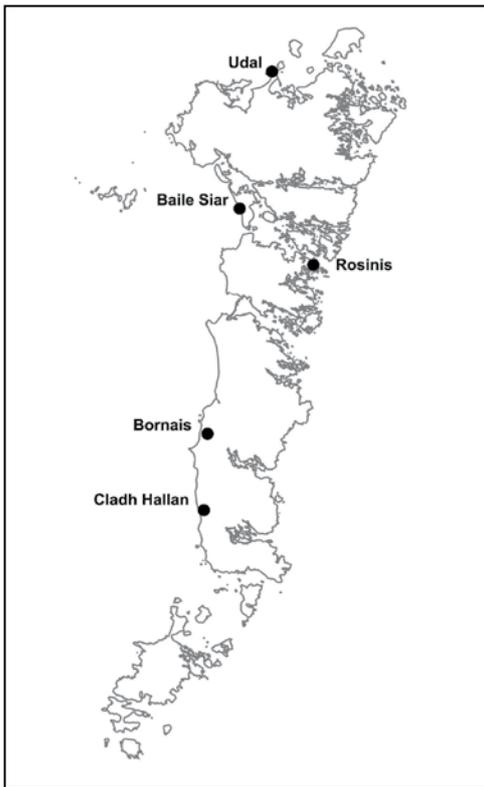


MACHAIR AND ARCHAEOLOGY

Archaeology on the machair



The machair is a unique ecological environment, formed from wind-blown calcareous sands. The machair began to form after the ice retreated across the north-west of Scotland approximately 8,000 years ago. After the Ice Age had ended, excess sand deposits in the Atlantic were blown inland and the machair evolved as a result of inter-related processes of sand erosion and deposition. The machair represents the islands' best arable ground and has been a focus of agriculture since early prehistory. In order to keep the ground fertile and protect the unstable sands from wind erosion and sand drift successful cultivation of the machair has always relied on careful management. The environmental history of the machair is therefore closely tied to the history of the communities who have lived and worked in these landscapes.

Machair as preservation environment

The machair is in a constant state of flux, with erosion, sand blow and sand encroachment causing the steady movement of machair environments further eastward and landward over time. As the machair has evolved, many archaeological deposits, structures and artefacts have become buried beneath the shifting sands. The highly alkaline soils provide the perfect conditions for the preservation of archaeological material. In particular, these sandy soils preserve bone and pottery very well. In some cases, entire prehistoric settlements have remained hidden beneath deep accumulations of sand for thousands of years. Archaeological remains on the machair are often exposed for the first time by wind or sea erosion. Animals, such as rabbits, also reveal archaeological material when digging their burrows into the sands.

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Early machair settlement

The earliest known settlements on the machair were built around 4,000 years ago. They date to a period known as the Early Bronze Age. Early Bronze Age settlements have been identified on the machair at Udal in North Uist, at Rosinis on the east-coast of Benbecula, and near Dalabrog and Cill Donnain in South Uist. Where Early Bronze Age settlements have been excavated, archaeologists have found small U-shaped stone structures associated with stake holes and post-holes and substantial midden deposits. Early Bronze Age settlements are also associated with distinctive types of pottery known as Beakers. Prehistoric settlements on the machair tend not to be visible as upstanding remains but are represented by large mounds. Some settlement mounds are obvious, while others are more difficult to distinguish from natural machair



*Ard marks left in the machair soil 4,000 years ago.
© Professor Mike Parker Pearson*

formations. Keep an eye out for dark, shell-rich sand deposits and fragments of pottery and animal bone in erosion holes or animal burrows. These deposits are known as middens and indicate intensive human occupation.

Later prehistoric, Norse, and medieval settlements

People started building roundhouses on the machair during the Early Iron Age (around 500 BC). These roundhouses became increasingly elaborate over time, and by the Middle Iron Age the coastal landscapes were dominated by huge stone-built towers, known as brochs, and semi-subterranean roundhouses known as wheelhouses. By the ninth century AD, the Iron Age way of life was fundamentally changed by the arrival of the Norse, although settlements continue to focus on the machair during this period. Large Norse settlements have been identified on the machair at Udal, Bornais and Drimore. In South Uist, settlements began to shift away from the machair during the Medieval period. However in North Uist, the dispersed prehistoric settlement patterns were replaced by nucleated villages, referred to as bailtean. This process created the crofting landscape that we see today, with the machair emerging as a key element. If you're in North Uist, look out for place names beginning with 'Bali' or 'Baille'.

The breadbasket of the Hebrides

The machair has sustained the people of Uist for millennia, with the first clear signs of cultivation dating to the Early Bronze Age period, around 2200 BC. The light, sandy soils are easy to work, but need careful management to replenish nutrients, and to prevent erosion by the fierce Atlantic winds.

Despite these challenges, islanders have been growing cereals on the machair since at least the end of the Stone Age (Neolithic), leaving behind plenty of evidence for archaeologists to piece together how they worked the land.



A Norse farmstead on the machair. © Bill Neill

The most striking remains are the criss-cross marks left by simple prehistoric ploughs, called ards, that were used to till the fields. Thanks to the remarkable properties of the machair sand, these ard marks have been preserved for over 4,000 years. They have been found in several areas in the Outer Hebrides most notably underneath the roundhouses at Cladh Hallan, and at Sligeanach near Cille Donnain. Here, the soils were fertilised by scattering domestic rubbish on the fields, which included broken fragments of pottery and flint tools. However, by 1000 BC people had begun to use seaweed on their fields instead, in much the same way as they do today, although tractors make much lighter work of dragging the heavy loads up from the beach!

Once harvested, cereal grains were processed in a variety of ways, leaving behind traces of the plants that were grown. Most importantly, the grains were dried before storage, helping to preserve them for archaeologists to find and identify thousands of years later. We know that the earliest cereal crops were wheat and barley. By the Iron Age barley had become the dominant crop, although oats were also grown. When the Norse arrived, they brought several new cereals with them, notably rye and flax. The flax would have been valued for its fibres, which would have been processed into linen.

Today, cereals are still an important element of machair cultivation, but the light soils are particularly suited to growing potatoes. When the humble spud was introduced to the Hebrides several centuries ago, it was so successful that the island population grew significantly. Tragically though, people became over reliant on potatoes, experiencing serious famine when the crop failed due to potato blight in 1864.



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