Conservation

Stephen Trotter

Introduction

This northern Pennine dale is by almost any measure a very special place. Upper Teesdale is amongst the most remote and relatively unspoilt places in England and has long been recognised as having some very special geological features, archaeological remains, unique habitats and celebrated wildlife. The most celebrated rare habitats and their suite of famous species largely persist as post-glacial survivals on the unique sugar limestone, rocky outcrops and limestone flushes. The Dale continues to be a tourist attraction and to excite scientific research, while providing a livelihood and home to thousands of people.

A plethora of conservation measures, particularly related to wildlife, has been applied over recent decades with some, but not universal, success. Conservation significance has always been high but in recent years its value and importance have grown even more against the wider context of the continuing trends of biodiversity decline almost everywhere else in the English Uplands. The only exceptions to this slow decline seem to be uplands where there has been a vision to restore habitats and species through recovery programmes. Where more sustainable methods have been implemented by farmers, landowners and land managers using their own resources and with help from agri-environment schemes, Non-Government Organisations (NGOs), some local authorities and occasionally funds from water companies, the trends of decline have been successfully reversed. Where resource and resolve have been applied, geological and archaeological conservation has also been successful.

What is so significant?

The drone's aerial view below shows how small the grasslands are that hold the rich and unusual Teesdale specialities, compared to the surrounding extensive hills, in-bye and moorlands. These tiny grassland 'jewels' sit scattered across the landscape like small islands within an 'ocean' of relatively common, widely distributed moorland and farmland habitats.

A drone's aerial view looking south over Cronkley Fell: © Martin Townsend (Valley Drone)

The whole landscape deserves protection and the ‘jewels’ merit the highest conservation efforts because they are so rare and unusual. Their intrinsic interest defines them as invaluable national and international priorities. Unfavourable change, historic and current, in many other uplands has continued a fall in abundance and numbers of species present (State of Nature report 2016). But in Upper Teesdale many of these typical and once-common upland species are still reasonably abundant.

Exceptional herb-rich meadow, the Tattyfield, Baldersdale: © John O'Reilly

In recent decades, there has been a growing recognition of the increasing national significance and value of the whole Teesdale landscape. Two important examples demonstrate the point — the survival of species-rich upland hay meadows and the assemblage of upland breeding waders and other birds like black grouse. Upper Teesdale is exceptional and increasingly distinctive for both, in terms of the habitats and species present, and the abundance at which they occur.

The conservation significance of Upper Teesdale lies in the:

- unique habitats and good populations of nationally rare species which sit at the interface between northern and southern populations, with a high representation of arctic and arctic-alpine elements;

- scale, quality and character of its semi-natural habitats and the intimate mosaic of rich and diverse habitats;

- assemblages / populations of upland birds and invertebrates that were once common across the uplands, especially on enclosed in-bye, but which have seen major declines elsewhere since 1970;

- special landforms, spectacular waterfalls, rivers and rugged beauty that varies over the seasons;

- relative intactness of the landscape which hasn't been fragmented to any great extent by land use change or development (with the obvious exception of Cow Green reservoir). Upper Teesdale is also intimately connected with the Pennine chain to the north, south and west which is of significant benefit to those species which rely upon the exchange of individuals between different populations. This should also be an important benefit for species as they begin to adapt to a changing climate, and they can migrate towards the north and west; and

- heritage — how people have gleaned a living from these hills for 8,000 years with many successive generations leaving their mark. The more recent legacy of lead mining, quarrying and farming, and understanding the deep landscape history of how the area functions and has developed in the way it has, with local dialect, pride and resilience.

As a long devotee of the Pennines in general, my first visit to Upper Teesdale on a witheringly cold April day in 1980 won my heart for the rest of my life. I trudged up the Cow Green road — across what seemed an endless and lifeless moorland of yellow mat-grass; bleak and apparently lifeless after a long winter and which is so typical of the Pennines and a legacy of sheep grazing. I will never forget my first sight of the electrifying blue of a spring gentian — the brilliant blue that no photograph or drawing can ever capture. Words fail to express the joy and delight of the tiny bright pins in the grass. How could such unfeasibly delicate and stunning flowers survive up here in this desolate place - dazzling and contrasting so incongruously against the drab moorland?

Choose your way, long or short: © Anne Kelly

Visitors are not new and come for different reasons. Some pass through quickly in cars and on bikes, others cycling, walking the Pennine Way or taking more leisurely paths. Day visits are common but local hotels and other accommodation types are particularly busy in the warmer months.

The Dale is a big attraction for outdoor pursuits, especially canoeing at Low Force. Visitors bring welcome cash to boost the local economy. But large numbers at popular sites can put pressure on sensitive habitats and species. Locals can tell a similar compelling story of wonder and awe of the Dale from a different, year-round perspective that mixes harsh winters as well as pleasant sunny days. Visitors should recognise and appreciate that the Dale is as it is largely because of the people who live, work and learn here.

So we should conserve Upper Teesdale for two reasons, for:

- its own sake and its intrinsic interest; and

- what it provides for society — a home and livelihood, food, tourism, carbon, biodiversity, clean water and air.

How is nature faring in Upper Teesdale?

Whilst there has been some change and decline in the quality of some habitats and the abundance of species present, the rate and extent of decline has been far less in Upper Teesdale. For a variety of reasons, the conservation status has remained relatively good — but it could be better.

Since the loss of 8.4 ha (21 acres) of species-rich calcareous grassland and base-rich flushes by the flooding of Cow Green reservoir in 1972, there has been little reported major reduction in the extent of key habitats in Upper Teesdale. However, this overall picture of successful protection masks the on-going deterioration in quality of many of the Dale's most important and precious habitats and a decline in the populations of some key species.

River Tees flowing from the Cow Green dam outlet:
© Anne Kelly

One of the issues facing nature conservation is the absence of records and the memory of how diverse and rich places used to be. We are not good at tracking or recognising the slow and creeping deterioration of habitat quality that may result from subtle changes in management — changes may take decades and we rarely monitor at a level of detail to detect them. Those of us who have only known Teesdale in close detail since the late 1990s are righty under the impression that this is a superb area for its natural history. It is, but we have no personal knowledge of what was there before, how that landscape has changed, and what has been lost.

Those with that memory provide powerful witness to some subtle changes in the Dale. (Bradshaw, M,E, 2012), for example, reports that following decades of satisfactory management in the mid-twentieth century, there has been 'an insidious reduction in the size of the populations of most of the rare plant species, accompanied by a deterioration in the quality of many of the plant communities'.

This is supported by her outstanding long-term monitoring study of the populations of initially 18 and latterly six key species. Large decreases in the populations of these six plants were observed between 1975 and 2002 — especially on Widdybank and Cronkley Fells.

Much of the deterioration seems to be linked to variations in the numbers and type of grazing animals - particularly fluctuations in sheep, cattle and rabbit grazing. Overgrazing causes direct damage to the sward and reductions in the rarities. Undergrazing, on the other hand, produces a tall, close sward which leads to many of the rarities being shaded out - again leading to a reduction in their populations. The extent of the problem means that any full recovery to the population levels of the mid-twentieth century may need further intervention. Elsewhere, such as at Cetry Bank, changes in livestock timing and type has resulted damage to the vegetation.

The key problem is how to ensure the right level of grazing across a mosaic of grassland types each with slightly different requirements — that will allow the majority of rare species to recover their populations.

Blue moor grass can shade out rarer species. Mowing is only a short-term solution: © Margaret E Bradshaw

It is clear that under modern land management regimes, there is an urgent need for better and more sophisticated management of these complex and dynamic habitats. The general and simplistic prescriptions that have been applied to sheep grazing levels in order to maintain or restore heather for grouse moor management are very different to those required ecologically to maintain species-rich calcareous grassland. New tailored approaches under very close monitoring regimes are required to enable high levels of grazing to maintain an open, un-shaded but not broken sward. Margaret Bradshaw also raises the issue of ecological expertise and appropriate practical advice available as a wider concern.

The immediate effect of release from grazing was also observed as an outcome of the foot and mouth outbreak in 2003 (Roberts, 2003). In general the sheep reduction benefitted the shrubs of open moorland — and initially resulted in the abundant flowering of rare plants in pockets of calcareous grassland within the moorland. However, the longer-term reduction in grazing that followed, resulted in a taller sward — raising concerns that many of the rarities may be shaded-out and/or out-competed. As the ranker grasses accumulate litter and biomass, they become less attractive as food to grazing animals and the problems for small herbs are compounded.

Inevitably, Upper Teesdale is subject to many of the same pressures and trends that have affected land management in other parts of the English Uplands. The impacts of historic grazing take a considerable length of time to reverse. The number of sheep in many areas has been reduced but the impacts of decades of high levels of grazing will take years to reverse and in some circumstances may require intervention to restore their condition. Some of the pressure on out-bye has been transferred to in-bye areas where there are some issues of soil compaction and change in pasture management. In some areas there has been a general decline in levels of rush management and this could affect the use of in- bye land by waders.

One of the most worrying and as yet unexplained trends is for the continuing decline in quality of hay meadows. This seems to have occurred even in some of the best meadows where management has been closely monitored and yet some of the more sensitive hay meadow species have been lost — even though no obvious management changes have taken place. Further research into these declines is required but they may be linked to subtle change in timings of key operations, weather or nutrient inputs (eg. from atmospheric deposition).

Few assessments have been made into the use of wormers and other pesticides in upland areas,

and their impacts on invertebrates in soil and freshwater systems.

There has been concern amongst conservationists about the creeping slow intensification even on farms within agri-environment schemes. Natural England has been criticised for its apparent lack of action in tackling some of the issues.

The recent State of Nature Report (2016) indicated the continuing loss of biodiversity in the uplands with 56% of species in decline and others increasing. The key problem is that many species which might be considered as specialists are under pressure — whilst generalist species that can adapt to changing environments are increasing in abundance.

According to the most recently available data (mostly from 2010 and 2012), most of the SSSI habitats in Upper Teesdale are not in favourable condition for nature conservation and could be better. Only 12.26% of the area is in good condition — an area of 1,760 ha. The vast majority, 85.69% is judged as being unfavourable recovering. This means that there is a positive management plan, entry into an agri-environment scheme and/or work programme planned across 12.309 ha which is thought will lead to recovery in time. Around 2% is classed as being in unfavourable condition with no change.

The reasons for these failures are varied but usually relate to historic over- or under-grazing, peat erosion, illegal persecution of protected species, negative indicators, for example too few key species, too many rushes.

What does conservation mean here?

Although distinctive even amongst Pennine dales, Upper Teesdale shares a common suite of upland species and habitats with the hills to the north and south. It has a broad range of ecosystem services and attributes in common, similar landscape character, a similar set of upland agricultural and land management issues — and the Teesdale economy and community has a great deal in common with other upland areas.

Upper Teesdale has eleven environmental 'designations' (Natural England, December 2017). The most important of these designations, in terms of geological, habitat and species protection, is the network of Sites of Special Scientific Interest (under UK legislation) and Special Protection Areas for birds / Special Areas of Conservation (European Union Directives which apply the Bern Convention, 1979 into EU and UK law). Archaeological sites are protected by Historic England.

Designations help, but we must be reminded that conservation isn't just a scientific exercise and it isn't just about legislative protection, or about rules and regulations that are often seen as being inflexible, much to the frustration of farmers and landowners.

So far, a suite of inter- related factors has helped conservation in the Dale:

Continuity of approach to land management

The role of landowners, land managers and farmers is crucial. Some modern techniques and technology have been applied to increase productivity (such as silage, larger machinery, use of quad bikes, modern chemical treatments) but an otherwise more-or-less traditional approach to farming is practised, probably because there are few cost-effective alternatives.

Traditional hill farming is crucial for conservation. © Anne Kelly

In essence, there is a high proportion of farms which are still run as nature-friendly farms, under what has become known as High Nature Value Farming systems, whether intentionally or not. The reformed Common Agricultural Policy has helped sustain these systems through Higher Level Stewardship (the so-called agri- environment schemes) which reward farming that is 'environmentally-friendly'. Payments are made that recognise the costs (or income foregone) of looking after or enhancing some habitats. This public investment has kept farmers farming and sustained many wildflower-rich hay meadows, restored wetlands, planted hedges, rebuilt walls (though not really critical for nature conservation), improved peat bogs and paid for reductions in grazing levels on some sensitive areas, for example.

Pattern of land ownership

The majority of land ownership falls within two large estates (and the Ministry of Defence), which I would argue has had a positive overall impact for nature conservation because they can bring a long-term perspective and continuity of objectives to land management, even if there are outstanding differences of opinion about management.

Remoteness, climate and less favourable environment for farming

It has always been more difficult to introduce more intensive land-use techniques which have been to the detriment of wildlife in other places.

Designations and rules

There is no doubt that the various pieces of legislation (especially the Wildlife and Countryside Act, 1981, the Birds and Habitats Directives and the Natural Environment and Rural Communities Act, 2005, CAP cross-compliance) have played an important and critical role in protecting the wildlife value of Upper Teesdale.

Welcome to Moor House— Upper Teesdale NNR.
© Steve Gater

Designation of extensive areas as Sites of Special Scientific Interest and as the Moor House–Upper Teesdale National Nature Reserve have played a vital role in sustaining much of the biodiversity interest — even though there are ongoing and frequent disagreements with Natural England and NGOs about the details of what the best management should be. The work and considerable efforts of the North Pennines AONB staff unit, National Nature Reserve staff and Natural England conservation staff is also recognised as having played a vital part in keeping Upper Teesdale special.

The designation of the North Pennines as an Area of Outstanding Natural Beauty (NPAONB) in 1988 has also been a very significant factor in the conservation of Upper Teesdale — and will continue to be so into the future. The exemplary approach and positive programme of activity (for example on peatland restoration, hay meadows, tourism, education and promotion of better understanding, partnership projects, Pennine Chain Local Nature Partnership) of the NPAONB unit has delivered some important programmes and conservation outcomes — and will have a key role in future implementation of policy.

Control of predators

While there are uncertainties and wider controversies about the impact of game management on the environment and wild species, for example, in respect of the impact of releasing large numbers of pheasants - and grouse moor management (such as the impact of heather burning on peat and the illegal persecution of protected species), recent scientific evidence indicates that populations of ground-nesting birds benefit from the legal control of predators such as foxes, crows and mustelids.

The continuing illegal persecution of other predators, notably large birds of prey, cannot be condoned nor ignored. And difficult, informed conversations need to be had quickly to secure the conservation of the targeted species.

Farm payments

The Common Agricultural Policy (CAP) has played a key role in enabling farming and nature-friendly farming to continue in the Dale in recent decades. Essentially, in terms of food production, traditional UK hill farming is not financially competitive because of its inherent environmental and structural disadvantages, and its high costs, compared with the lowlands or farming systems elsewhere. Hill farm incomes are very low and nationally the majority of businesses depend on the tax payer with around 80% of hill farming income coming from subsidy payments (for example area payments - Basic Payment; and agri-environment payments through Higher Level Stewardship). The average age of hill farmers in England is around 60 to 70 and low incomes mean that fewer young people may wish to follow their parents into hill farming. Without payment mechanisms to keep hill farmers farming in a nature-friendly way, then many, if not all, will disappear if they cannot diversify, with potentially disastrous consequences for habitats and wildlife that require active management for their maintenance, let alone restoration.

On-going conservation

Natural England and the North Pennines AONB (NPAONB) are key players in making conservation happen. As the NPAONB 2017 – 2022 Management Plan states: ‘Decline in upland biodiversity must be reversed, which will be achieved through the conservation, enhancement, expansion and connection of protected habitats and communities of wildlife’.

Any conservation strategy, if it is to be successful, must be embedded in the economic and social fabric of the local community. People are important and the social, economic and cultural vitality of Teesdale is as much part of the equation as its wildlife — they are inter-dependent.

It is vital for the future of the wildlife of Upper Teesdale that farmers and landowners are motivated, committed and properly rewarded for caring for the natural environment and natural heritage of the Dale. They must have a stake in conservation and they hold the future in their hands. Public policy must ensure that creating a healthy living landscape, full of wildlife, must and will provide local people with a viable and good living — either directly or as the basis of other products and/or services that are needed by wider society

Future public policy should provide mechanisms to ensure that Upper Teesdale's precious natural environment is loved, understood, well managed and improved by present and future generations of local people. It must work with the factors identified above - and drive the delivery of the things that society needs and wants. Upper Teesdale not only has intrinsic value in itself, but it also provides things for people and society, including:

- a home and place of work
- high quality, nutritious and sustainably-produced local food;
- lots of wildlife — high biodiversity;
- clean unpolluted water catchments where it costs less to treat drinking water and doesn't damage the environment downstream;
- healthy soils that capture more carbon as organic matter, hold back the flow to reduce flooding risks downstream, are naturally fertile and are more resilient to drought;
- places to walk and relax, boosting health and wellbeing;
- a place that people want to visit and stay time and again, supporting a thriving tourist economy; and
- landscapes that are resilient to climate change and future extreme weather events.

Society must continue to step in — where the market fails to deliver these things — by investing in positive mechanisms that support sustainable land management and renewable environmental assets. Winning the hearts and minds of farmers, landowners and land managers is vital, and ensuring there is a strong and clear financial interest for everyone in wildlife and natural beauty is essential.

At times, we will also need to remind society of the importance and relevance of Upper Teesdale to everyone's lives, whether they live in Middleton, Middlesbrough or Manchester.

Ultimately our lives depend on a healthy natural environment, and Upper Teesdale is an irreplaceable national asset ––as important and precious to the nation's heritage as any Constable painting or repairs to the Houses of Parliament or Westminster Abbey, the Royal Opera House or the Lindisfarne Gospels.

One of the most important conservation insights that have been gained in recent decades is that traditional conservation activities cannot on their own hold back the process of change; at best they can slow its rate and/or influence its outcomes. We can't put a fence round it and leave it alone. Change in the natural environment is inevitable and ubiquitous; and rather than fight it, if conservation is to be successful, it must work to manage and influence the process and direction of change so that species and habitats can adapt and thrive.

We must also recognise that environmental, sociological, technological and economic changes driven by human activity and wider society far beyond the immediate geography of Upper Teesdale, are also fundamentally affecting the wildlife and future of the attributes that we value and cherish.

Conservation should embrace the process of change; but it must lead and manage the direction of change so that the important features of significance that we value, and the processes on which they depend, are safeguarded and transferred from the present to the future. The key objective is therefore to manage the Dale in a way that secures biodiversity, helping species and habitats adapt to change in the best possible way - and to ensure that we take as much as possible of what makes Upper Teesdale special into the future.

This is a complex and difficult task in a rapidly changing, uncertain and unpredictable world as the UK leaves the European Union. It is impossible to separate the fate of the ecosystem from the wider social and economic factors of the 'human ecology' in Upper Teesdale. The future of Upper Teesdale's wildlife is intimately linked to the future of its people — and their view of whether the wildlife is important to them and their livelihoods.

Harvesting hay meadow seed for restoration work through the AONB Partnership's Nectarworks project
© Ruth Starr-Keddle, NPAONB

In the twentieth century, a great deal of time and energy was spent in creating nature reserves and designating sites. That was really important and as with the Upper Teesdale experience of designation, we would certainly have lost far more biodiversity than has occurred without this approach.

But the process of designating places doesn't ensure the survival of their species and habitats — species don't recognise boundaries and many sites even in large areas like the key habitats of Upper Teesdale need to be connected to those around the Dale - especially along the Pennine chain so that species can move. Given that all of the significant species and habitats in Upper Teesdale require open and grazed landscapes, as opposed to shaded and wooded habitats, some form of management interventions are critical for nature conservation.

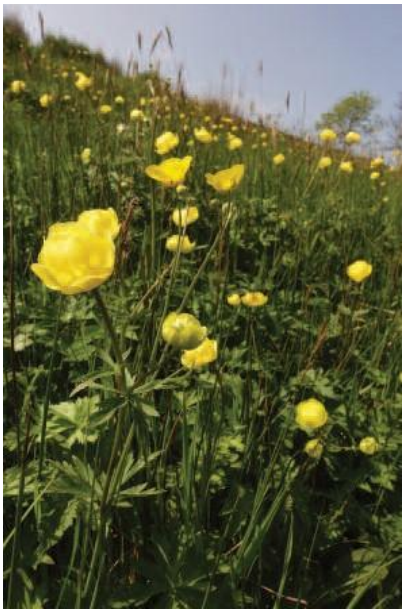
Some change we can influence or prevent, other drivers of change, we can't. The process of conservation as an activity is therefore about how we manage the impact of anticipated change on the species, habitats and natural processes that we value and cherish. It's about choosing the attributes of the natural history of Teesdale that we want to pass to future generations so that they too can enjoy and be inspired.

Merlin:
© Hilary Chambers

Hypogymnia physodes, a lichen:
© Lesley Hodgson

Probably of greatest relevance to future conservation in Upper Teesdale is finding mechanisms to enable nature-friendly farming systems to thrive and become profitable as we leave the European Union. Nature- friendly farming systems (also known as High Nature Value farming) are low-intensity farming systems that are particularly valuable for wildlife, the environment and people. Low intensity does not mean low maintenance! Looking after livestock, farmland birds and meadows is a time-consuming, labour intensive and expensive business which requires great skill and knowledge.

A great deal depends on government policy and future payment schemes and although there is at present great uncertainty, the 25 Year Plan for the Environment indicates the direction of travel may well be favourable for special places like Upper Teesdale.



Globeflower:
© Anne Kelly

Melancholy thistle:
© Steve Gater

The key is recognition that farmers are not currently paid for all of the things they produce for society — and they should be. Farmer support networks are also critical and farmers working together can find solutions to our environmental solutions, if they're given clear outcomes to deliver and the freedom to work out how to achieve them without being micro-managed. Major change is on the way and it's really important that we help both wildlife and local people to adapt to the new world. Part of the solution is ensuring society makes the right payments for the right things but it's also about how distinctive areas like Upper Teesdale can produce high quality local food for local markets — and pasture- fed beef and lamb has been shown to attract a premium whilst producing healthier food and environmental benefits.

A vision for the future

It is important that a vision is urgently agreed for the conservation of Upper Teesdale at a whole landscape- scale. The vision must be shared and adopted in a partnership by as many of those people and organisations who can make it a reality — and share an interest in the future. It is important that this is tailored to local needs and is 'bottom-up', respecting the different roles and expertise that different individuals and groups can bring.

The economic value of tourism to the Dale should not be forgotten. Spectacular landscape, wildlife and opportunity for a variety of country pursuits will continue to encourage people to visit. Local folk need to earn a living in the Dale to ensure that it continues to be such a treasured place. There are controversial management issues that need to be addressed to find solutions that satisfy the interests of different parties. When there is a strong understanding and agreement on an inclusive vision, the key issues and problems can be defined as part of developing the strategy and action plan.

Conservation policy and public investment in Upper Teesdale, in partnership with local people, should deliver the following vision;

- a living landscape where the special open habitats of Upper Teesdale are wilder and better than they are at the moment — with more wildlife and without losing any of the key species as a result of illegal, inappropriate or inadequate management. There will be an integrated ecosystems-based plan for more habitat, better managed habitat, bigger core areas of habitat in the right places which are well connected and integrated with the surrounding landscape;
- restored and safeguarded degraded habitats, especially blanket peat, hay meadows and key grassland areas;
- enhanced opportunities for people to connect first-hand with relatively wild nature in high quality habitats;
- people recognised as a fundamental part of the upland ecosystem where nature-friendly / high value nature farming as standard. Farmers and land managers are rewarded properly for the valuable and multiple things they produce for society (but for which they currently don't get paid) via contracts with the state and a reformed land management payments system. Farmers and land managers are encouraged to work together to find and implement practical economic solutions to achieve the wildlife and environmental outcomes that society wants; and
- people, whether local or visitors, are valued and welcomed more as an integral part of the upland scene in Teesdale.

Conclusion

If restored, Upper Teesdale could be an even better and more wildlife-rich landscape at the heart of the Pennines. With sufficient investment of time, effort, emotional energy and hard cash, land management could provide current and future generations with greater economic prosperity and make an even bigger contribution to the health and wellbeing of society — to those who live there, in the surrounding lowlands and those who visit.

That will only succeed if there is a sensible vision that hill farmers and landowners support and their children buy into. Government policy is critical and must recognise the full value of Upper Teesdale's importance in decision-making and spatial planning — this really is a special case.

Policy incentives and subsidies should be aligned and consistent. Public payments should incentivise farmers and landowners to provide multiple benefits for society. The principle of 'public payments for public benefit' is applied to provide a fair mechanism for addressing market failures in environmental management.

New economic models should be developed, for example, in natural capital maintenance payments, off- setting and other innovative ways of adding economic returns from High Value Nature Conservation. A new generation of hill farmers will need to be attracted to this approach because it gives more business opportunities and it makes financial and business sense.

Farmers should have a stake in sustaining wildlife-rich farming systems and receive full financial reward from society for the benefits they deliver.

The restoration of habitats and more natural processes in Upper Teesdale will increase resilience and adaptation to the uncertainties and extremes of a changing climate. Restored and natural peat bogs will retain their carbon stores and help to fix and lock-up more atmospheric carbon as well as becoming more wildlife-rich.

References and further reading

- Bradshaw, M E, 2012, British Wildlife, vol.23:6, 'The Upper Teesdale Assemblage of rare plants in decline'.
- Rawlins, J, An 1844 Pennine Way from Tees to Ribble, 2016 Roberts, J, North Pennines News Spring & Summer 2009
- Rudd, M, The discovery of Teesdale, 2007
- State of Nature 201, report by 25 nature conservation organisations. September 2016.