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Introduction

- Mixed agricultural systems
- Wood pasture definitions
- Benefits of wood pastures
- Creating new wood pasture
- Bruthwaite: an example
- Wood pasture creation recipe: diversity & time
- Examples of additional income streams

Mixed agricultural systems:

what counts is the yield of the TOTAL, not the parts

- Intercropping
 - 2 or more crops
- Mixed farming
 - crops & livestock
- Agroforestry & Forest gardening
 - crops & forestry
- Wood pasture
 - livestock & forestry
- Crofting
 - crops, livestock, fishing, forestry ...??
- Advantages
 - low environmental impact
 - easy to close the system
 - reduces risk
 - spreads labour
 - re-utilises resources
- Disadvantages
 - requires varied management & knowledge
 - reduced economies of scale
 - complex & interdependent



Trees



Large grazers

Geltsdale



Wildlife



Archaeology

Wood pasture definitions

- Intricate usually ancient landscapes with intimate mixes of both trees and pasture
- ‘Savannah’ landscape, being intermediate in character between woodland and (hill) grazing and depending on both (Frans Vera, 2007)
- Ancient wood pastures in the uplands are areas of grazed pasture, heath or open hill with a scattering of open grown veteran trees, some of which may have been pollarded in the past (Peter Quelch, 2010)
- biocultural landscapes



Peak District



Elan Valley - Wales



Cheviots



Strath Carnaig - Scotland

Benefits of wood pastures

- Archaeology
 - no ploughing – no disturbance
 - shape, habit, growth form and size of ancient trees reflect past land use
- Combination of products
 - Livestock: meat and/or dairy
 - Trees: timber and/or fruits & nuts
- Wildlife
- People

Effects of shelter on livestock

<i>livestock system</i>	<i>response to shelter</i>
lamb mortality	10-50% reduction in mortality
milk production	10-20% increase in yield when cows graze in shelter
suckler cows	8% decrease in feed requirements to maintain liveweight with shelter
suckler calves	20% decrease in feed requirements to maintain liveweight with shelter
beef cattle	10-30% decrease to maintain liveweight with shelter
newly shorn ewes	12% mortality in one flock shorn 1-5 days before a storm and turned out in exposed conditions
pasture productivity	10% increase in productivity

Data: Hislop et al., 1999



Different & extra nutrients



Timber production

Livestock & trees



Shade & shelter



Fruit production

Harvest from livestock - meat

<i>meat produce</i>	<i>price at market</i>	<i>price in shop</i>
lamb (liveweight)	£2.25/kg	
lamb (deadweight)	£5.04/kg	£11.12/kg
venison	£2.80/kg	£20.00/kg
Wagyu breed beef (dead weight)	£3.50 - £4.00/kg	
'ordinary' beef dead weight	£3.59/kg	£17.34/kg
ewe	£100 each	
Whitebred Shorthorn	£7,000	
dairy cattle	£1,800 each	

Data: www.fwi.co.uk, 2017

Harvest from livestock - dairy

<i>Dairy produce</i>	<i>Price in shop</i>
Semi-skimmed cows milk	£0.95/l
Vanilla ice cream	£1.50/l
Crème fraiche	£2.70/l
Yoghurt	£1.80/l
Butter	£4.72/kg
Halloumi cheese	£8.00/kg
Organic mature cheddar	£7.23/kg

Data: www.tesco.com, 2017



Halloumi



Conservation grazing with
traditional breed

Use all available products



Wool textiles

Harvest from tree products

<i>Product</i>	<i>Price</i>	<i>unit</i>
firewood (air dried)	£199	1.2 m3
firewood (kiln dried)	£135	dumpy bag
charcoal	£3.99	barbeque grill pack
charcoal restaurant grade	£12.99	12 kg
large elm burr bowl	£375.00	41cm x 17cm each
oak swill basket	£68	22" each
garden bench	£250	1.2m each
oak beam fireplace	£295	each
roofing shakes/shingles	£80.00	m2

Data: several internet sites, 2017



Dune protection - Sligo



Bobbins - Cumbria



Hurley stick - Hosterwold



Willow basketry - Cumbria

Foodstuffs from trees and bushes for wildlife

<i>Animal</i>	<i>Preferred food</i>
insects	nectar, e.g. rose
large tortoiseshell butterfly	aspen, poplar, willow
white admiral butterfly	bramble
vapourer moth	hazel, hawthorn, lime, oak
mistletoe marble moth	mistletoe
song thrush	yew, sloe, elder, guelder rose
bullfinch	rowan berry
black grouse	birch buds and berries
fieldfare and redwings	berries (hawthorn, rowan, juniper)
badger	juniper berries
mice and voles	berries



Honey - Slovakia



Hawthorn berries - Geltsdale



Hazel nuts



Sloe berries

Benefits to people

- 'Sense of place'
 - continuity of traditional landscapes
- varied components make for a beautiful landscape easy to enjoy by locals and visitors alike
 - open spaces – safe, allowing blue sky thinking
 - trees – shelter, inducing inward looking contemplation
 - provide Vitamin N, where N = Nature
- Biodiversity – wide range of wildlife attracts tourists
- Low food and timber miles



Art: IJ, Netherlands



Education: Apple Day – Cumbria



Music: forest trail Horsterwold



Connection: Long Meg and her Daughters Stone Circle, Cumbria

Creating new wood pasture

Principles

- allow **all** of the landscape to work for you
- **ecosystem functioning**

But, get the **objectives** right to suit your situation



Eco systems functioning - Oostvaardersplassen





Low impact measures



Management options

Geltsdale

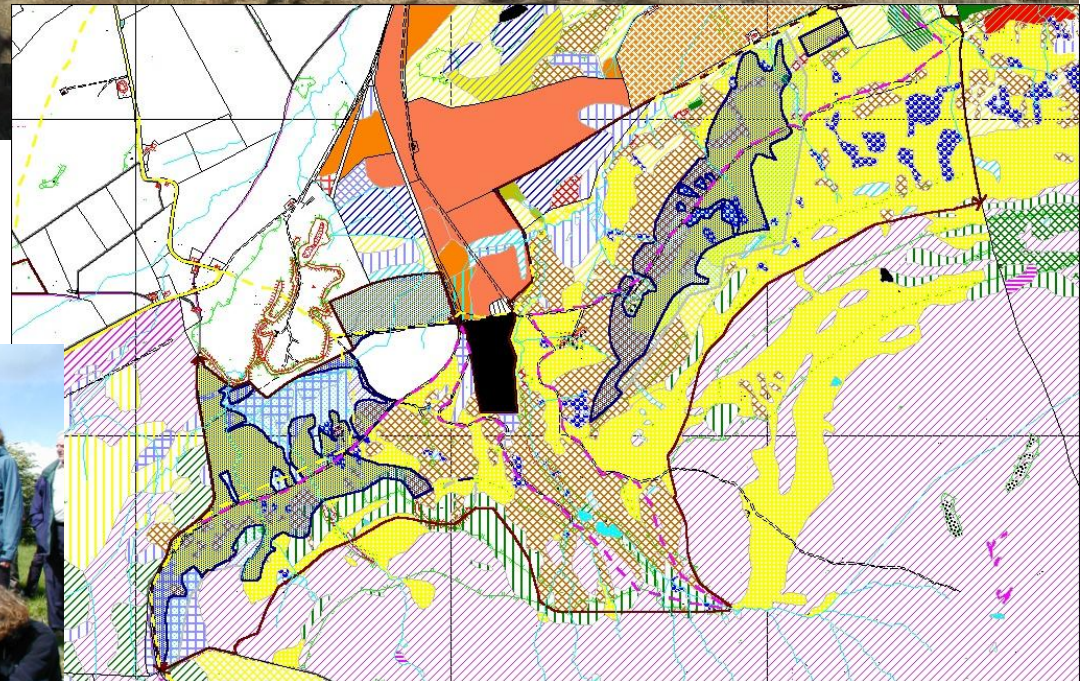


Put to owner

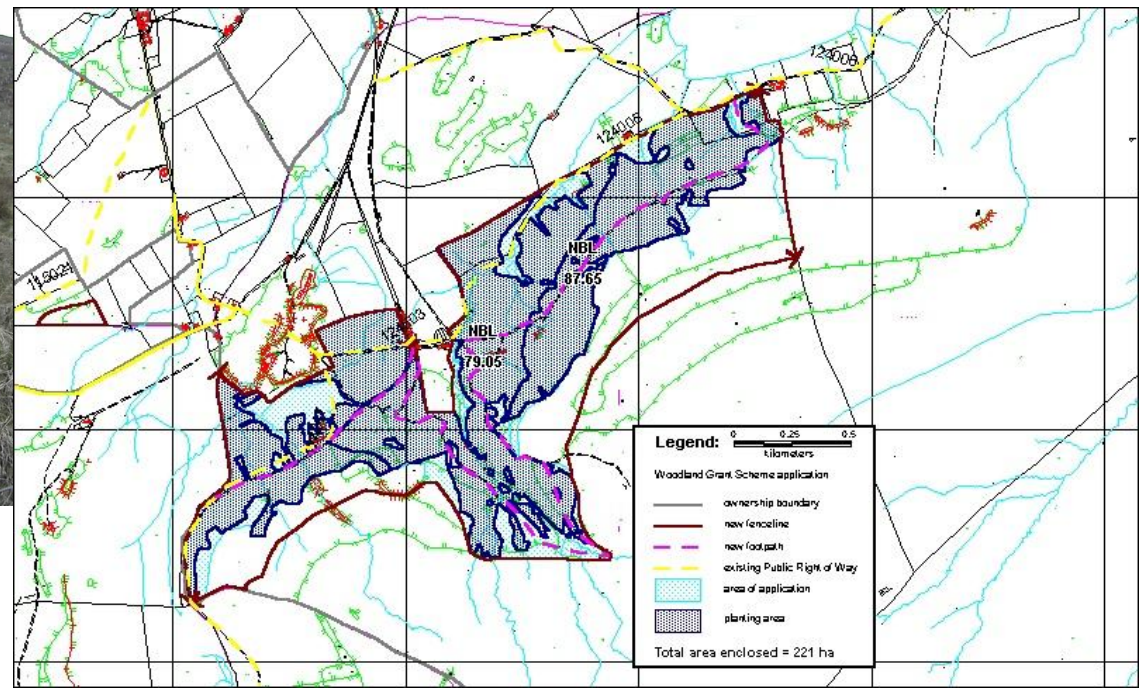
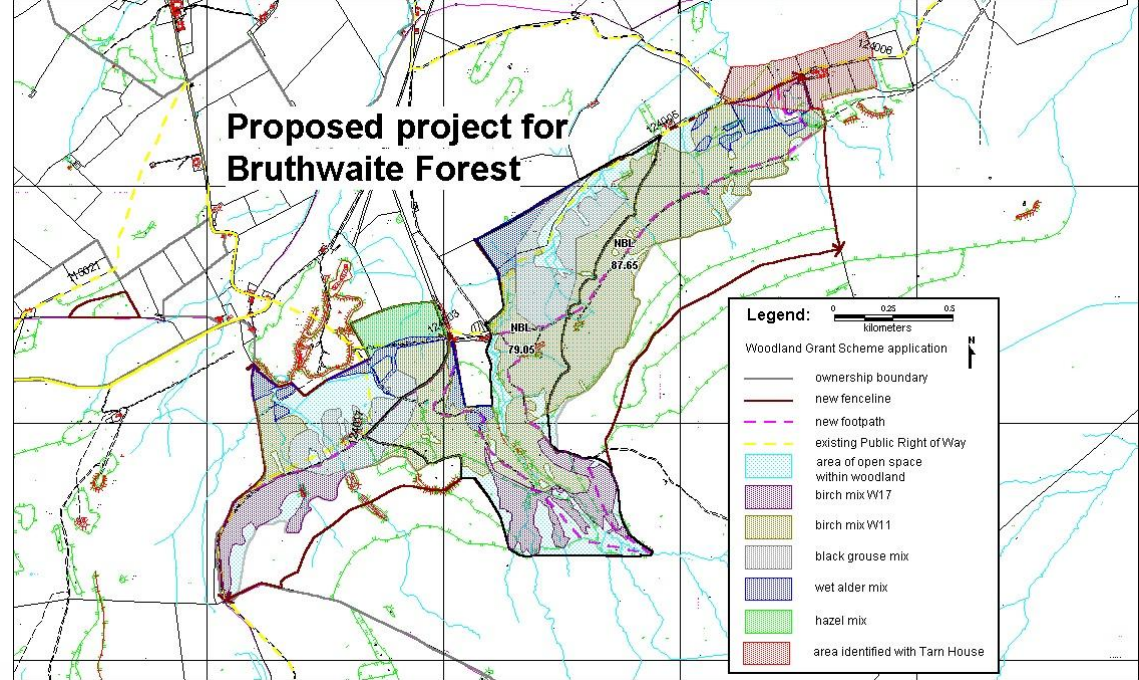


Tell others

Bruthwaite: an example



Funding: 2003
 Planting:
 2003 & 2004





2008

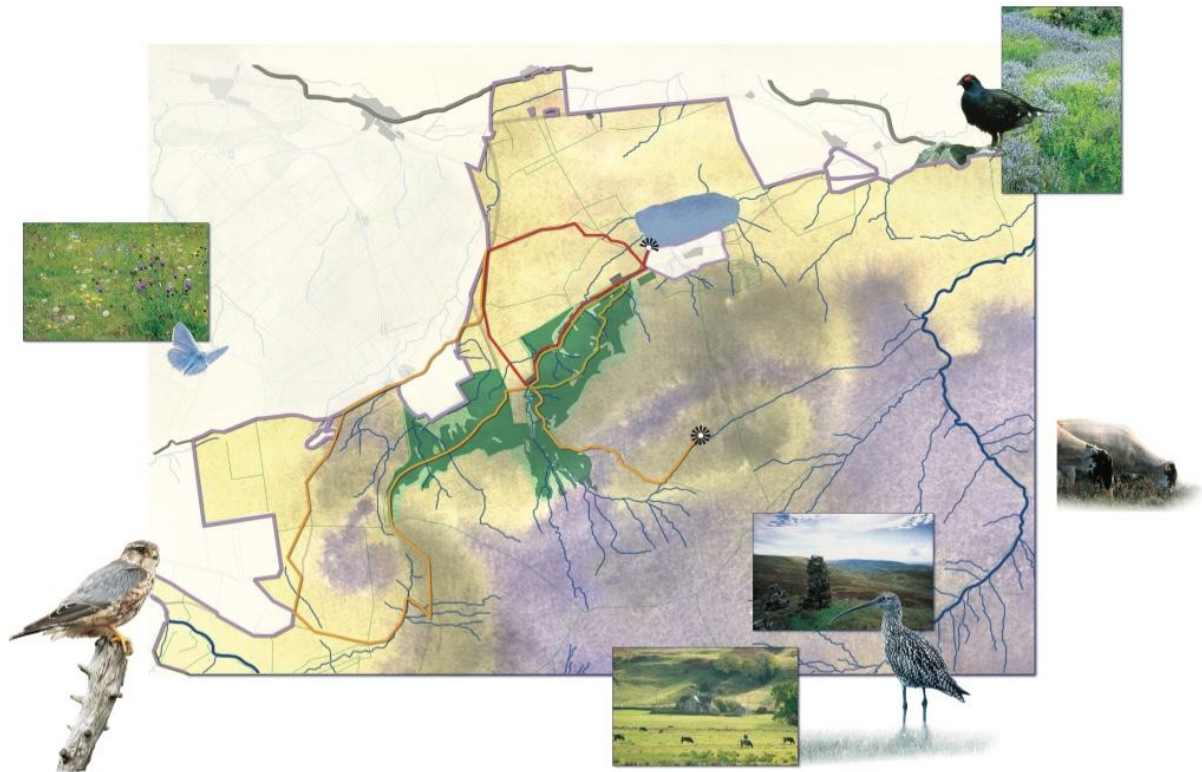


2011



2014

Bruthwaite Forest



Wood pasture creation recipe:

Diversity

- variable tree spacing
 - adds 3d to & improves the landscape
 - increases habitat diversity – edge & core
- variable tree species
 - birch & Scots pine grows fast and is a good soil improver
 - include thorny bushes to protect future seedlings
 - complementary species suitable to site give future seed source & reducing risk of disease
 - allow for various income streams/changing markets

Wood pasture creation recipe:

Diversity

- variable types of stock grazing depending on
 - expected landscape outcome
 - products to be generated
- 1 livestock unit to 10ha for large grazers
 - includes stock & wildlife
 - with thorny bushes to protect seedlings can have slightly higher stock density
- be flexible
 - with abundance of tree regeneration through to sapling stage increase stocking density
 - without tree regeneration reduce stocking density

Low stocking density allows tree seedling establishment



Thorny bushes protect tree seedling from grazing



Cattle able to graze trees



= wood pasture



Wood pasture creation recipe:

Tree Time

<i>Activity</i>	<i>Time period</i>
Tree establishment & maintenance	10 years
Coppice	7 – 10 year rotation
Pollarding	10 – 25 year rotation
Short rotation coppice (willow)	annual
Fruit & nut production	annual

10 years preparation time

- take independent advice
 - invite/attend Native Woodland Discussion Group meeting
- determine wood pasture management programme
- monitor
 - tree growth
 - fruit production
- determine which income stream to add first
 - hobby/business??
 - niche market research
- learn or source additional skill(s)
- create business & marketing plans

Examples of additional income streams

During preparation & set up time: 'sell' the landscape/ croft system – lends itself to cooperation

- Create photo safari
- Provide crofting tours to tourists
 - ½ - 1 day, building up to a week?
- Provide a crofting experience to tourists
 - taster 1-off
 - have a go 1 week
 - training 1 week per quarter
 - apprenticeships 1 year or more



Drinks: growing produce, processing, marketing, selling





Meat: growing, processing, marketing, selling





Variety of woodland produce





Learn new/traditional skills and ...





apply to modern markets





New wood pasture - Cheviots



Orchard – Kinnerton Wales



Rewilding - W Sussex



Conservation grazing – Trossachs

Thank you!

- Questions??