

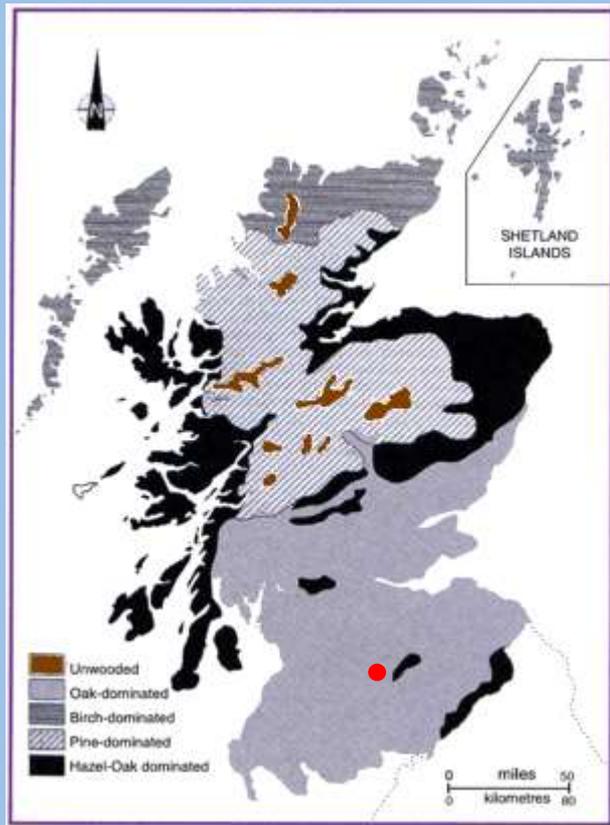
· CARRIFRAN · WILDWOOD



in association with the John Muir Trust



View of Carrifran valley looking south



Scotland almost **entirely wooded** 6,000 years ago

- Birch woodland in the N
- Scots pine in the Highlands
- Oak in the lowlands and S uplands

CARRIFRAN WILDWOOD

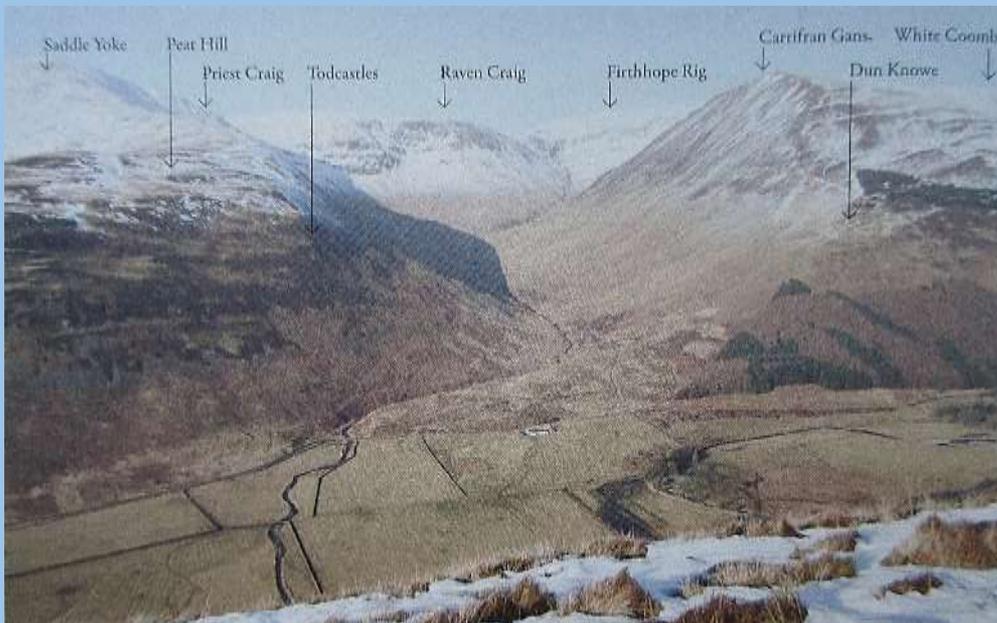
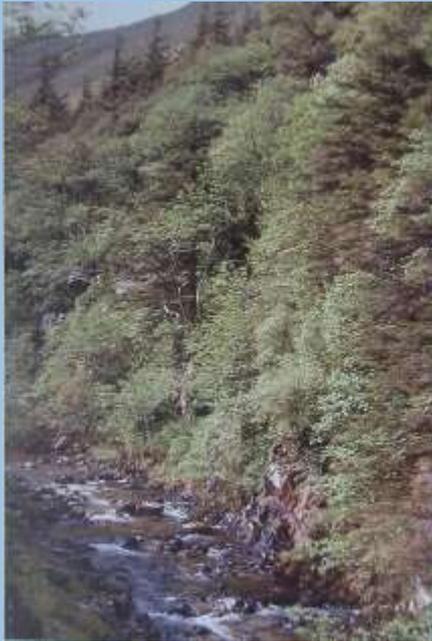
Aim - to establish all (and only) the **species of trees and shrubs** that were present in the area prior to major human impact commencing roughly 6,000 years ago

A restoration of **three-dimensional** structure and **ecological processes**

The inspiration – and the valley they found

Woodland fragment behind **sheep suicide fence** in Gameshope valley, above Games Hope Burn, provides inspiration for restoration of a wildwood in the southern uplands, May 1993

- Restoring Borders Woodland Conference, November 1993
- Borders Wildwood group make proposal to Millennium Forest Scotland Trust, February 1995
- Borders Forest Trust formed and takes in Wildwood Group, January 1996



The search for land yielded Carrifran:

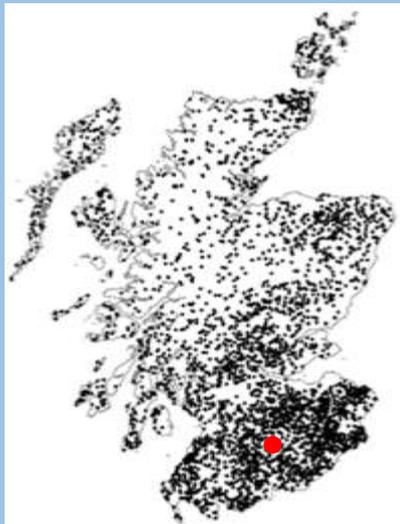
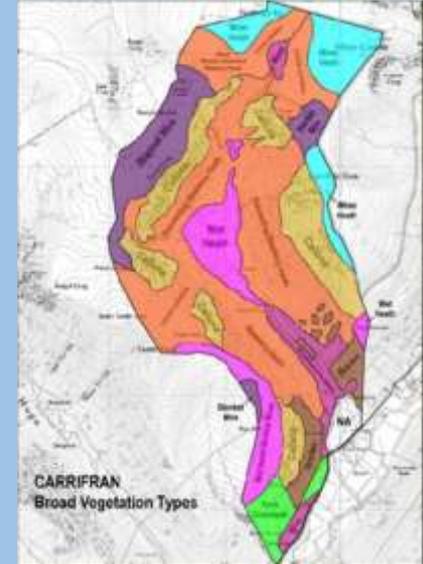
- Agreement to purchase Nov. 1997
- About 80% of the cost (£400,000) was raised from contributions by 600 private individuals
- **Borders Forest Trust** bought the 665ha Carrifran Burn watershed, Jan. 2000
- altitude range of **165-820m**
- Valley in Moffat Hills SSSI/SAC

The wet desserts – the sheep-wrecked uplands



Looking north up Carrifran Burn

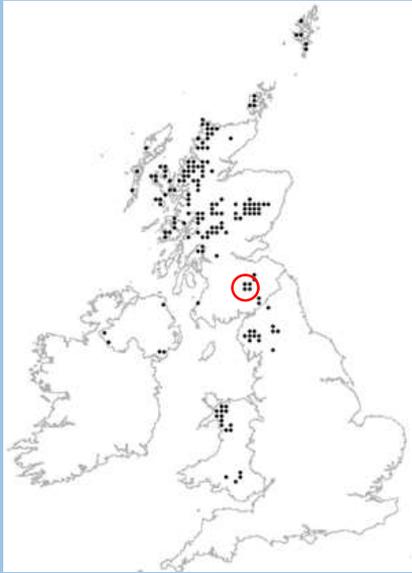
Vegetation of Carrifran consists of various open, short-cropped grass communities, very typical of **long grazed** and/or **burned upland** habitats in the British Isles



*“an inherently infertile region devastated by deforestation and **repeated burning**, largely depopulated and then opened to **heavy and uncontrolled sheep grazing** is a distressing sight to anyone with some appreciation of **ecological principles**”*

McVean, D.N. and Lockie, J.D. 1969. *Ecology and land use in upland Scotland*. Edinburgh University Press, Edinburgh

Inaccessible habitats - plants refuges at Carrifran



Tall herb fringe communities



Plants in crevices on acidic rocky slopes

Ungrazed crags and ledges of Raven Craig surveyed by rope access

- tall-herb flora included roseroot, lady's mantle, globeflower, devil's-bit scabious, sea campion and hogweed
- steeper cliffs had burnet rose, bramble, holly and rowan



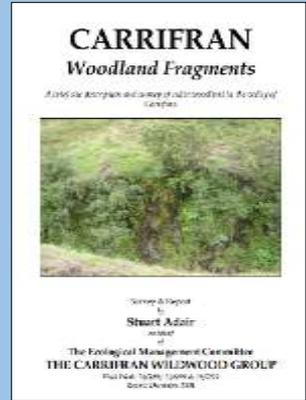
Naturally occurring dwarf willow at 700m near Firthhope



Parsley Fern in rock crevice



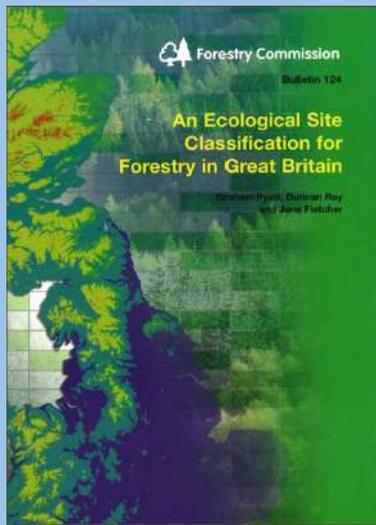
Raven Craig



Inaccessible watercourses

Incised watercourses like Holly Gill are also inaccessible, harbouring rowan, birch and holly, as well as ferns, roseroot, campion and woodrush

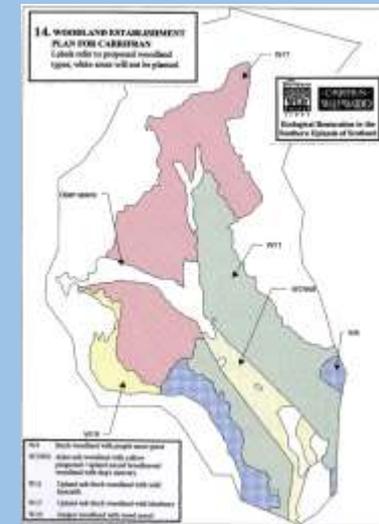
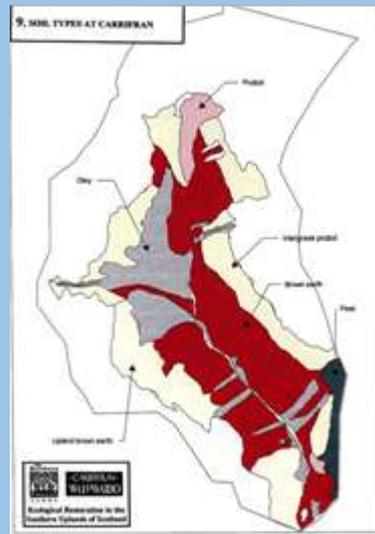
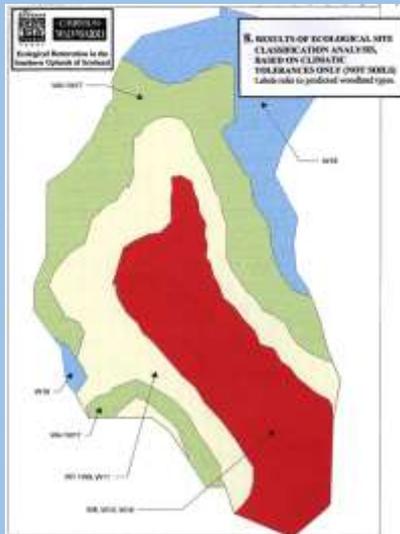




Matching native woodland communities to the ecological characteristics of the valley

Ecological Site Classification (ESC) developed by Forestry Commission, predicts woodland communities of the National Vegetation Classification (NVC) system based on:

- **climate – elevation, windiness and temperature**
- **soil moisture**
- **soil nutrient**



Climate – clear altitudinal zonation, but with no tree line

NVC woodland communities W4, W7, W8, W9, W10, W11, W16, W17 and W19

Soil moisture and nutrient – restriction of communities

NVC woodland communities W4 (birch) W11, W16 & W17 (oak-birch) and W19 (juniper)

Areas to be left unplanted because of SSSI/SAC- blanket bogs on the higher slopes and plateaux; the crags and rocky scree; and the relatively base-rich flush areas on the valley floor

Grazing animals excluded from the valley



- **Temporary internal fencing area** (2km) erected for first contractor plantings, May 2000
- Valley **completely enclosed** by 11km stock fence constructed late summer 2000, mostly above 500m
- 40 **feral goats trapped inside** rounded up and moved to heathland in Surrey and Kent
- Phased **sheep removal** 2000 - to 2004
- Last goats removed 2004, and 6km internal fencing taken down
- Fence has to be checked regularly by volunteers



boundary fence along Saddle Yoke

Withdrawal of grazing brings rewards

- **heather regenerating** down the hillside below original line ~ 450m asl
- **suckering** of surviving trees and **rapid growth of suppressed tree seedlings** (mainly rowan) in several areas
- thicker vegetation mat over valley brings **rise in field voles**, prey for many predators – **TROPHIC CASCADE**
- **foxes** and **badgers** are now common and **otters**, **stoats** and **weasels** also present
- kestrels, buzzards, peregrines & ravens are still regularly seen
- occasional records of short-eared, long-eared and barn owls



frayed birch

Vole guards have had to be used to **protect young trees**

- Roe deer bucks cause damage to young trees by **fraying** them with their antlers when marking their territories
- deer became abundant after a few years of planting and caused substantial damage
- more **intensive culling** from 2004, including licensed night shooting and out of season, reduced damage to low level
- deer culling will be **stopped** when trees have grown enough to withstand fraying



heather downhill

Tree planting at Carrifran

- **Woodland Grant Scheme** from Forestry Commission funded 5-year tree planting by contractors ~0.45m trees
- Trees propagated from **locally collected seed** – or from seed provenance zone – funded by David Stephenson Trust
- ~75,000 planted by volunteers, including the entry area of the Paddock and the interpretative trail to sheepstell (sheep fold) and high-level planting



start of planting on 1st January 2000



contractor ready to plant new compartment 2004



mix of species ready for planting



volunteers planting trees in 2007

Treeline woodland at Carrifran



high level planting May 2005



first high camp in 2007



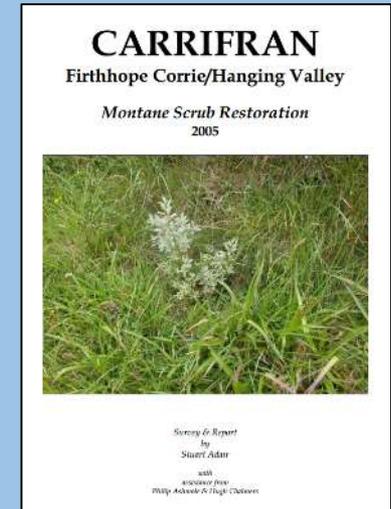
high level planting March 2010

Active establishment of **treeline woodland and scrub** is being undertaken in two areas:

- hanging valley of **Firth Hope**, between 600 and 750m - pushing the height limits of broadleaf woodland establishment in Britain
- **Rispie Lairs**, an open corrie between 500 and 650 m below Saddle Yoke. It is suitable for establishment of juniper woodland with downy birch, rowan and perhaps Scots pine



Firth Hope is above the seven-tiered Firthhope Gill



Report recommends planting downy & eared willow, and juniper

Achievement to date at Carrifran

Total area planted: 300ha

Number of trees and shrubs planted: >500,000



2004



trail to sheepstell



2014



suppressed bracken growth under canopy of maturing birches

