

# Cross Country Trails



## Mountain Biking Design Guidance

This guidance has been developed by sportscotland, Scottish Cycling through its Developing Mountain Biking in Scotland project (DMBinS) & Forestry Commission Scotland.

The information held within these technical datasheets is intended as preliminary information for those wishing to develop a local/regional level, purpose built mountain bike facility. It is recommended that persons seeking to develop any project consult [sportscotland Project Development Checklist for mountain bike trails and training facilities](#) and engage the skills of a specialist trail designer.

## Cross Country Trails

Cross country (XC, trail riding) is the most popular form of mountain biking. It involves riding trails of various lengths and difficulty (grading) in, generally, 'loops'. These 'loops' can be used as race & event venues, indeed, XC has featured as an Olympic Sport since 1996 and is a Commonwealth 'Option' sport featuring in 2002, 2006 and 2014. Cyclists race along a single width undulating track constructed to challenge the cyclists with a number of technical trail

## Trail Grading

As an owner and operator of a number of mountain bike facilities the Forestry Commission have established a grading system to allow users to select trails to match their ability.

<http://scotland.forestry.gov.uk/activities/mountain-biking/mountain-biking-trail-grades>

This grading system is now widely used and is an established way of users understanding the trail difficulty. Although not all trails require to be constructed to a grade we would recommend that they are followed to promote consistency and safety in the construction of new purpose built facilities.

In all cases more challenging features or easier options can be incorporated into an any grade of trail however these should be clearly signed and be an optional route.

Existing path routes and forest roads are not considered to be 'graded' mountain bike routes however they may form part of a trail network. Safety however should be a consideration as for both cyclists and other path and road users and it should be taken in to account that forest roads are designed for haulage not recreational purposes.

The established grading of cross country trails is as follows:



### Easy (Green circle)

Suitable for beginners, families, novice cyclists with basic bike skills.



features including technical descents, climbs and obstacles over a 5-9km length.



# Cross Country Trails



## Moderate (Blue square)

Suitable for occasional cyclists with some experience of road use or easy trails, able to cope with uneven surfaces and small obstacles.

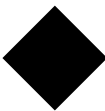


## Difficult (Red triangle)

Suitable for proficient cyclists with good off-roading skills, able to cope with uneven surfaces and varied obstacles.



The picture above shows a red route to the left of the picture and a black option to the right of the picture both clearly sign posted.



## Severe (Black diamond)

Suitable for expert mountain cyclists with advanced level off-roading skills and technical ability .

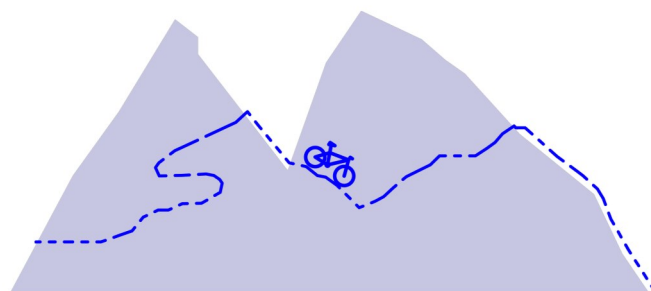


## Enduro

Enduro (all mountain) races are hybrid of cross country and downhill mountain biking. They test the all-round mountain biker on big up and big down terrain, requiring the CV fitness of cross country racing and technical ability of downhill racing.

sportscotland DATASHEET 812 will provide information on downhill trail types

Trail centres can accommodate Enduro training and races by linking downhill trails with some routes up. These links may use existing infrastructure, paths and parts of cross country and downhill trails.



## Accessibility

As a service provider of a public facility any trail operator will have a duty under the 2010 Equity & Inclusion Act to make reasonable adjustments or provision to ensure that disabled participants are able to use your facility. Consideration should be given to the trail width and or route options to accommodate adapted wheelchairs & bikes. Trail design should be also ensure the safety of those on mountain bikes on wider and potentially faster trails. Signage should be clearly identify trail suitability and risks.



# Cross Country Trails

## Suitable for

Grading	Cross Country Easy (Green)	Cross Country Moderate (Blue)	Cross Country Difficult (Red)	Cross Country Severe (Black)	Enduro Trails (Black)
People	Coaches Children Inexperienced cyclists	Coaches Proficient cyclists able to cope with uneven surfaces and small obstacles.	Coaches Proficient cyclists with good off-roading skills, able to cope with uneven surfaces and varied obstacles.	Coaches Expert cyclists with advanced level off-roading skills.	Coaches Expert cyclists with advanced level off-roading skills.
Bikes	Kids bikes Mountain bikes Mountain bike hybrids Hand bikes Recumbent bikes Tandem bikes 4 wheel / adapted bikes Trailors	Kids bikes Mountain bikes Mountain bike hybrids Hand bikes Recumbent bikes Tandem bikes 4 wheel / adapted bikes	Mountain bike hybrids Off-road mountain bikes Tandem bikes 4 wheel / adapted bikes	Off-road mountain bikes 4 wheel / adapted bikes	Off-road mountain bikes 4 wheel / adapted bikes
Competition	Children's local to regional race series.	Local to regional cross country race series.	Regional to national cross country race series.	Regional to national cross country race series.	Enduro events

## Design Characteristics

Grading	Cross Country Easy (Green)	Cross Country Moderate (Blue)	Cross Country Difficult (Red)	Cross Country Severe (Black)	Enduro Trails (Black)
Size	Typical Width: 2 to 3m Typical Length: 5 – 20 km	Typical width: 0.6m-1.2m Typical Length: 5 – 20km	Typical width: 0.6m-1.2m Typical Length: 5 – 50km	Typical width: 0.6m-1.2m Typical Length: 5 - 100km	Natural single track trails are 'ridden' in by cyclists.
Suitable surfaces	Whindust path, dug path, concrete, tarmac, compacted limestone or gravel, boardwalk timber,	Whindust path, dug path, concrete, tarmac, compacted limestone or gravel, boardwalk timber	Whindust path, dug path, concrete, tarmac, compacted limestone or gravel, boardwalk timber, rock, boulders, logs	Whindust path, dug path, concrete, tarmac, compacted limestone or gravel, boardwalk timber, rock, boulders, logs	Minimal construction, trail will be 'natural' singletrack, largely dug from materials onsite.
Site requirement	Shallow slopes and flat areas	Shallow to moderate slopes	Moderate to steep slopes	Moderate and steep slopes	Moderate and steep slopes
Character	Designed and constructed including shallow climbs and descents. The majority of the trail will be relatively flat and wide but might include short flowing single track sections. Maximum climb: < 50m	Designed and constructed including shallow to moderate climbs and short sections of steeper climbs. The trails may have some single-track sections and multiple small features. Maximum climb: < 100m	Designed and constructed including a range of climbs and descents of a challenging nature. The trail will be mostly single-track route of very variable surface types & challenging technical features Maximum climb: < 500m	Designed and constructed including a range of extreme climbs and descents and may include 'downhill' style sections. The trail will include a significant proportion of single-track, with challenging surfaces and large, extreme and unavoidable technical features. Maximum climb: < 1km	Downhill and black style routes follow desire lines with challenging and high risk natural features. These sections should link together and this may be achieved using existing infrastructure and trails.
Typical technical trail features	No features.	Berms (banked corners) Small steps & drops Rollers (bumps) Skinsies (balance beams) Technical climbs	Challenging berms Medium steps & drop-offs Challenging rollers Skinsies Technical climbs Boardwalks Large rocks Cambers Water crossings	Extreme berms Large steps & drop-offs Extreme rollers Challenging Skinsies Technical climbs Boardwalks Large rocks / rock gardens Challenging cambers Water crossings	Natural features found on the trail including roots, drops, steep shoots , tight trees and rock gardens as well as features found on purpose built routes used.
Typical Cost per sqm	£10-£35	£10-£35	£10-£50	£10-£50	£3–£15

# Cross Country Trails

## Scottish Access Legislation

The Land Reform (Scotland) Act 2003 gives everyone statutory access rights to most land and inland water. People only have these rights if they exercise them responsibly by respecting people's privacy, safety and livelihoods, and Scotland's environment.

For a greater understanding of access rights in Scotland see The Scottish Outdoor Access Code published by Natural heritage Scotland

[www.outdooraccess-scotland.com](http://www.outdooraccess-scotland.com)

For a greater understanding of access rights relating to mountain biking in Scotland see

'Do the ride thing' published by Scottish Cycling (DMBinS)

[www.dmbins.com/files/Do\\_the\\_Ride\\_Thing.pdf](http://www.dmbins.com/files/Do_the_Ride_Thing.pdf)

This sportsScotland DATASHEET is intended to support only purpose built mountain bike trails. Facility developers and owners should be aware of access rights and should consider the needs of all users when developing facilities. We expect all purpose built mountain bike facilities to undergo a thorough scoping exercise, as part of the overall project management when developing facility, which will consult and consider other users as part of the process.

Guidance on general multi-use and upland paths is published by The Scottish Access Technical information network.

[www.satinonline.org](http://www.satinonline.org)

Guidance on multi use path construction is published by paths for all.

[www.pathsforall.org.uk](http://www.pathsforall.org.uk)

## Landowner Liability

Land managers have to manage their land and water responsibly in relation to access rights. Any person / organisation with a responsibility for an aspect of management of the land / trail has a legal Duty of Care to all users. Facilities catering for visitors should have clear signs warning of hazards and ensure that facility is designed in such a way to minimise unwanted risk to participants.

The Visitor Safety in the Countryside Group have published guidance on landowner and participant responsibility [vscg.co.uk/guiding-principles/responsibility](http://vscg.co.uk/guiding-principles/responsibility)

For more guidance on landowner liability see:

A Brief Guide to Occupiers' Legal Liabilities in Scotland published by Scottish Natural Heritage 2005.

[www.snh.org.uk/pdfs/publications/heritagemanagement/occupiers.pdf](http://www.snh.org.uk/pdfs/publications/heritagemanagement/occupiers.pdf)

## Maintenance & Inspections

An annual budget of approximately 5% of the capital build cost of the facility is likely to be required to maintain the facilities.

Those with responsibilities for the trail must be able to show they have been suitably careful in its construction and maintenance in relation to the features of the trail and users' level of skill. Cyclists should be advised to cycle responsibly within their capabilities, and all users advised of the need to show consideration for other types of trail user. The landowner should undertake regular inspections in line with an appropriate risk assessment. Findings and action taken should be recorded to demonstrate due diligence.

## Additional Information

sportsScotland DATASHEET 810 will provide information on mountain bike skill & training facilities

sportsScotland DATASHEET 812 will provide information on downhill trail types

sportsScotland Project Development Checklist for mountain bike trails and training facilities will provide information on how to develop a facility project.

## Endorsed by

These datasheets have been developed in partnership with and are endorsed by:

Scottish Cycling: Developing Mountain biking in Scotland  
Forestry Commission

