Upland Management – a need for change? Options for managing our uplands for water, wildlife and people – a Northern England perspective

Peter Leeson
Firstly - Why Me?

- Trained as a surveyor, MRICS
- Landscape Management, Masters
- Began to be engaged in large scale land management projects at UU.
- Now 24yrs at the Woodland Trust – from woodland manager, through legal team, to landscape partnerships
This talk...

is based on many conversations, arguments, discussions, science, learning, standing back and common sense, personal experience, reading, articles, lots of stuff by other folks....
FLOODING

Floods are natural and essential for river process. We need to be careful about our dialogue presuming that we can or even *should* “stop flooding”.
Landscape Response

*My contention is that*

We have modified the landscape to such a degree that problematic flooding is more likely. Intensity of rainfall induced by climate change may further exacerbate.

*(heavy caveat.... my lack of science credentials)*
Let’s not be out-Trumped

- This is a far reaching conversation so we’ll cover a lot of ground very quickly
- We will make lots of sweeping generalisations and you will always be able to think of opposing reasons or case studies
- We’ll try not to be too confrontational about certain topics but this debate will challenge some orthodoxies – be gentle!
- We will be local but do think international
- The figures, statistics, commentaries are all “fact checked” as far as they can be ....
- Trees feature but so do peat bogs and cows
- We’ll try and have less words on slides in the future.......
Land Management
What kind of activities do we carry out in the uplands?

- sheep grazing (less so cattle grazing) – covering the same area as all our arable crops yet < 1% of our diet *
  Zero Carbon Britain
- grouse moors (other sporting)
- forestry (productive forestry) – the most common tree in Cumbria is sitka spruce * Forestry Commission
- water storage in reservoirs
- recreation (walking, climbing, running cycling)
- extraction (peat, minerals)
- windfarms (energy)
- reserves / biodiversity (farming outputs retained as positive management tool)
Are these fair, reasonable and legal things to be doing in our uplands?

We need to be careful – yes of course these are all legitimate land uses with people, asset value, investment, income and cultural value. And as it happens ... we all eat food, drink water and live in houses.
But, are there things we could do differently which would increase our sustainability and resilience to future events?

- Establish the link – what is wrong with where we are?
- How might we reconsider our future land/upland management?
Establishing the link....

Is there a casual link between what we do on the hills and outcomes for communities downstream?

(i) indirect (impact on climate)
(ii) direct (compaction / erosion / soil loss)
Indirect

- Carbon, climate change and pollution (Intergovernmental Panel on Climate Change report 2016 recorded May 2016 widespread CO₂ levels over 400 ppm) agriculture is broadly 1/3 of our CO₂ (harmful gases) output. UK Government figures

- Climate predictions are for milder but wetter conditions in the NW, with extreme events more likely.
Climate Change - Agriculture and Emissions

[Graph showing GHG emissions, productivity, and areas for agricultural product groups in Britain, ranked by GHG emissions.]
Something to think about…

• Carbon – UK conifer forests sequester 7.3 tonnes of carbon per ha per year, hill farming loses between 1 and 8 tonnes per year. Using trees to buffer agriculture will reduce carbon loss and improve productivity.

• Soil carbon storage is a vital ecosystem service, resulting from interactions of ecological processes. Human activities affecting these processes can lead to carbon loss or improved storage.

• Organic matter is a key component of soil that affects its physical, chemical, and biological properties, contributing greatly to its proper functioning on which human societies depend. Benefits of soil organic matter (SOM) include improvement of soil quality through increased retention of water and nutrients, resulting in greater productivity of plants in natural environments and agricultural settings. SOM improves soil structure and reduces erosion, leading to improved water quality in groundwater and surface waters, and ultimately to increased food security and decreased negative impacts to ecosystems.

• Soil – the UK loses 2,000,000 tonnes of soil per year through agricultural practices which increase erosion – trees create soils (the Lakes soils were created under woodland) but they also reduce wind speeds through drag, reduce evapotranspiration in lowland crops and manage soil water content through shade and shelter
Direct

- Land management at a local scale soil depletion – 2,000,000 tonnes lost each year in the UK, UK Government figures
Poor Land Management
Historic Management Systems
So, we need land management systems which accommodate a positive to carbon and water – *whilst retaining economic value systems*...

- Increased vegetation / vegetation management
- Reduced soil compaction
- Changes to water courses
- More natural process
- *....and people, production, livelihoods and culture*
And not be afraid to include natural processes?

- A process existing in or resulting from nature (without our intervention) – energy from the sun, tides, pollination by bees…. within a “natural system” we benefit from freebies…
Peter – are you talking about re-wilding?

*Not necessarily no... yet we are fearful of Natural Processes...*

they are not neat and tidy....
Thinking more naturally...or learning from nature

- Allan Savory – mimicking herd approaches for restoring desertified land
- Equally “mob grazing” in the UK
- Bees – pollinations services (valued at £651 million a year for UK)
- Fertility to soil supplied free by clovers
- Re-colonisation of landslips by plants leading to stability
- Slowing of water flows by taller complex vegetation, storing more water and slowing it within re-wilded channels
- Animals interactions with the environment and each other
  - * Wolves in Yellowstone – changing browser behaviour
  - * Beavers in water courses – reducing sediment flows, increasing fish
Let’s look at some case studies.....wildlife, rivers, trees, people
Everything in partnership ......
Projects NW - Farming

- Low Borrowdale: native breed cattle to manage and initiate wood pasture
- Cannerheugh: mob grazing for higher productivity
- Caroline Grindrod – 3LM, Holistic Grazing
- Hens and trees: Lakes Eggs
- Research – shelter (*Multiland*), liver fluke (*Iain Francis*)
- Agro-forestry conference, Cranfield – 22.6.2017
Projects NW – Woods and Trees

• Low Borrowdale: wood pasture and retained farming interests
• Projects at scale: Mallerstang, Tebay, Corney, Ravesntonedale ...with data collection
• Trees and hedges for farms: which also secure soils and water pathways
Projects NW – Native trees at scale
Projects NW – Science

- Tebay – Lancs Uni study of effects of tree planting and stock exclusion on water
- Modelling – Tebay, Mallerstang, and others
- Gaythorne Hall – relationship building with farmers around stock but using opportunity to model and gather data.
- Links to Phd working on trees / soils / water
- Lancs Uni NERC bid
Projects NW – Working With Partners
River restoration / restoring natural process, on line / off line storage / peat bog re-wetting / grip blocking
Ecosystems and wildlife (WWF report 27.12.2016 – 58% loss in global wildlife since 1970), wildlife losses are often twinned with agricultural intensification
Bugs.....

• More than 75 per cent decline over 27 years in total flying insect biomass in protected areas
  • Caspar A. Hallmann, Et al
  • Published: October 18, 2017
  • https://doi.org/10.1371/journal.pone.0185809
The Long View

A place to live for people and nature long into the future.