

Summary

Land drainage systems to control water removal are traditionally used to increase land productivity. More frequent heavy rainfall events and the push for action on climate change is resulting in a greater interest in new land drainage and renovation of old drains. However, for business and environmental reasons care should be taken to ensure drainage is planned and appropriate.

- Wet habitats are important for birds and other wildlife and drainage degrade important wildlife habitats.
- Drainage operations are subject to a number of regulations to prevent inadvertent damage.
- Funding to maintain and manage wet areas is available, such as through SRDP.
- Advice is available from the RSPB and others to help land managers plan and install appropriate drainage systems.



Lapwing – benefits from wet grassland. Image: Andy Hay (rspb-images.com)

Why drain land?

The purpose of land drainage systems is generally to control the removal of water from a field and usually involves lowering water tables and removing 'excess' water as quickly as possible. This allows greater flexibility in the farming practices that could be undertaken, and often means the land has the potential to be farmed more productively and profitably.

Depending on location, function and size, drainage systems may contain a varying combination of the elements below, and others, to form an efficient drainage network that may range in size from a few fields to a whole catchment.

- Perimeter open field ditches
- In field sub surface drainage pipes
- Mole drains
- Water pumps, water control structures such as sluices, weirs and dams

Why is drainage becoming an issue now?

Over time drainage features need to be maintained, replaced or reinstalled. Ditches can become silted or blocked, mole drains eventually collapse and field drains can become inefficient. Climate change projections predict greater annual rainfall in some areas of Scotland and more extreme weather events. In 2012, heavy rainfall affected many agricultural areas restricting farming operations. This resulted in farmers considering ways to adapt to a changing climate ensuring measures, such as drainage, were maintained and fit for the purpose to help remove excess water from land.

There is also pressure to maintain drainage because it has been identified as a measure to reduce GHG emissions¹ and can therefore help the agriculture sector reduce its share of the Scotland's climate change targets.

What are the carbon benefits?

Research indicates that agricultural drainage of **mineral soils** has some benefit for the climate by reducing nitrous oxide (N₂O) production in the soil – a powerful greenhouse gas. However, draining **peaty/organic soils** is not recommended and can lead to oxidation of the soil and huge carbon losses to the atmosphere. As peaty soils are far more common than mineral soils in Scotland, drainage should be undertaken only in appropriate locations. In addition, draining some areas could lead to negative impact on habitats and wildlife.

What are the downsides for wildlife of draining land?

Some farmland wildlife thrives in wet conditions. For example, wading birds such as snipe or redshank probe wet soil with their beaks for invertebrates. Some land traditionally used for low intensity agriculture is naturally wet or occasionally wet, and can also be important wildlife habitat, for example, wet meadows. Land or parts of fields where the drains or ditches have fallen into disrepair may now be wet and be beneficial for wildlife. Often a farm will have a wet or often flooded area which is less productive but is also used more by farm wildlife. Draining any of the areas described above to improve productivity is likely to negatively affect wildlife in some way.



Wetland drainage in East Scotland
Image: RSPB



Section of the Savoch burn, Loch of Strathbeg RSPB reserve
Image: Andy Hay (rspb-images.com)

What regulatory protection is there from inappropriate drainage?

A number of regulations can affect drainage operations:

- Environmental Impact Assessment (EIA) Agriculture Regulation – apply to projects on uncultivated land or semi-natural areas (such as floodplain marshes and wetlands) where the purpose is to bring the land into use for intensive agriculture. Activities such as drainage works and changes to watercourses would be subject to EIA procedures. EIA also applies to projects involving the restructuring of holdings on agricultural land. Projects that included the removal or addition of features such as ditches would be subject to EIA procedures. Further information can be found at the following webpages: <http://www.scotland.gov.uk/Topics/farmingrural/Agriculture/Environment>
- Controlled Activities Regulations (CARs) – aim to protect the water environment and include some rules/restrictions on drainage and ditches as specified in the General Binding Rules of CARs and also requirements for land managers to register with SEPA if they intend to undertake certain activities such as sediment management. See 'The Water Environment (Controlled Activities) (Scotland) Regulations 2011: A Practical Guide.' on the SEPA website.
- Cross-compliance – land managers in receipt of the Single Farm Payment must comply with various Statutory Management Requirements (SMRs) and Good Agricultural and Environmental Conditions (GAEC). GAEC 5 specifies that functional field drainage systems, including clearing ditches, must be maintained unless environmental gain (such as the creation of wetland grazing areas) can be achieved by not maintaining field drainage systems, in which case this must be declared on the IACS return. The clearing of ditches is subject to CAR and other guidance is given on some activities e.g. timing maintenance to minimise impact on flora and fauna.

¹ FFBC – Field Drainage Systems http://www.sruc.ac.uk/downloads/file/1142/practical_guide-field_drainage_systems

See 'Cross Compliance Notes for Guidance' on the Scottish Government website.

What guidance/advice is there to help with drainage?

- Farming for a Better Climate (FFBC)² and SRUC advisors can advise on drainage appropriateness.
- Future Proofing Scotland's Farming³ has resources and events run for farmers.
- RSPB Scotland advisors can provide advice on habitat management⁴ and appropriate SRDP options. We would particularly be keen to speak to landowners with waders in and around Caithness, Clyde Valley, Grampian, Shetland, Strathspey, Tayside or the Uists.
- SRDP has provided many farmers with a financial reward for managing wet areas through options⁵ such as 'Water Margins and Enhanced Riparian Buffer Areas'⁶

What does the RSPB recommend?

When considering installing, renewing or repairing drainage RSPB Scotland recommends following the set of actions below:

- Understand your soil and land history – is it a mineral or peaty/organic soil? How long since the land was last worked?
- Identify regularly wet areas and areas which have become habitats for wildlife on the farm – drainage may not be cost effective and other options may be available.
- If there are waders present, sign up to the Wader-Friendly Farming Initiative. This initiative, which is a partnership between RSPB Scotland, NFU Scotland, the Scottish Crofting Federation, the Scottish Agricultural College, has a number of free advisory materials available⁷.
Seek the advice of a qualified adviser – to recommend where drainage will be cost effective, where environmental payments may be appropriate, and to help negotiate any regulations.
- Consider SRDP or other environmental funding where possible to support managing wet areas or areas of wildlife habitat.
- Follow rules that apply. Is an EIA needed before drainage can be done? What are the General Binding Rules covering the activity? Will the action compromise Cross-compliance.



Sluice management at Preston Merse, Mersehead RSPB reserve, Dumfries and Galloway. Image: Kaleel Zibe (rspb-images.com)

For further information please contact:

<p style="text-align: center;">Chris Bailey, Advisory Manager, Scotland RSPB Scotland, 2 Lochside View, Edinburgh Park, Edinburgh EH12 9DH Tel: 0131 317 4100 Email: chris.bailey@rspb.org.uk The Royal Society for the Protection of Birds (RSPB) is a registered charity: England and Wales no. 207076, Scotland no. SC037654 – October 2013 <i>RSPB Scotland is part of the Royal Society for the Protection of Birds, the UK-wide charity which speaks out for birds and wildlife, tackling the problems that threaten our environment. Nature is amazing - help us keep it that way.</i></p>
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² FFBC - <http://www.sruc.ac.uk/climatechange/farmingforabetterclimate/>

³ <http://www.soilassociation.org/innovativefarming/futurefarminginscotland/futureproofingscotlandsfarming>

⁴ <http://www.rspb.org.uk/ourwork/farming/advice/habitats.aspx>

⁵ <http://www.scotland.gov.uk/Topics/farmingrural/SRDP/RuralPriorities/Options>

⁶ <http://www.scotland.gov.uk/Topics/farmingrural/SRDP/RuralPriorities/Options/WaterMarginsandBufferArea>

⁷ <http://www.rspb.org.uk/ourwork/conservation/scotland/waderfriendly.aspx>