Their importance for conservation has been assessed by **Suzanne Bairner** of Buglife ([suzanne.bairner@buglife.org.uk](mailto:suzanne.bairner@buglife.org.uk)). They can have a very high diversity of wild flowers, with many weed species of bare or disturbed ground, in contrast to more natural habitats. Very complex mosaics of habitats develop quickly. Some 12-15 % of rare and scarce invertebrates have been recorded on Britain's brownfields, including Red Book species. Brownfield sites can be one of the United Kingdom Biodiversity Action Plan's priority habitat, 'open mosaic habitats' if they fulfil criteria such as size, history, loose bare ground and early successional plant communities, though diversity tends to peak after 5-12 years of abandonment as open ground is lost.

Nationally there are over 10,000 hectares of vacant and derelict land. Remote sensing assessments by Buglife has identified 5500 ha of this as potentially being open mosaic habitat. Of 66 sites in the Inner Forth, 22, over 107 ha, potentially meet open mosaic habitat criteria. The Inner Forth was at the heart of Scotland's industrial revolution and was particularly important for our coal industry. Large spoil heaps (bings) have been left scattered across the landscape and are an important reminder of our recent past. Fallin coal-working ended in 1987 and was re-graded in 1994 with the hydro-seeding of wild flowers and the planting of trees. Today there are populations of Nationally Scarce (Notable B) of the ground beetle *Amara praetermissa*, the leafcutter bee *Megachile willughbiellia* and the ant hunting spider *Steatoda*

*phallerata*. Millhall Bing is a wetland today, good for dragonflies such as four-spot chaser, large red, common darter and common blue damselfly. Other open mosaic habitat sites are at Manor Powis Bing and Garibaldi Bing near Falkirk.

The loss of local colour and diversity of products in orchards has been an intriguing subject of research and restoration in recent years. **Crispin Hayes**, an ecological consultant ([www.eco-consultancy.co.uk](http://www.eco-consultancy.co.uk)) gave an overview of traditional orchards in the Forth Valley, some 27 orchards in an area of 2500 km<sup>2</sup>. Early orchards were linked closely to the great religious houses at Cambuskenneth (founded 1140), Linlithgow (1401) and Culross (1217). Before the Act of Union, religious orders provided a direct cultural bridge between Scotland and the more sophisticated France, and pomology was part of that culture. Orchardland at Airth was recorded in 1489, at Bothkennar in 1630 and at Stonehouse in 1707 when Stonehouse was "a fine orchard of very good fruit trees belonging to it". Orchards spread from monastic centres. In Stirling itself there were orchards at the King's Knot, the Brig and in St. Ninians. "Indeed, no soil seems to be more favourable for fruit trees than the Carse of Stirlingshire", opined an expert in 1812. The recent survey by Dr. Hayes recorded that of the 27 orchards in the Forth Valley, 18 have some heritage value, though most have been neglected for at least half a century. Neglected orchards often have high biodiversity value, and veteran trees satisfy multiple criteria for biodiverse habitat. New plantings need to be made soon if these orchards are to survive in the long term.

A deeper history of the Carse was given by two stalwarts of local societies, **John Reid** from Falkirk and **John G Harrison** from Stirling. John Reid explored settlement on the Carse east of Stirling in the centuries before AD1600, arguing that the evidence from Scots place-names implied that settlement and farming, the latter already commercial and producing a surplus, were common and widespread by or in the Middle Ages. He suggested that activities usually associated with the modern period such as ditching and draining were well advanced, the driving forces being the large monastic granges. Raised mounds close to Stirling had been removed for fuel by the early 14th century, and the big raised mounds at Wester, Dunmore and Letham had been substantially reduced.

John Harrison examined the history of the carse in the last few centuries. He began with the idea that the carse adjacent to the Forth Estuary was a fertile fringe with large estates and large agrarian surpluses in the 16th century and for long after this. The key to this lay in the ease of transport on the water of very bulky materials such as lime and coal. The lime kilns on the shore at Fallin were, for example, commissioned in 1767. Limestone could be delivered, broken down in coal- and coke-fired kilns and sold on along the Forth. The 'loops' of the Forth became very valuable assets, needing to be defended against storms and tides. He drew on General Roy's Military Survey (1747-1755) to show the depiction of sea walls around the mouth of the River Carron. Early sea walls are known at Airth, a key port and protecting the Queenshaugh

below Abbey Craig in Stirling. Yet there is passing mention in the early 17th century of older, 'ancient sea dykes', but how old and where they are remain unknown. The 18th century 'improvements' encouraged reclamation of mud flats, using low-tech and cheap methods, for arable, and later for navigation and industry. But have we now seen the end of land claim as food imports are cheaper than walls and conservation concerns encourage managed retreat?

Salt-making was another shoreline industry, and the large amounts of ash helped build the sea-walls, as **Geoff Bailey** of the Falkirk Community Trust explained. Salt-making on the Forth can be traced to at least the 12th century AD. Salt can be concentrated by evaporation, though in Scotland this has always been unlikely. Sea water and estuarine mud need to be boiled in pans, a process called sleetching. Ash is a by-product of this. To make 3 tons of salt required 97 tons of sea water and huge amounts of fuel. Wood very quickly gave way to peat from the coastal raised mosses near Stirling, but by the 13th century panners were moving east to secure coal reserves: to complete the equation, 48 tons of coal had to be burnt to produce those 3 tons of salt. In 1614 salt was after wool and fish Scotland's main export, mostly to the Dutch Empire, and by 1630 one half of all Scottish ships carried either salt or coal. Bo'ness was second only to Leith as a trading port. But working conditions were appalling: Pennant in 1771 wrote that "Nothing ever exhibited such an idea of the infernal regions as this horrid furnace and the poor miserable naked wretches attending it". Workers being tied to their place of work with no freedom to move, a form of serfdom, which persisted into the 18th century in both coal mining and salt-making.

**Kirsty McAlister** is the historian on the IFLI Project and gave a presentation celebrating the trading heritage of the Inner Forth. Much of this has disappeared from view and memory, or almost, but the project will begin to retrieve this from archival research, archaeological survey and oral history at places like Alloa harbour, described in 1803 as "very commodious, receiving vessels of greatest burden", Kennetpans and Higgins Neuk near Airth, the southern end of the link to Alloa on the north bank. There are exciting times ahead.

Richard Tipping