

# Boundary Features Action Plan

## Habitat Definition

For the purposes of this habitat action plan, boundary features will include:

- Ditches: artificial watercourses (including heavily modified or canalised burns), usually created as an aid to land drainage.
- Dykes: drystone or mortared walls, either free-standing or retaining.
- Field margins: uncultivated and unmanaged strips adjacent to ditches, dykes, hedgerows or fences.
- Hedgerows: linear scrub less than 4 metres in height. Hedgerows may also incorporate hedgerow trees.

These habitat types are characteristic of farmed land in most of Falkirk. However, they also form part of designed landscapes, estates and gardens in both urban and rural settings.

Note: Enhancement of arable field margins is included in the arable action plan. Conservation and enhancement of watercourses, including wet ditches, is included in the rivers and streams plan.

## Current Status

A UK-wide survey in 2000 identified the total stock of boundary and linear features to be stable after the losses of the 1980s, but their overall condition was in decline.

Due to the lack of information, it is presently very difficult to accurately assess the extent or biodiversity status of boundary and linear features within the Falkirk Council Area.

### Ditches

Most ditches are created in relatively flat areas to aid efficient drainage for agriculture, forestry or development. The Falkirk Biodiversity Audit estimates that there are approximately 52 kilometres of ditches found throughout Falkirk.

## HABITAT PROFILE



Falkirk Council

### Status:

Boundary features:  
Broad habitat  
Ancient and/or species-rich hedgerows:  
Priority habitat

### Protection:

The Wildlife and Countryside Act (1981) prevents damage to or destruction of the nests of wild birds while in use or being built.

The Food & Environment Protection Act (1985) prevents the application of pesticides into hedge bases without specific approval. Wet and dry ditches are protected from pesticide applications by Local Environmental Risk Assessments for Pesticides (LERAPs).

Hedgerow trees can be subject to Tree Preservation Orders.

Farms receiving Less Favoured Area Support Scheme (LFASS) payments must adhere to Good Farming Practice Guidelines.

(See section 5 for more detail.)

### Key Sites:

There are three known old species-rich hedges in the Falkirk area, at Hamilton Road, Rumford and north of Whitecross.

## Associated Habitat and Species Action Plans

### Habitats:

Habitat: Arable (including cereal field margins), Urban wildlife corridors, Rivers and streams

### Species:

Adder *Vipera berus*  
Barn owl *Tyto alba*  
Bluebell *Hyacinthoides non-scripta*  
Brown hare *Lepus europaeus*  
Brown long-eared bat *Plecotus auritus*  
Bullfinch *Pyrrhula pyrrhula*  
Common frog *Rana temporaria*  
Common toad *Bufo bufo*  
Field scabious *Knautia arvensis*  
Grey partridge *Perdix perdix*  
Harebell *Campanula rotundifolia*  
Hedgehog *Erinaceus europaeus*  
Kestrel *Falco tinnunculus*  
Linnet *Carduelis cannabina*  
Otter *Lutra lutra*  
Palmate newt *Triturus helveticus*  
Pipistrelle bat *Pipistrellus pipistrellus*  
Purple ramping-fumitory *Fumaria purpurea*  
Reed bunting *Emberiza schoeniclus*  
Sedge warbler *Acrocephalus schoenobaenus*  
Smooth newt *Triturus vulgaris*  
Song thrush *Turdus philomelos*  
Tree sparrow *Passer montanus*  
Water vole *Arvicola terrestris*  
Wych elm *Ulmus glabra*  
Yellowhammer *Emberiza citrinella*

## Dykes

Dykes are the dominant field boundary habitat where stone is plentiful, soils thin and the climate too harsh for hedges. They are particularly prevalent to the north-west of Falkirk around Denny. The Falkirk Biodiversity Audit estimates that there are approximately 250 kilometres of walls (125 kilometres agricultural) throughout Falkirk. Many dykes were built in the late 18th century and have now become defunct: a survey by the Central and West of Scotland Dry Stone Walling Association found only 14% of the dykes in Central Scotland to be in good condition and stockproof, with 72% in poor condition (49% in an advanced state of dereliction).

## Field Margins

Field margins occur throughout Falkirk. Predominantly, these are narrow, unmanaged grassy strips or banks. Species composition and therefore biodiversity, are affected by soil type and the effects of agricultural operations.

## Hedges

Hedges in Falkirk tend to be dominated by hawthorn with beech, blackthorn, dog rose and other shrubby species also present. To encourage diversity, hedges planted under agri-environment schemes must be a mixture of native species. According to the Falkirk Biodiversity Audit, there are three old species-rich hedges currently known in Falkirk: these are at Hamilton Road in Larbert, Rumford and north of Whitecross. Lack of, or inappropriate management has resulted in many hedges becoming low, narrow, leggy

and gappy or over-grown. Hedgerow trees are characteristic of certain parts of the Falkirk area. These can add to the biodiversity value of the hedgerow.

## Ecology

As semi-natural and natural habitats have declined and been fragmented, boundary features have become increasingly important for biodiversity, particularly within the agricultural landscape. They often connect fragmented habitats by acting as wildlife corridors alongside or through open habitats such as fields, moorland and main roads. This enables a variety of species, which are unwilling or unable to cross open landscapes to move around the countryside.

From an agricultural perspective, boundary features can provide important shelter for livestock, permanent stockproof field boundaries, security and a habitat for predatory insects, which are beneficial to crops. Boundary features act as corridors and stable habitats for wildlife throughout the year. In more urban areas boundary features such as hedges can provide attractive landscape features as well as valuable havens for biodiversity.

### Ditches

Ditches can be very rich habitats, often combining both damp and dry conditions. This provides habitat for aquatic and semi-aquatic plants, invertebrates, amphibians and small mammals. Permanently wet ditches are particularly important for water voles and otters.

Unlike natural watercourses, ditches require management to maintain their agricultural function and their value to wildlife. Rotational clearing of ditches, undertaken only when required and leaving one bank or sections on alternate banks undisturbed, saves on costs and minimises the negative effects on biodiversity. Keeping banks as shallow as possible also benefits biodiversity.

Well-established and well-managed ditches through intensively managed or developed areas can be important to wildlife. However, extreme caution must be taken when new ditches (or grips) are to be created where they are likely to have an effect on the hydrology of important habitats such as bogs, moorland, watercourses and wetlands. For example, much of the restoration work on degraded lowland raised bogs, involves the blocking of existing ditches in an effort to raise or maintain the water table. Natural watercourses support specific wildlife communities, which can be destroyed or significantly damaged by modification such as canalisation.

### Dykes

Most dykes in Falkirk are very old and often have considerable landscape and historical importance; dividing farm units, soil types and land use (e.g. inbye and hill) and as sheep fanks and livestock holding areas.

The exposed wet side and the sheltered dry side of dykes offer different conditions to suit a variety of species. To some species, semi-dereliction is preferable to tightly built dykes. It is important therefore, that derelict and semi-derelict dykes are not removed. However, in general, dykes which are stockproof and therefore of most agricultural value, also provide most benefit to biodiversity in the long-term. Drystone dykes have more biodiversity potential than mortared dykes, as they provide small cavities and crevices, allowing access for wildlife and the opportunity for plants to establish.

Dykes are often colonised by algae, ferns, lichens, liverworts and mosses, as well as some flowering plants. Reptiles and amphibians, such as adder,

common frog, common toad, common lizard and slow worm hibernate within dykes and bask on the sheltered side in spring and summer. Many species of invertebrates, including ants and bumblebees, shelter and breed in dykes. Dykes also provide nesting and feeding opportunities for birds such as wheatear, stonechat and whinchat. Small mammals prevalent in dykes also attract hunting stoats and weasels.

### **Field Margins**

Grasses commonly found in field margins within Falkirk are cocksfoot, creeping bent, false oat-grass, meadow fox-tail and red fescue. Herb species such as lesser knapweed, yarrow, vetches and vetchlings also occur. This diversity of flora attracts a wide range of invertebrates. Bees and butterflies will forage for nectar and pollen on flower heads. Tussocky grasses provide excellent breeding and over-wintering habitat for many species of invertebrate, such as beetles, hoverflies, ladybirds and spiders. Some of these benefit crops by preying on pests such as aphids and thereby potentially reduce the need for insecticides.

Grey partridge chicks are totally reliant on insects as food in the first few days after they hatch. Field margins are therefore popular as nesting and rearing sites for this species. Field margins are also important as feeding areas for farmland passerines such as linnet, reed bunting, tree sparrow and yellowhammer. Small mammals, including shrews, are also numerous in field margins. This benefits predators such as stoat, weasel, barn owl and kestrel.

Grass margins can also act as important buffer zones, reducing the effects of soil erosion by trapping sediments and pollution by filtering fertilisers, pesticides and silt before they reach watercourses. They can also act as a buffer to cultivation, protecting ditch banks, dyke foundations and the roots of hedges and hedgerow trees from ploughing.

To maintain a diversity of species and structure, the effects of agricultural operations on field margins must be minimised. A grassy strip of at least 1 metre, on which there should be no application of fertilisers and pesticides, should be maintained next to any field boundary. Where it is not possible to totally exclude livestock from this area, grazing should be excluded over the late spring and summer months to allow grasses and wildflowers to flower and set seed. Outwith this period, grazing should be managed to ensure that vegetation remains at a height of not less than 10 centimetres. This enables invertebrates to over-winter and breed early in the season.

### **Hedges**

Hedges replicate the woodland edge habitat, which has declined with the clearance of natural woodland for agriculture. They have therefore become important as a habitat for many species. In general, hedges that are diverse in species and structure sustain more biodiversity.

Birds such as bullfinch, linnet, song thrush, tree sparrow and yellowhammer, which require some woodland or scrub habitat, will shelter, nest and feed in hedges and adjacent farmland, gardens or other appropriate habitat. Hedgerow trees provide additional height for singing posts, as well as summer shade for livestock.

The micro-climate created by hedges attracts many species of invertebrates, including butterflies and moths. Dead shrubs or trees within the hedge are utilised by dead wood specialists. Invertebrates attract predatory mammals such as hedgehogs and bats. Bats are known to use hedges as a navigational aid while hunting.

The management of hedges has considerable consequences for biodiversity value. Well-managed hedges have most functional value, providing shelter and a stockproof boundary, as well as having greater value to wildlife. Thick hedges can be achieved by fencing off from livestock, gapping up, coppicing, laying or otherwise managing to promote bushy growth. Trimming every second or third year rather than annually, saves considerably on costs and allows the hedge to grow taller and wider and to produce the berries and hips, which are particularly important to over-wintering birds.

### Current Factors Affecting the Habitat

Agricultural intensification as a result of national and European policies, has resulted in the loss or deterioration of boundary feature habitats. Many ditches were piped and dykes, field margins and hedges removed in an effort to increase the area of productive land and accommodate larger farm machinery. However, it is not thought to have been such a significant issue in the Falkirk area as elsewhere in the UK and shifting attitudes and declining farm incomes currently deter such actions. In more urban areas removal for development purposes, inappropriate management or lack of management are key factors.

Current factors include:

#### Ditches

- Piping of ditches.  
By excluding light and precluding natural watercourse processes, piped ditches have virtually no biodiversity value.
- Inappropriate management.  
Inappropriate management when clearing ditches can permanently damage wildlife habitats, bankside and in-stream vegetation, bank stability and the natural processes of the watercourse.
- Inappropriate use of pesticides and fertilisers.

#### Dykes

- Poor maintenance  
Dyke restoration is labour intensive and costly. With the decline in farm labour and the relatively inexpensive and quick option to fence, dykes fall into disrepair and are not maintained. Indeed previous grants for fencing caused many dykes to be fenced off and forgotten.
- Limited funding for restoration  
Although some work has taken place as a result of a restoration of drystone dykes option under the agri-environment schemes, the payment rate is too low to attract most farmers and landowners.

## Field Margins

- Inaccurate application of fertilisers and pesticides.

This is a threat common to all boundary feature habitats. Drift of herbicides and insecticides into ditches, field margins and hedge bottoms, causes pollution and reduces the number and diversity of plants and invertebrates which form the basis of the food chain. Fertiliser spread into field margins and watercourses allows aggressive species to out-compete finer grasses and wildflowers and causes eutrophication.

## Hedges

- Loss of hedges to development (primarily in urban and suburban areas)
- Limited funding for hedge planting

Although some work has taken place as a result of a hedge planting option under the agri-environment schemes, the payment rate is too low to attract most farmers and landowners.

- Inappropriate cutting regimes

Some farmers (and other land managers e.g. Falkirk Council) trim their hedges annually between July and October. Fast-growing species, the inability of hedge trimming machinery to cope and the need to clear hedge debris are the main reasons given. However, farmers who follow best practice guidelines and trim their hedges in January or February every other year (or even less frequently), actually encounter few such problems.

Many of the hedges in Falkirk are consistently cut at stob height (roughly 1 metre). Cutting at the same height each year results in deformed and suppressed growth. Taller hedges of at least 2 metres provide much more shelter, both for livestock and wildlife: well-managed hedges provide shelter for approximately three times their height up-wind and from ten to twenty times their height down-wind.

- Mechanical cutting of hedges.

Mechanical cutting, particularly with flails, results in shattered and stunted branches, reducing the vigour of the hedge. Cutting arms or shape saws are preferable tools. Mechanical cutting has also resulted in a decline in the development of hedgerow trees.

- Lack of positive management

Due to the short-term costs, hedges have lacked positive management, such as gapping up, coppicing or laying, which would ensure their longevity and usefulness.

## Current Action and Opportunities

Most people see boundary features as assets. To the farm they provide both biodiversity and landscape enhancements and benefits to the farm business. In more urban areas they perform a valuable role as a boundary and can have aesthetic benefits. Many land managers are aware of the principles of good management practices. In the agricultural landscape Quality Assurance schemes promote a responsible and positive approach to the countryside and wider environment.

Further management opportunities exist under agri-environment schemes like the Rural Stewardship Scheme (RSS), which is designed to encourage farmers to adopt environmentally friendly practices and to maintain and enhance particular habitats and landscape features.

Further advice is available from various organisations, which provide advice to farmers on how environmental measures may be implemented on their farms without reducing the viability of the farm as a business. These include FWAG, GCT, LEAF, RSPB, SAC, SNH, SWT.

These bodies also organise local training and awareness raising events for farmers to highlight important issues, promote best practice and demonstrate conservation measures on working farms.

### **Ditches**

- Ditches are protected by Local Environmental Risk Assessments for Pesticides (LERAPs), which introduce a degree of flexibility to the width of buffer zones which must be left when applying Category B pesticides adjacent to watercourses. The pesticide user can employ standard width buffer zones (5m next to wet ditches and 1m next to dry ditches), low-drift equipment or undertake an annual watercourse assessment which takes account of other factors that may reduce the risk. Category A products, which include all organophosphates and synthetic pyrethroids, require a mandatory 5m buffer zone because of the severe risk which they pose to watercourses.
- Farms receiving LFASS payments must comply with the PEPFAA code.
- The management of water margin option of the CPS and RSS enables farmers to fence off and/or exclude cultivation from the margins of wet ditches to protect water quality and encourage the growth of natural vegetation.
- All wet ditches on farms that are under a CPS or RSS agreement are protected by the schemes' general environmental conditions.

### **Dykes**

- Farms receiving LFASS payments must not actively remove or destroy dykes.
- The building or restoration of dykes or walls option of the CPS and RSS, enables farmers to build or restore drystone dykes and mortared walls and protect them from livestock by scare-fencing.
- All dykes on farms that are under a CPS or RSS agreement are protected by the schemes' general environmental conditions.

### **Field Margins**

- Farms receiving LFASS payments must not actively remove or destroy boundary features.
- The “extensive management of mown grassland for birds” and “management of open grazed grassland for birds” options of the RSS, enable farmers to protect birds nesting in hay, silage or pasture fields. The options require that a 2 metre strip around the boundaries of fields, remains uncut and without application of fertiliser and pesticide. This ensures a stable field margin habitat for invertebrates, birds and small mammals.

- The management of grass margins option of the RSS enables farmers to create or manage grassy strips around or across arable fields to benefit arable wildflowers, invertebrates, birds and small mammals.
- Some pesticides are precluded from use on the outermost 5 metres of crops to protect non-cropped habitats (particularly watercourses).

### **Hedges**

- The relatively small number of contractors operating within Falkirk will allow good practice guidance to be well targeted.
- The Wildlife and Countryside Act (1981) prevents damage to or destruction of the nests of wild birds while in use or being built. This has implications for the timing of management practices.
- Farms receiving LFASS payments must not actively remove or destroy hedges, nor trim hedges between 1st March and 31st July.
- The management of hedgerows, management of extended hedgerows and the planting, replanting, coppicing or laying of hedgerows options of the CPS and RSS, enables farmers to plant, restore and manage hedges to benefit the farm and biodiversity.
- All hedges on farms that are under a CPS or RSS agreement are protected by the schemes' general environmental conditions.
- There is a UK habitat action plan for ancient and/or species-rich hedgerows. However, the main objectives of this plan can be applied to all hedges.

## Objectives and Targets

### Objective 1

*Maintain and, where possible, increase the extent and ecological quality of boundary features through restoration, enhancement and creation.*

#### Target 1.1

- By 2005, identify the extent, distribution and status of boundary features in Falkirk.

#### Target 1.2

- By 2004, organise a mailshot to farmers and landowners emphasising low cost/no-cost and grant aided management of boundary features for biodiversity.

#### Target 1.3

- By 2005, organise boundary features management days for farmers, landowners, contractors and partner organisations.

#### Target 1.4

- By 2012, encourage positive management of boundary features on 50% of farms in Falkirk through the provision of “best practice” advice.

#### Target 1.5

- Promote good practice in the maintenance of boundary features, in particular hedgerows, dykes and ditches, by Falkirk Council. By 2005.

#### Target 1.6

- By 2012, restore or create 10 kilometres of species-rich hedge through improved management, planting and re-planting (with a variety of native species).

#### Target 1.7

- By 2012, endeavour to ensure that all of Falkirk’s species-rich hedgerows (identified by 2005) are in favourable condition.

#### Target 1.8

- Promote retention, enhancement and creation of boundary features of value to biodiversity by developers and other land managers, via the planning process. From 2004 onwards.

# Boundary Features

Action	Potential Deliverers		Year to be completed or in place						Meets objective
	Lead	Partners	2003	2004	2005	2006	2007	2012	
<b>A. Policy and Legislation</b>									
1. Enforce the good farming practice guidelines and general environmental conditions of agricultural and environmental legislation.	SEERAD	SEPA, SNH	✓	✓	✓	✓	✓	✓	1
2. Encourage the protection of key boundary features (especially species-rich hedges) from development via development of appropriate policies within local and structure plans and other strategies as they are written or reviewed.	Falk C (DS)	FGAG	✓	✓	✓	✓	✓	✓	1
3. Encourage the protection of key boundary features (especially species-rich hedges) from damaging development through the planning process by production of supplementary planning guidance.	Falk C (DS)	FGAG	✓						1
4. Review the local effectiveness of the RSS and communicate these findings to SEERAD.	FGAG	SEERAD	✓	✓	✓	✓	✓	✓	1
5. Work with the council to develop good practice policy for the maintenance of hedgerows, dykes and ditches.	FGAG	Falk C		✓	✓				1
<b>B. Site Safeguard and Management</b>									
1. Through "good farm practice" advice and agri-environment schemes, encourage 50% of farmers and landowners to restore and/or positively manage their boundary habitats (by 2012). (Where possible including key sites identified in D2.)	FWAG, SAC	GCT, LEAF, RSPB, SEERAD, SNH			✓	✓	✓	✓	1
2. Restore or create 10 kilometres of species-rich hedge (by 2012). (Where possible focusing on key sites identified in D2.)	FWAG, SAC	Farmers, GCT, LEAF, RSPB, SEERAD, SNH, Falk C			✓	✓	✓	✓	1
<b>C. Advisory</b>									
1. Organise a mailshot to farmers and landowners emphasising low cost/no-cost and grant aided management of boundary features.	FWAG, SAC	NFUS, SLF, SNH, FGAG		✓					1
2. Ensure relevant advisory information is available and up to date.	SAC	FWAG, GCT, LEAF, RSPB, SEERAD, SNH	✓	✓	✓	✓	✓	✓	1
3. Provide advice to Falkirk Council (and other land managers) on good practice in boundary feature management.	FGAG				✓				1

Action	Potential Deliverers		Year to be completed or in place						Meets objective
	Lead	Partners	2003	2004	2005	2006	2007	2012	
<b>D. Research and Monitoring</b>									
1. Identify the extent, distribution and status of boundary features.	FGAG	SEERAD			✓				1
2. Identify key sites/features/areas to target conservation or restoration work.	FGAG	FWAG, SAC			✓				1
<b>E. Communication and Publicity</b>									
1. Publicise the Boundary Features Habitat Action Plan as part of the Falkirk Area Biodiversity Action Plan.	FABP, EARAG	FGAG	✓	✓	✓	✓	✓	✓	1
2. Organise boundary features management days for farmers, landowners, contractors and partner organisations.	FWAG, SAC	FGAG			✓				1
3. Produce “cab-cards” for hedge trimming contractors.	FWAG	FGAG		✓					1
<b>F. Plan Monitoring and Review</b>									
1. Monitor the implementation of actions in this plan annually.	FGAG	All partners	✓	✓	✓	✓	✓	✓	1
2. Monitor completion of actions in detail and review this plan every five years to ensure continued effectiveness, starting in 2007.	FGAG	All partners					✓	✓	1

### Abbreviations

EARAG	- Education and Awareness Raising Action Group	NFUS	- National Farmers' Union Scotland
FGAG	- Farmland and Grassland Action Group	RSPB	- Royal Society for the Protection of Birds
FABP	- Falkirk Area Biodiversity Partnership	SAC	- Scottish Agricultural College
Falk C	- Falkirk Council	SEPA	- Scottish Environment Protection Agency
Falk C (DS)	- Falkirk Council Development Services	SLF	- Scottish Landowners' Federation
FWAG	- Farming & Wildlife Advisory Group	SNH	- Scottish Natural Heritage
GCT	- Game Conservancy Trust	SEERAD	- Scottish Executive Environment & Rural Affairs Department
LEAF	- Linking Environment And Farming		

### Key contacts

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