LIFE ON MACHAIR ~ NEWSLETTER 4

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Machair on RTÉ

A recent visit from Ella McSweeney and the Ear to the Ground team at Murvey resulted in a beautiful short piece of film. The amazing story of Murvey's land reclamation, told by local farmers and the LIFE on Machair (LOM) team was documented and aired in the first episode of this season's Ear to the Ground.



Image © Ear to the Ground

The crew met with local farmers to hear about their thoughts on machair and the pressure it faces. They then recorded the gathering of farmers who spread 16 tonnes of seaweed to help promote plant growth. This in turn will bring back biodiversity and coastal protection. Watch the segment at this link or the QR link below.

Autumn preparations

Summer on machair passes in a moment, and autumn is already well established. The purple wave of heather on the hills and scabious on the machair is the signal. Just as farmers of the past told the time by the evening flight of crows, our machair managers read the plants to guide their grazing regimes. Plants have set seed, some pollinators have completed their annual cycle while others produce next year's queens. Waders have fledged, while flocking birds now gather for safety, foraging and fattening before long autumn journeys. Waves of devil's-bit reach high into the wind, scattering their seed across the machair and signalling that winter grazing is due to return soon.



And so it is, with cattle coming from upland summer sites, to graze through this flush of summer growth. Essential to machair's diversity, this management, repeated over generations, has shaped the habitat we are once again coming to know so well. Using electric fencing and, in some cases, collars, farmers are targeting the areas most in need of grazing. It is remarkable that these few weeks are laying the foundations for next summer's success. By breaking the sward, letting light penetrate to ground level and disturbing the seed bank with their hooves, these managers of machair create conditions for the rich diversity of wildflowers and grasses that shelter and support next year's ground-nesting wader populations. Overhead, the first calls of the autumn visitors echo. Geese, swans and waders are returning to their safe haven, as they have for millennia. Here they are safe from disturbance, able to spot predators from a distance, and assured of plentiful food, all thanks to the traditional management carried out by landowners, itself practised for millennia.

Read on to discover what other preparations have been taking place across the sites, each year building on knowledge from the past and modern experience.

Easy-to-use presentation of our work

Follow the QR code to access a simple, clear PDF presentation demonstrating just some of the variety and effort being realised by the programme participants. This short showcase gives a peek into the mammoth amount of ideas, actions and supports our incredible LOM team are delivering, all to restore machair with the local community's involvement. We couldn't be more proud of them!

Dogs on a lead please

Check out this article about dogs and our birds.

Disturbance is a huge issue for our wildlife, wildlife that has been returning along these migratory routes, long before we started to keep every manner of dog for pleasure. Their presence can disturb roosting birds, leading to them running out of energy to make it through the cold winter nights. The disturbance also applies to our sites that have winter grazing in place, be that with cattle, sheep or horses. We love our furry best friends but please keep in mind the wildlife on our precious machair.

Autumn tasks

Temporary fence removal



Across many of the sites, temporary fencing has been dismantled for the winter. This allows winter grazing animals to prepare the site for next year's birds and pollinators. Posts are left in place, wiring and netting wrapped and stored. These exercises are not only practical but work as a social event of a kind, bringing farmers and landowners together across the sites in collective action.

Mowing

No better way of demonstrating the complexity of machair systems than by the nutrient distribution. Some areas need supplementary feeding to sustain stock, some need cattle placed on and off more than once a year to manage the sward and some areas have more nutrition than is typical or associated with a machair system. One such area is on the Roonagh site, south Mayo. Thanks to the lagoon, nutrients transported from upstream tend to settle on site during winter floods. Sometimes, assistance is required from machinery, if the site is too wet for animals to access. Hence mowing on machair. All to achieve increased biodiversity in plants, which in turn leads to an increase in animals. And all part of the team's autumn tasks.



Cross-project collaboration

Much as machair systems stretch from the sea to the hills, the EU LIFE programmes cover a huge mosaic of habitats and species. A recent, very successful LIFE programme, Corncrake LIFE, finished in 2025. The learnings from this programme led to a contract being developed for continued support of this wonderful bird and the landowners that make its breeding success possible - the Natura Communities Farmland Birds. This is just one wonderful example of how LIFE programmes can lead to ongoing conservation efforts, putting money directly into the pockets of rural farming communities while supporting biodiversity.

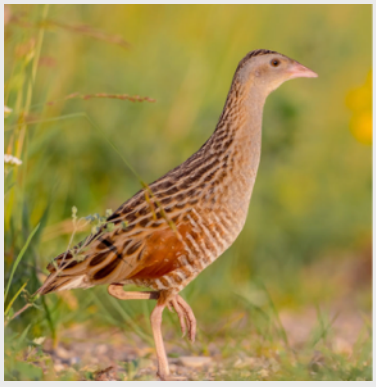


Image ©Corncrake LIFE

The bales cut on some of our machair sites are sent to the Natura Communities Farmland programme. They are spread by farmers to encourage growth that will shelter the next generation of corncrake chicks and their nests. This is a great use of this extra nutrition. The machair land that has been cut will shelter ground nesting waders in the spring to come. By cutting the sward, wildflowers with their accompanying pollinators will thrive.



Autumn tasks (contd.)



Winter grazing returns

As breeding birds migrate south and winter visitors start to arrive, swaths of purple on the hills and across the machair tell us that the seasons are changing. Time for the cattle to return from the hills. The warm summer has allowed the grass and flower diversity to thrive across the sites. By bringing tough cattle breeds down from their summer pastures, diversity next year is secured. This is an ancient pattern of shifting grazing animals according to seasonal demands such as weather, water and food availability. These managed engineers of the machair allow light to access the wildflowers below the grasses, ensuring great plant and insect diversity next year.





Knotted pearlwort, one of the plants that help build sand dunes.

Glossy ibis



This exotic visitor is a familiar sight across wet grasslands of the Mediterranean. Resembling a cross between a heron and a curlew in shape and habit, their curved beaks are perfectly adapted to machair habitats. As our climate warms, these exotic and very beautiful birds are becoming more regular visitors to the machair. Yet to be recorded breeding in Ireland, that day might well be coming. One to watch out for.



Photographs by Steve Rushworth near Annagh marsh, the Mullet

Machair restoration as coastal protection

This autumn, a community in Murvey, south Connemara, gathered 16 tonnes of storm-washed seaweed and spread it by hand across bare sand. The job would have been familiar to their grandparents. The reason for doing it is very much of our time.



A habitat built on movement

Protecting our coastlines, our farmland and the communities that live behind them is becoming a very immediate issue. There is more energy in our climate system than previous generations ever had to deal with, and our Atlantic storms are delivering this energy with some devastating effects. How do we protect our coastlines, our agricultural land and the communities nestled within from this new and increasing threat? As is so often the case, traditional approaches can show us the way.

Machair habitats depend on the relentless winds blowing shell-rich sand across the grass plains. For thousands of years, the balance between grazing, winter storms and sand movements has been key to not just biodiversity but the very survival of these precious, mobile and resilient habitats. Constant shifting of the dunes, small blowouts exposing bare sand and re-colonising from sand-dune specialist plants is the norm on machair.



More protection for the Inishkeas

Farmers and landowners came together on a rare fine day to bolster the coastal protection on the Inishkea islands. Combinations of overgrazing and increasing energy due to climate change have been eating away at the soft coastal margins. A familiar problem on many of our sites, fencing acts as a solution, preventing animals from accessing the pioneering, sand-loving plants that stabilise the area.



Laughter and chat echoed across the old village houses once more as local island communities worked together to protect their own machair systems.



A habitat built on movement (contd.)

However, changes or increases of the grazing regimes, coupled with increasing storm energy, means that something must give. This can be seen across many machair sites in Ireland, no more so than in Murvey, south Connemara.

Machair is a habitat that is dependent on farming. In more recent times, however, farmers have seen extreme erosion happening at an alarming pace. Due to a lack of vegetation from overgrazing, erosion has been increasing year on year, resulting in deep losses. In some places around two metres of sand depth is gone, along with close to 20 hectares of what was once grazing land.



Measuring the problem

When the LIFE on Machair (LOM) project began in 2022, Murvey was one of the first sites chosen. Project officers and ecologists sat down with the farmers who were working this land to look for a solution. Around the same time, Silvia Cascone started a PhD at the University of Galway under Dr Kevin Lynch of the geography department. She took on the job of planning and overseeing restoration actions on the damaged land, along with Caitriona Maher (ecologist), who was working with LIFE on Machair at the time. Drones were used to map the blowouts and erosion across the many hectares of bare sand, giving measurable evidence of the damage and the effectiveness of the work that LOM planned to stabilise and restore the area.

Autumn visitors returning



Redshanks (above), greenshanks (below) and even taller godwits (bottom) have started flooding in from their breeding grounds, far north of here. As part of the east Atlantic flyway migratory route, our machair sites are often the first land that birds travelling from Iceland will see.



Large numbers of redshanks make the 3,200 km journey, joined by about half of the Icelandic whooper swan population. Sights and sounds that have been present on machair since before our time. Godwits also join from the land of fire and ice, reminding us how interconnected our spaces are.



Measuring the problem (contd.)



Once the scale of the problem was clear, the question was whether traditional methods, simple techniques and old practices could manage a very modern problem. So far, the answer has been a firm yes.

Slowing the sand, resting the land

The first step was chestnut fencing, a light, pre-made fence that is easy to handle. As the wind passes through it, the wind loses speed and the sand it is carrying drops to the ground.

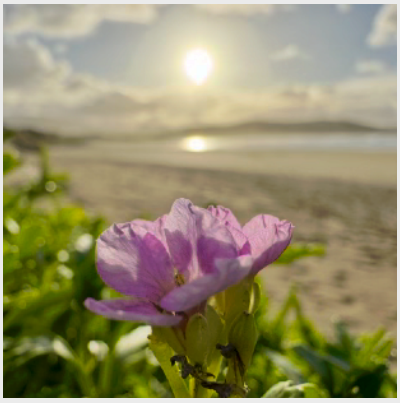
The second step was harder. All grazing animals had to come off the land, at least temporarily, so the vegetation could recover. Farmers worked this out among themselves with help from the LOM team and found alternative grazing for their livestock, which on commonage is a real commitment.

The next step was regeneration of vegetation. To survive in as difficult a habitat as shifting sand the plants need a widespread, deep running root system. Accessing water will likely result in salt being a factor. The amazing groups of hardy, often succulent plants that have found their niche on our shorelines can not only find water and tolerate salt, but they can also resist the never-ending desiccation, or drying out due to constant wind. Crucially, they act as the binding material for machair, that which keeps the sand in place.



Salt-tolerant plants

Without specialised plants that have adapted to salty environments, our coastline would look very different. Marram grass is the most famous, grasping sand with its long dense network of roots, allowing fixed dune systems to build to great heights. Before it can establish, some frontline plants, the ones that grow at the very edge of the high tide line have started the stabilisation process. Below are some that survive at the edge of our machair sites.



European searocket



Sea mayweed



Sea bindweed

Slowing the sand, resting the land (contd.)

Once farmers and their fences had slowed the flow of sand, they needed to let these specialist plants do their thing. Sheep or cattle nibbling the new growth would end the process; hence the temporary removal of stock. Time and technique might have been enough, but the LOM team wanted to speed the process up. Could they possibly start to beat this very modern problem of climate adaptation by relying on ancient ways of fertilising? One way to find out.

A solution from the sea

Seaweed, accumulating in the exposed parts of the beaches after storms was collected and spread across the bare sand. If laid down in a thick enough amount, it not only helped keep the sand in place but added a layer of nutrition that these coastal specialist plants have adapted perfectly to. Evocative names such as prickly saltwort, sea mayweed and orache responded in kind, grasping the loose sand with their roots. They are the frontline, allowing sand building plants to follow.



The succession of plants required to bring back dunes and machair's coastal protection established in a remarkably quick time. With the ground prepared by the initial pioneer plants, couch grass, spreading from its own root system, popped up in its wonderfully uniform lines. Each line starting to build the magical site, embryonic dunes. Once these 1-2 metre hummocks of dune are in place, the familiar marram grass can establish. Most dune systems that you have walked have been built over time by marram grass, which in turn owes its presence to the protection and sand grasping ability of these pioneers.



When blowouts get blown out of hand

Murvey demonstrates what can happen when overgrazing and strong storms combine. The fragile plants that act as our frontline coastal defence are eaten, leaving the sand vulnerable to the Atlantic winds. What starts as a small, naturally occurring blowout in the sward can turn into an enormous area of bare sand.



2 metres of machair depth lost



As is so often seen in conservation programmes such as this, nature can provide some of the solutions necessary to combat climate change.



A habitat system rebuilding

Thanks to initial trials, sand was accumulating rapidly and plants were responding to the seaweed layer quicker than on bare areas. More fences were placed and this year, 16 tonnes of seaweed that washed up from storms was gathered. Farmers came together in September and collectively spread the seaweed over the freshly gathered sand. Farmers were quite literally putting the sea's nutrients back onto their own land to protect it.

Silvia monitored every area and every species throughout. The results so far are spectacular. Approximately 4 hectares of previously bare sand have become vegetated, while areas that still had growth are responding to the rest period. They are demonstrating more diversity of species. Less sand is moving and less wind erosion is occurring. Last winter, the first cattle in a long time grazed one area, carefully managed to graze just enough to encourage healthy spring growth. More cattle, with seven different farmers contributing stock have just moved on to part of the site this year. On the beach, the waterline has receded by an incredible 50 metres, with sand accumulating as high as 1.8 metres.

What Murvey shows

It's hard to think of a more obvious, effective or affordable way to adapt to climate change than is being demonstrated at Murvey. Nature-based solutions are entering the wider conversation in Ireland and across the world. Murvey's farmers, supported by the LIFE on Machair team and by careful scientific monitoring, are showing what that looks like in practice. Methods from the past can protect land from stronger storms, restore grazing and bring biodiversity back.

Seaweed, fencing and managed grazing cost a fraction of the hard engineering often favoured in coastal defence. Few communities could afford the engineering option on this scale, and these methods work with the way machair behaves rather than against it.



Special thanks



Brendan Dunford, Eithne (LOM), Ivan Kelly, Jackie, Joe and Sinead (LOM) at the Valley, Co. Mayo



Patrick McGuran, Brendan Dunford and Pat Dunne at Sheskinmore nature reserve, Co. Donegal

Amazing amount of knowledge and experience between these people. We are very grateful for their time and thoughts. As was repeated across the sites, at this stage we have the knowledge and the will, all we need to protect these precious



Sandwort, one of the tough sand colonising plants that help build sand dunes.

Knowledge shared

At the end of each summer, farmers and landowners from different sites come together to share experiences, what worked, what didn't and why. Walking through a similar but different site is an excellent way to get new ideas, confirm some practised ones and have many quiet words with people facing similar challenges on familiar habitats.



This year, with many different actions and processes in place for four years across the sites, the LOM team assembled some outside expertise to take a look and add their thoughts. Of the many challenges to managing machair, collaboration and consent across multi-owner sites can be one of the most complex. Within this challenge, delivering equitable and sustainable payment systems is essential, which is another large challenge. With these thoughts in mind, we invited some guests to take a look, get a feel for and start conversations around machair management with our participants.

Brendan Dunford, founder of Burrenbeo Trust; Patrick McGuran, former project manager of the AranLIFE programme; Pat Dunne, participant in SUAS, Sustainable Uplands Agri-Environment Scheme and Ivan Kelly, environment specialist in extensive farm systems from Teagasc joined the team and farmers for multiple walks and talks. They listened, conversed and shared some of their experiences in tackling familiar issues in different landscapes.



Machair mentioned in Donegal BAP



Virginia Teehan, CEO of The Heritage Council, and Micheál MacRuaidhrí, LIFE on Machair participant farmer and Cú Costa Biodiversity Mentor, based in Luinnigh in Gaoth Dobhair, whose role during summer was supported by the Community Heritage Fund, to help raise awareness and respect for the unique machair coastal system. Micí spent days during the summer, surveying, monitoring and talking with people, local and visitor alike, sharing with them what a special, wildlife rich habitat we have on our western coast. Pictured here at the launch of the Donegal Biodiversity Plan (BAP) 2026 – 2030 last Friday 16th October, with a beautiful willow sculpture of a Lapwing, the national bird of Ireland. The LOM project was examined as one of the case studies in the plan.



Knowledge shared (contd.)

Farmers from Donegal sites met at the wonderful Sheskinmore nature reserve, a site partially owned by the National Parks and Wildlife Service (NPWS) and farmed by a group of farmers following a plan for machair management.



The results are spectacular, the evidence of multiple-year planning and crucially, financial support are plain to see. All of which stimulated excellent discussion.

Mullet-based landowners and farmers travelled to the Valley in Achill, for a walk and talk with flocks of lapwing overhead. Fledged chick numbers have increased thanks to temporary predator fences being installed by the farmers in the Valley.



Erosion and overgrazing were the dominant topics at Murvey, where so much progress has been made in land restoration. Farmers from Dooaghtry and the Valley, sites with similar issues and experiences, gathered to share their knowledge. The recovery of the large blowouts is increasing at pace, giving hope and guidance for so many machair sites that face erosion issues.

The LOM team are very grateful for these guest speakers. Each one brings their own unique set of experiences for all to draw upon. Each one has demonstrated that farming which works with nature can be made economically sustainable, even on the most complicated of habitat mosaics with the most complicated land ownership structures. Just as the participants in the LOM scheme are demonstrating admirably.

Orange glow

As machair transitions from sandy to peaty soils, wet machair habitat forms. This is the last area of the wide flat plains before the land rises to our familiar heath and blanket bog covered hills. At this time of year, the backdrop to our machair systems is spectacular. Low autumnal light along with a meadow of orange grasses and seed heads like this bog asphodel pictured give a glow that lights up our coastal sites.



ATU collaboration



Students from the fashion and design department of ATU Letterkenny visited our machair site at Lurgabrack recently. Looking for inspiration from the plant colours and textures, the students plan on designing outdoor gear inspired by the machair landscape. We can't wait to see the results.



Ploughing trials



An exciting trial took place this year on one of our most northwesterly sites near Magheragallon, Co. Donegal. The required permissions were confirmed to deliver this approach to land management on what is part of the Gweedore Bay and Islands SAC (Special Area of Conservation). Leaning into traditional farming knowledge, the team supported a farmer to trial the ploughing, setting and harvesting of a crop of rye, in order to observe the response of the land and wildlife, soil and vegetation, plants and birds, while reviving an old, yet not forgotten practice of the area.



Traditional farming, using this type of method, also known as crofting in Scotland, has not been nearly as common on Irish machair in recent times. In Scotland, the land is ploughed, fertilised with gathered seaweed and planted with three different crops, each one sheltering the next on these exposed, northerly sites. On this site in Gweedore, growing crops is still within living memory, when the old rundale farming system still applied.

A small area of the site was chosen and ploughed and rye seed set. The crop responded well to our warm yet damp summer in Gweedore. Hand-harvested using scythes, the crop was then bound in traditional sheaves and arranged in stooks to dry, before storage for winter fodder. This first crop for many years on machair will feed farm livestock, of which cattle are preferred to prepare the land during winter for the coming cycle of nature next year.







Have you tried our machair quiz?

A fine way to test your knowledge on machair systems and to see what farmers have been doing to protect these unique areas, is to give our quiz a go. Broken into five sections including what is machair, pollinators, flowers, birds, and threats and management. It will take you on a colourful journey through machair, what it is, what life it supports and what farmers have been doing through the LOM programme to maintain and sometimes restore these special places. Each section should take no more than about ten minutes.

Scan the QR code below or click on this link to give it a go!



Project action areas

Have a look and see if any of the project areas are near you. Now is a wonderful time to visit a local machair site. The sounds of returning geese and swans fill the air, the last flushes of autumn colour are still to be seen and the light, open space with the cleanest air anywhere awaits to sooth the body and mind.



Don't forget to keep up with what's happening on LIFE on Machair by following us on Instagram and Facebook.

Our website linked here to previous newsletters will also give you more in-depth information on machair systems and so much more.

