

# Peatland Ecosystem Services Demonstration in NI

Maximising hill farm outputs.

CAFRE Audience;

1600 students

3000 Business Development  
Group members

Visiting farmer groups

Assistance to policy

Press - Agri journalists



# CAFRE Hill Farm



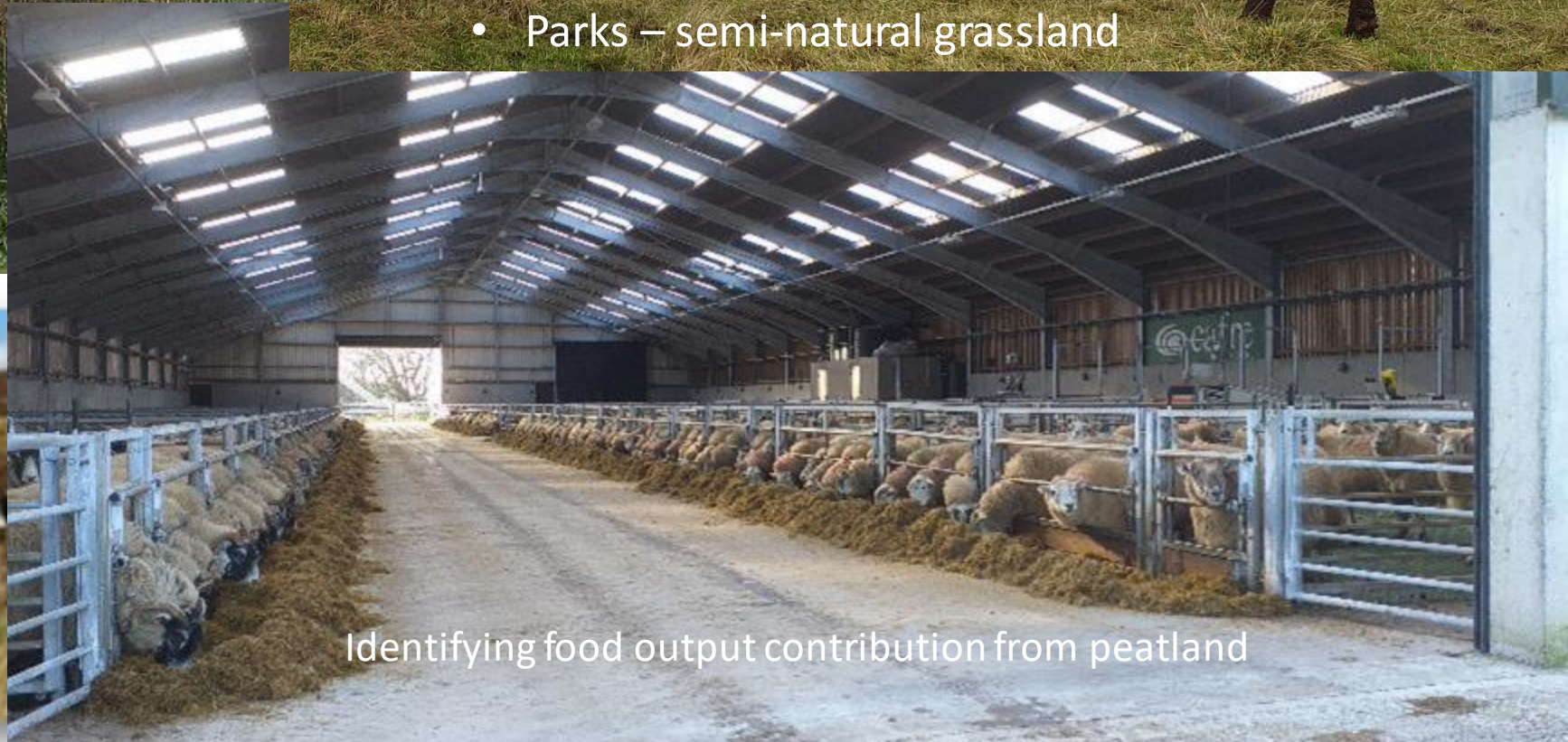
1100 Ewes

- Blackface, Blf x Swale, x Texel
- Performance recorded sires & Genetic selection on ewe/lamb data



100 Suckler Cows

- 3 breed cross AA, SH, LIM
- Replacement heifers calving@24 months
- Parks – semi-natural grassland



Identifying food output contribution from peatland

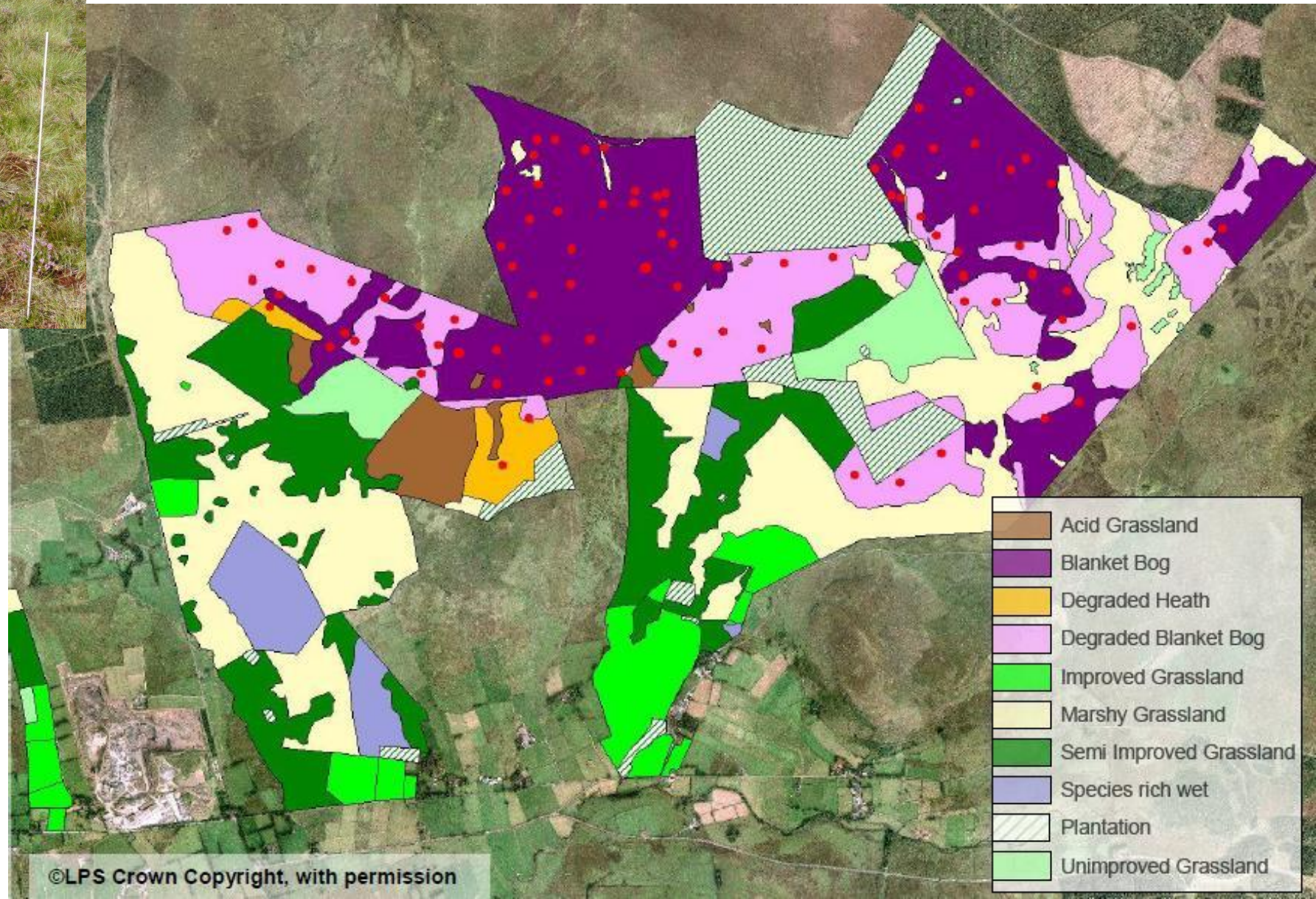
Representative of NI range of modified blanket bog – separate blocks of 10, 30 or 60m drain spacing, slopes & pipes



- 960 ha's
- Peat/Mineral split
- 300-1000ft
- In Bye v Park & Hill
- Killylane Reservoir

# Flora - Vegetation Classification & Monitoring

- 90 plots from 2009 every 3 years



# Hill Biodiversity Output



Irish Grouse  
Conservation Trust

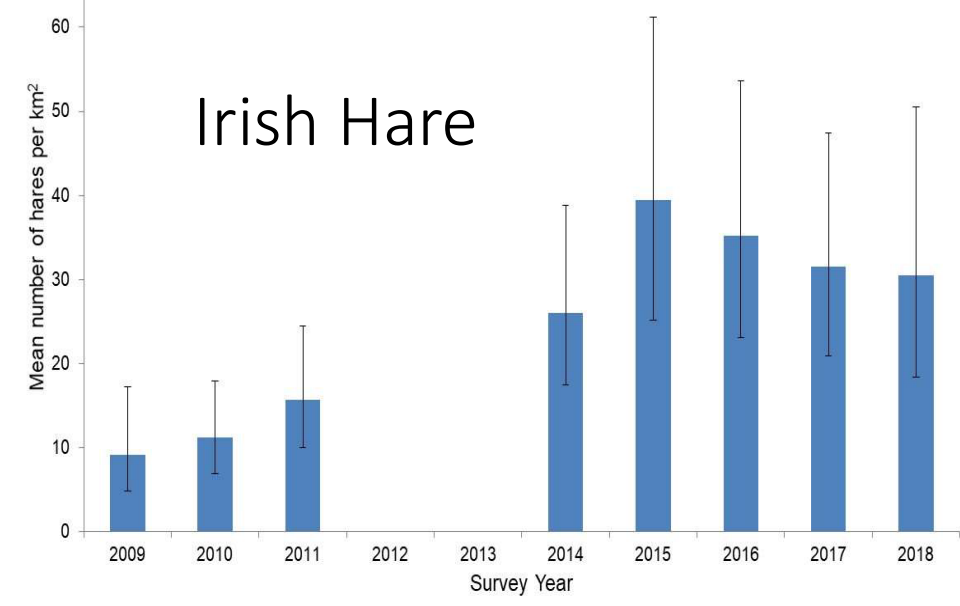
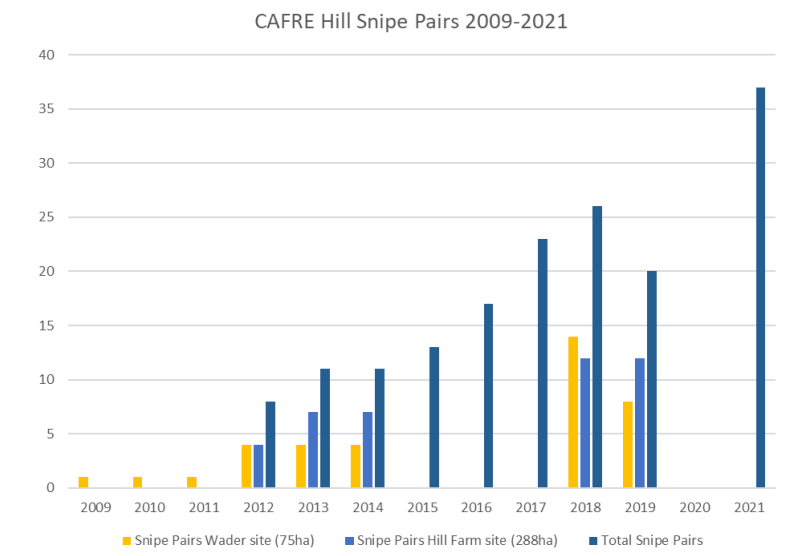
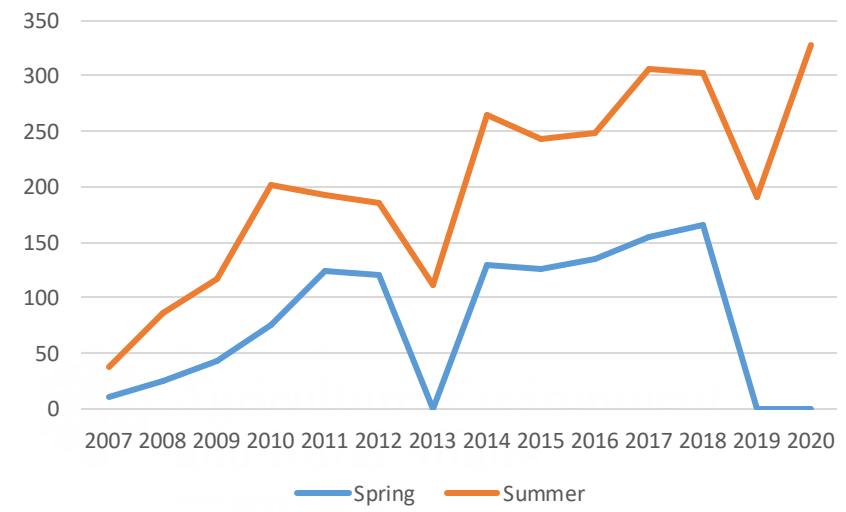


## Glenwherry Hill Regeneration Partnership (GHRP 2009 – 2022)

Fauna - Annual Surveys from 2009  
Red Grouse, Irish Hare, Breeding Wader,  
Hen Harrier & Merlin, Pipits & Skylark,



IGCT SPRING/SUMMER GROUSE COUNT  
2007-2020





# Water Quality (Colour – DOC)

Creeve Forest (to Bog)  
Treatment cost/ha ~£90 pa  
(R.Flynn & students QUB)



Creeve Moor Nov 2021 –  
“relatively” intact moor  
treatment cost ~ £18/ha



Time – 5mm rain event Nov (R.Flynn, QUB data)	Heavily modified - Deeply & Intensively Drained,	“Relatively” Intact Bog, (minor modified)
Hours to reach peak flow	2	15
Hours to return to base flow	25	72

## Peat Carbon Storage

Peat C storage at Cafre Hill Farm ~ 2million t CO2 eq

### Hill Farm C Budget

- Livestock emissions
- Mineral soil C sequestration
- Peatland emissions** versus Peatland Accumulating Condition
- ~3000 t CO2 eq**

**(IUCN UK Peatland Emissions Factors & UK Peatland Code Protocol)**



QUB Archaeology /Paleoecology;  
carbon dating layers ~last 500 years



# Forest to Bog

1. Minimise emissions. 9.91t CO<sub>2</sub>eq/ha
2. Return to PAC – Peatland Accumulating Condition (WTD)
3. Invertebrate & bird habitat – removal of predatory radii
4. Wildfire control

Ploughed 1m deep, minor drains 3m apart, main drains 50m apart & 2m deep

214 Sitka Dec 2020



214 - Jan 2021





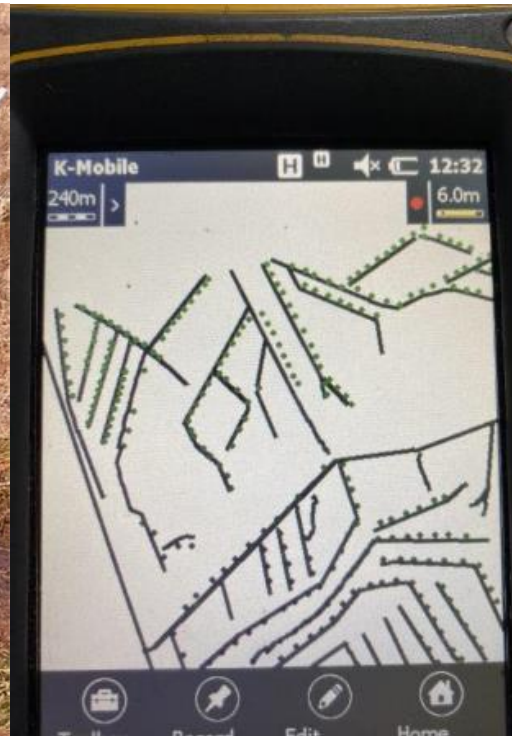
214  
August  
2022



# Front Point – – Rewetting Open Moor



Peat dams, Plastic insert, Plastic piling, Wave dams & Zippering  
Monitor fluvial & gas C losses (QUB, UU, CEH)





Emissions Factor 3.4 T CO<sub>2</sub> eq/ha  
WTD reduction 10cm = ~3 T  
Summer v Winter  
Control v Demo > 10cm

## CAFRE HILL FARM OUTPUTS

Livestock

Biodiversity

- (1. the site
- 2. As a Nature Recovery Area to spill over)

Water Quality

Flood Alleviation

Water Resource

Carbon Storage

Wildfire Prevention

Carbon Sequestration

## Activities

Education

Technology

Demonstration

Monitoring &

Research site



## Environmental Measurements

- Wader, passerine, grouse, raptor, hare counts.
- Water Quality
- Flow discharge
- Carbon fluvial losses
- GHG Flux
- WTD
- Vege analysis – PAC
- COSMOS Weather station

Research Partners  
QUB, UU, Afbi, CEH

