Rewilding

ECOS Writing on wildland and conservation values

ed. Peter Taylor

Part II: Projects

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Frontispiece: *Regeneration of the Caledonian Forest in Glen Affric*
(Peter Taylor - Ethos)

Rewilding

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PART II

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Special thanks for photographic material are due because ECOS does not keep the original illustrations and we have had to ask for authors and organisations to help with originals or other suitable photos: in particular Charlie Burrell at Knepp; Adrian Colston and Stuart Warrington for the National Trust at Wicken Fen; Adam Griffin for Dartmoor tree planting; Gavin Saunders for Neroche; John Wright of Leicester & Rutland Wildlife Trust; Luke Comins for the Tweed Forum; Gareth Browning for Ennerdale; Andy May at Essex Wildlife Trust for Abbott's Farm; Rich Howorth at Sussex Wildlife Trust for the Weald projects; Alan Featherstone of Trees for Life; Joe Cornish for Snowdon; and Hans Kampf for Dutch photos of Heck cattle.

Introduction

There is a wealth of information and experience among wildland projects. much of which is recorded but dispersed in ECOS articles and in the notes and proceedings of Wildland Network meetings. This volume meets the growing need for a single source for this and related rewilding material for students, journalists and writers. WN felt it important to have a source book that reflects the very special work in Britain compared to the large scale projects and planning in the US and the special circumstances of continental Europe.

There has been a 'rewilding' movement in Britain since at least the mid-1980s (thinking in particular of the Trees for Life project in Glen Affric) but it has received far less publicity than American schemes. This rewilding has emerged from our own roots and circumstances, with a philosophy appropriate to a crowded island, rather than on a continental scale. The US dictum, 'cores, corridors and carnivores' has relevance, but we are some way from bringing back large carnivores - at least deliberately, whereas cores and corridors have been central to conservation thinking in Britain for several decades.

As this text has come together, one thing has struck me forcibly – the great range of topics and individuals, organisations and strategies involved, representing a formidable amount of work – truly a 'new wave' in nature conservation thinking. But perhaps *most* impressive of all is the range of on-the-ground projects with their histories. This is not a revolution of thinking alone, but a quiet practical unfolding of new and more creative ways of extending reserves and managing land

In this, the role of WN has been simply to network thinking and practical experience. Since its inception in May 2005, we have brought a very large array of people together from every major conservation organisation in Britain. I can recall a time when ecologists within government agencies in England knew very little of the pioneering work of Trees for Life in Scotland, or the significance of the Ennerdale project and its cooperative model engagement between major land-owning bodies such as the National Trust and Forestry Commission.

At the outset, a small number of people meeting as the 'wildland group' decided that a network structure would best facilitate what was effectively already under way. Our task would be to facilitate dialogue, mutual learning and opportunities to see things from other points of view in a 'neutral' space. Such a non-membership structure has the limitation that it cannot so readily lobby or campaign and this concerned some of us, but that limitation more readily supported a wider participation, with no one organisation or individual needing to fear being compromised by campaigns and press statements – whether calling for the re-introduction of carnivores or opposing wind turbines in wild and beautiful places.

We also did not get embroiled in academic issues of definitions – it was wilder to have none! Though the pages of ECOS did rehearse the issues, there was a wide church and we accepted that any practice that made things 'wilder' was relevant, and thus although there was always a core interest concerned with large-scale land management and restoration of ecosystems. our interests stretched to smaller scale rewilding of river systems and urban areas.

As editor of this volume, I have focused on issues, projects, and candidate species for re-introduction. The book is therefore in three parts, with an introductory history of the Network itself. This latter brief review covers eleven meetings and issue-based seminars in England, Scotland and Wales between 2004 and 2009 – the first being preparation for the launch of the Network in 2005 and the last being the launch of the Wildland Research Institute (WRi) in October 2009, after which the Network felt that its primary work was done. This historical section constitutes, among other things, a guide to activism that I hope students of conservation will study in itself, because conservation – much as I would personally like to replace a term that embodies conservatism, if it is to advance, *requires* active engagement in policy. Such engagement takes many forms: it requires hours of dedicated and dull work setting up meetings, booking venues, organising speakers, food and accommodation, controlling expenses and then writing it all up and disseminating the results. In this, I have been fortunate to work with some extra-ordinary individuals in the core-group who do not feature large in the writing of articles – the ECOS editor Rick Minter, alongside Alison Parfitt, have been stalwart organisers and facilitators, with Alison taking on a huge amount of work in the write-ups; Mark Fisher has held the website together; on a regional level, Simon Ayres and Mick Green have networked in Wales and Dan Puplett and Alan Watson Featherstone in Scotland; Toby Aykroyd has taken the message into the upper echelons of European bureaucracy under the Wild Europe initiative; and in the later years, Steve Carver with the help of Mark Fisher brought together the academic element as the Wildland Research Institute at Leeds University, just four years after we had our launch there.

In any appraisal of the schemes over the past twenty years, students should note above all that change has come through the actions of key individuals – champions *on the ground* and in their own community. David Russell, head forester with the National Trust, was hugely influential in pioneering a more 'hands off' approach to large areas under the Trust's management; Gareth Browning, beat forester in the western Lake District, took on the task of maintaining the Ennerdale vision. Keith Kirby at Natural England (and all its predecessors!) engaged with the many facets of this growing public desire for rewilding. Respected academics such as Jules Pretty at Essex University and Adrian Phillips at Cardiff University have chaired meetings that have helped raise an ill-defined movement toward respectability in the corridors of government. Simon Ayres, a forestry consultant, organised meetings in Wales and latterly founded the Wales Wild Land Foundation and the Cambrian Wildwood Project.

Progress in Wales has been slow and as with any shift in an old paradigm, movers and shakers face a lot of inertia.

At the start of 2011, members of the WN founding and coordinating group still network. However, they have realised that their earlier aspirations to raise awareness, bring people together to share and develop learning and experience have in large measure been achieved. Therefore a new phase of wilding and developing wildland is now needed. At this stage it is worthwhile to reflect on things that are missing from the picture or early aims that have not manifested. We had hoped to have had more detailed maps of potential wildland, 'opportunity mapping' of landscape scale projects and habitat restoration, corridors, barriers and conflicts (such as renewable energy developments). There are at present several such maps 'on paper' within organisations such as the Wildlife Trusts and the RSPB, but still no overall national picture or point of contact. This is work that WRi would be able to co-ordinate.

We had hoped to have seen greater levels of cooperation between the larger voluntary bodies such as the National Trust, Forestry Commission, the Woodland Trust, Wildlife Trusts and RSPB in creating core-areas and corridors – in particular through the strategic purchase of land. However, none of these organisations is entirely free to embrace the wildland ethos even as a subset of its broader strategic aims. Some of us would like to see a new organisation that would take on this task – of mapping the potential and then marshalling resources for strategic purchase. Just 10% of the income stream from the major voluntary bodies would exceed £20million/annum and there would be a good chance that government or lottery funds would match that investment.

In the immediate somewhat austere future, the Heritage Lottery Fund has an undiminished amount available and an enthusiasm for landscape scale projects - witness Neroche and the Great Fen project, but with that source also comes the need for access, interpretation and maintenance of a cultural heritage that does not readily embrace rewilding. I would still argue as I did in the book *Beyond Conservation* for three flagship core-area rewilding schemes in England, Scotland and Wales. And I note, that, as then, we know very little of developments in Northern Ireland and the Irish Republic.

There is also still much to be learned about European and US projects. In this volume we have pulled together a good few articles on the Dutch experience, which has great relevance for crowded, largely urban environments, and also on species re-introductions in Europe that may have lessons for Britain, but there is much more to document. Given the pace of development unleashed by the EU's intended remedies for climate change – turbines, barrages, biofuel plantations and hydro-schemes, with their attendant roads and pylons and all in wild places, we need to know much more about what is happening in Eastern Europe, Greece, Spain and Portugal.

We also need to know more about prospective changes to the EU's agricultural support schemes. They are currently being revamped and although many organisations are involved in lobbying, including Toby Aykroyd's 'Wild Europe' initiative, it is difficult to get any sense of how successful this process may be. There is an excellent website - www.rewildingeurope.com which features regional initiatives in Spain, the Carpathians, Croatia, and the Danube delta, all of which aim to bring wild grazers to open landscapes threatened by abandonment (see also www.largeherbivore.org).

Finally, there is a sense – expressed recently among BANC council, that with the 'new austerity' and the shifts in consciousness that go with it, that the constituency of conservation is also likely to shift. We are seeing a growing involvement of the health and education sector in wildland issues as well as in 'nature' generally. There is a public hunger for closer contact with wild nature – contact that has spiritual and therapeutic motives that are not necessarily met by the strictly scientific criteria and targets applied to key habitats (see the articles by David Russell, Samantha Ellis and Hannah Pearce).

The 'issues' we have covered in Part 1 are diverse: the nature and role of 'aliens' such as grand old Douglas Fir, Norway and Sitka Spruce...which the public have grown to love; grey squirrels; feral boar and big cats; preparing for climate change; the 'common' and popular (such as elder/blackthorn scrub) versus the rare and largely unknown (such as Large Blue butterflies). Indeed, love itself is gradually daring to speak its name as conservationists come out from behind their analyses of ecosystem benefits and EU Habitats Directives, and start to celebrate this broader world of public perception and desire. Wild nature still offers succour to the jaded souls of a crowded land and a competitive world and in this, the future constituency for rewilding is very large.

ECOS has always encouraged writing at the interface of conservation science, public policy and public perception, without necessarily elevating science above the world of appreciation and feeling. However, the more clearly poetic and artistic does not feature large and rewilding has a lot more to offer than traditional conservation practice in this respect. I would personally like to see more of a marriage in our work between the left and right hemispheres of the brain as evident in our gathering at Findhorn and in the *Forest Schools* approach at Neroche.

In Part II we present an amazing variety of projects. One of the great services that BANC and in particular Rick Minter has performed is the pulling together and presentation of this work in ECOS and in the commissioning of *Beyond Conservation.* I never fail to be impressed by the diversity of approaches – from private landowners such as Charlie Burrell at Knepp, who has little interest in a commercial project, compared with Paul Lister in Alladale, who envisions a touristic safari-park; to collaboration of large organisations like the Forestry Commission, National Trust and United Utilities in Ennerdale – all land-owners, some with tenant farmers, or the collective purchase by

subscription of marginal grazing land in the Southern Uplands, by the Carrifran initiative and the Borders Forest Trust. Organisations such as the RSPB are engaged in large scale habitat restoration – such as reedbed and fenland as well as coastal marshes, and we could have liaised more in the past to pull this together and showcase it here, as also with the Wildlife Trusts' regional initiatives. The role of government agencies and funders in relation to all of these projects would also make an interesting research topic as it is clear that Natural England and the Forestry Commission have worked to bend the rules that presently favour the old paradigm of domestic grazing. The Heritage Lottery Fund is becoming a key funding source and we should know more of it values and modes of decision making.

On species reintroductions, reviewed in Part III, there are more problematic issues to report. At the time of writing, Scottish Natural Heritage look to have actioned a capture and eradication scheme for escaped beaver on the Tay, whilst supporting a pilot but well-contained release project in Knapdale. We document the mixed reception that escaped wild boar have had and the dilemma that Whitehall faces. Government is still in (public) denial about the existence and possible breeding of feral big cats in Britain, despite mounting evidence and an admission from the Forestry Commission in the Forest of Dean that they have monitored panthers as well as wild boar in their woods. Several police forces accept the presence of the cats. I am still waiting for my first personal sighting (an impressive video of a distant running black panther was taken only a week ago in Westernzoyland, only a few miles away!), but donning my zoologist's hat, I have examined undoubted big cat kills in Wales – and many trusted friends have seen both black 'panther' and puma. There are many reports of lynx in mainland Britain.

We are thus faced with ongoing 'rewilding' as much by accident as design and a rather confused government response. Much is made by scientists of provenance and genetics – which a public admiring charismatic animals cares little about, and this surfaced with 'escaped' eagle owls breeding in Northumberland. Even the RSPB were unenthusiastic about this powerful predator. That ultimate symbol of the wild – the wolf, would be well received by large sections of the public, but governments respond to entrenched and often ignorant and irrational attitudes from both the farming and game-shooting communities, despite evidence that wolves in Europe and the US do not compromise the economic well-being of rural communities and may bring much-needed visitor revenue. If we ever get to an introduction of bears in Scotland, we will know not only that attitudes have fully revolved, but also that habitats have been extensively restored to support them.

And finally, from a privileged position of having either worked with or met many of the people engaged in this movement and featured in this book, I know that the rewilding process is very much a matter of the heart. In this, science takes its rightful place as a tool-kit. We are not here just to study or conserve nature, but to transform it! We are thus working as co-creators. Yet, nature reserves were set up very largely as laboratories for scientific study – representatives of ecosystems and habitats and assemblages of species in areas of *special scientific interest.* Only later, with the large scale transformation of agriculture and road transport, did they become islands besieged. They were not designed for this purpose. There is a need for larger scale reserves, corridors, core areas and re-introductions of species that in themselves transform and sustain habitats – such as beaver, wild grazers and their predators. We are perhaps one-fifth of the way forward on the ground, and perhaps as much as half-way in the shifting of paradigms.

Peter Taylor
May 2011

Development of a Wildland Strategy: a short history.

The concepts and practices of rewilding did not start with the Wildland Network, of course, but antecedents are not well traced. Certainly, the full rewilding ethos was articulated in the mid-1980s by Alan Watson Featherstone and the Trees For Life group which he founded at Findhorn. They pioneered the long process of looking for potential large areas, talking to landowners and managers, and getting volunteers on the ground – in this case to restore tree cover to the Scottish glens. TfL also mastered outreach and communication and was rewarded after more than twenty years of hard work in the field, by donations sufficient to buy their own land and build toward a core area.

By the turn of the Millennium there were many initiatives seeking funding for large area schemes – the Borders Forest Trust being notable, with a strategy for direct fund-raising and shares in the scheme at Carrifran. The National Trust and Forestry Commission were already mapping out the Wild Ennerdale Project. This work had built upon several initiatives of the 1990s – the National Trust Centennial Conference in 1995 at which 'wildland and wilderness' ethos was first discussed; BANC's Wilderness Britain conference at the Open University in that same year; a major conference at Newcastle University in 1999 on rewilding the National Parks; and the ESRC funded Seminar Series 1999-2001 on *Wilderness Britain: social and environmental perspectives on recreation and conservation* which were attended by government and NGO practitioners.

Thus, as the first meetings of the 'wildland group' began to form a network - finalised in the autumn of 2004, for a launch in May 2005 at Leeds, there was already plenty to network. In September 2004, the core-group met at Alison Parfitt's home in Hatherley Road, Cheltenham:

- Adam Griffin and Chris Layton travelled up from Dartmoor and introduced Moor Trees – the project inspired by Trees for Life and active on Dartmoor since 1997, with a major conference in 1999. It was a small start with tree nurseries, educational outreach and mobilisation of volunteers in what was a huge challenge to prevail against current land-use interests that kept the moor entirely barren and prevented the National Park from investing in wider restoration.

- Toby Aykroyd presented plans for a Wild Britain initiative that focused on economic benefits and outlined his busy schedule of meetings with directors of government and voluntary bodies in seeking a coalition – something that precipitated much discussion of the value of such top-down approaches compared to the grass roots initiatives. He also outlined plans to create coalitions in Europe.

- We had a student – Peter Parkes, join us, who was engaged upon writing a thesis on wilding projects at Nottingham University – a sure sign that the new thinking had penetrated academia and a good example for us of the value of the network, in that we could direct him to practical projects that otherwise he may have missed.

- Simon Ayres had come over from West Wales where he was championing the involvement of Wildlife Trusts and (hopefully then) the John Muir Trust in a rewilding of the North Cambrians – an area faced with massive expansion of wind turbines.

- David Russell, then chief forestry advisor to the National Trust, led a discussion on issues of intervention, public relatedness to and growing commodification of nature, targets and over-management based on species action plans – and how we can negotiate through this mindset.

Alison Parfitt, Rick Minter and myself, with Steve Carver at Leeds, then formed a core group to organise a launch at Leeds in the following year – when we also would launch *Beyond Conservation* – a compilation of issues and projects that I had worked on with a commission from BANC over the previous two years. We realised from the diversity of views and values within our own group, that diversity itself was a strength! There was still some unease that we would focus on networking rather than campaigning – against for example, quarries, turbines, roads, pylons, or CAP reform, but my own argument was that networking did not rule out any individual or participating organisation from campaigning and that the network would in that respect support and facilitate such political work. Our main focus would be the restoration of landscape and habitat, species re-introduction and the human value of nature and wildness – we would network 'best practice' through regional seminars, national conferences and special editions of ECOS. I was to work on a Wildland Manifesto that would be published on the Ethos website.

Our focus for 2005 was to be a North West regional meeting in the Lake District as a follow-up to the launch at Leeds. Toby Aykroyd would organise a gathering at the Royal Geographical Society to host the Dutch specialists in rewilding the polders and a trip would be organised to Holland in the autumn.

The launch of the Wildland Network at Leeds University, May 2005.

Forty two people attended the launch, with participants from English Nature, The Grazing Animals Project, the Wildlife Trusts, the Countryside Agency, BANC, John Muir Trust and National Trust. Steve Carver led the proceedings in which I introduced the book and its list of projects; Toby Aykroyd led a workshop on economics and land use; Steve Carver and

Simon Bates (of Natural England) on the value of mapping, Rachel Yanik of the National Trust at Ennerdale took on an overview of projects and Derek Gow on re-introductions.

The publication of *Beyond Conservation*: *a wildland strategy* was delayed and copies were not available for the launch, but the book was published a month later. I was able to outline is contents – the first wider publication of the large range of projects as well as discussions of the major issues.

Visit to Oostvaadersplassen in the Netherlands

The Network organised a study-tour to the Dutch project on the polder of Oostvaadersplassen during May 2006. This 5000 ha reserve has been managed as wildland with the instigation of more natural grazing regimes using red deer, wild cattle (Heck – reconstituted Aurochsen) and wild horses (Konik from Poland). This was an opportunity to discuss issues arising in relation to natural processes of death, disease, and intervention policies with wild herbivores, vegetation dynamics, biodiversity indices, absence of predators, connectivity, etc., and the site visit and lessons are reviewed by Alison Parfitt and Steve Carver in Part II.

Regional seminar in the North-West: Newton Rigg, Cumbria, October 2005

Over fifty people attended this fist regional seminar with a wide range on involvement from government agencies, community groups, individuals and voluntary organisations.

There was a small Scottish contingent and Robert MacMorran an advisor to Scottish Natural Heritage outlined the *Wild Scotland* initiative (he was later to found the Scottish Wildland Group and newsletter). Peter Samson of the North Pennines Area of Outstanding Natural Beauty, outlined a range of projects in the north and with Gareth Browning of the Forestry Commission, led a discussion on flexibility within government grant schemes for supporting wilder grazing (at this stage, not Aurochsen, wild horses and more deer, but more cattle on the fells and in the woods!). James Fenton of the National Trust and Martin Lester from NT's Wicken Fen project outlined the problems of welfare and fencing of livestock – NT was using Polish *Konik* ponies at Wicken Fen.

We asked Charlie Burrell, a farmer and landowner in Sussex, to speak about his pioneering project to return cropland to wild grazing with Exmoor ponies, semi-wild breeds of pig and long-horn cattle. Thus, participants from the wilds of the Lake District and Scotland could hear of the successes in adapting single farm payments and the economics of farming on boulder clay. Toby Aykroyd, who had joined the management group at the Alladale wilderness-park project, was able to discuss fencing, access, welfare and attitudes to danger. Adam Griffin came up from Dartmoor and contributed to discussions with Hugh Chalmers of the Borders Forest Trust on community initiatives, fund raising and purchase of land.

In all, eight small working groups -facilitated (and later documented) by Rick Minter and Alison Parfitt, discussed the practical challenges of wilder grazing regimes, animal welfare, land acquisition, revenue, species re-introductions, show-casing benefits, landscape quality and resilience. After the seminar, there was a BANC AGM hosted by Wild Ennerdale and a guided tour of the Lakeland project the following day.

The *ECOS* volume 25 (3/4) *Wilder Landscapes, wilder lives?* was published in the autumn – which provided an update on the projects outlined in *Beyond Conservation* as well bringing more projects into a data base that was being built for a WN website to be hosted by Mark Fisher and Steve Carver in Leeds.

Rachel Oakley of Wild Ennerdale briefing the group, September 2005.

Wild herbivores at the Royal Geographic Society

Under an initiative of Toby Aykroyd, specialists from the Dutch ministries and the Large Herbivore Foundation (LHF) were invited to present their projects and experience at the RGS on October 26th, and this gave an opportunity for a wider public to appreciate the cooperation between Dutch ministries and voluntary bodies such as the Lottery Heritage Fund in advancing large scale rewilding.

'Wilder landscapes, wilder lives?'

This was the title of an issue of ECOS (Vol. 25. 3/4) in 2005 in which members of the Network outlined their projects to the general conservation community.

Wild Boar – welcome back? National Seminar on DEFRA consultation, December 2005.

The network organised a national seminar on the issue of feral wild boar, hosted jointly with BANC and held at *Nature in Art*, Wallsworth Hall, Gloucester. Rick Minter and Alison Parfitt facilitated discussions with Charlie Wilson, Senior

Wildlife Advisor at DEFRA, which had put out a consultation document on the issue.

Briefings on issues of biology, provenance, behaviour, diseases, farming conflicts, access and safety as well as impacts on woodland management were made by Martin Goulding – author of *Wild Boar in Britain*, Derek Gow – consultant ecologists, Derek Booth and Ian Horrell of the British Wild Boar Association and Jenney Farrant, a farmer with regular experience of boar on her family farm.

Over fifty participants came from Wildlife Trusts and AONBs, farmers, landowners and marketers. The day was organised into three groups dealing with the diverse issues such as intrinsic value of the species to Britain and the complex costs and benefits of their impacts. (These issues are reviewed in detail under the Wild Boar section of Part III dealing with re-introduced species).

Wildland in Wales: regional seminar held April 7th, 2006, Plas Dolguog, Machynlleth.

This seminar was organised by Simon Ayres and followed two morning presentations by Steve Carver on mapping wildland and criteria for wildness, and Derek Gow on the issues of beaver re-introduction. It was a relatively small gathering that was not well supported by the Welsh government agencies – who had felt that 'rewilding' might be too forceful an approach in an area of strong tensions between the farming community and conservation organisations.

There was much discussion of what was 'wild' and 'natural' and how perceptions varied in the locality. Scale was a key factor in wildness – along with the absence of roads and light pollution. On beavers, various myths were laid to rest on precisely what beavers needed and what impacts they could have – for example, that in Europe they seldom built dams. The experience at Ham Fen, Kent was rehearsed, where prolonged DEFRA licensing requirements had caused beavers to die in quarantine and at the Lower Mill estate at the Cotswold Water Park, where containment by sophisticated electric fences had been a requirement for release. (Editor's note: the Welsh Wild Land Foundation has just received a lottery grant of £5000 to prepare a beaver introduction site in Cwm Einion, close to their planting project).

There followed discussions led by Jeremy Wright of Powys County Council, on the value of branding and 'gateway' species such as the red kite, that could aid in eco-tourism. He pointed out that local people were more globalised than might be expected from the indigenous stereotype and that many hill farms wer facing a bleak future of an ageing population, falling incomes and financial indebtedness. Wildland could offer a range of ecosystem services as well as more direct uses for health and educational programmes. There was an issue of how to conserve wildland values and at the same time promote their use – and the need for sensitive developments, such as bothies in barns, was emphasised. Wilder grazing regimes and organic meat production were earmarked as ways to integrate wildland values and support a faltering upland economy.

We heard that the Countryside Council for Wales was planning for large-scale landscape restoration projects – but sadly at the same time, the Welsh Assembly was planning to open the Forestry Commission holdings to wind farm development – the North Cambrians had been selected as a major search area. We decided to make a review of the wind issue with respect to the Nant y Moch search area (on Plymlimon) and to lobby against its inclusion in the turbine search areas (I was commissioned by WN to prepare the background on wind turbines for a submission to have Nat-y-Moch excluded from the search zone). The over-arching message of the seminar was that the tranquility and beauty of the Cambrians needed to be positively promoted and marketed as the best defence against invasive development.

We all felt that the agencies were behind the times and a later invitation for me to give a presentation at a gathering of the Welsh section of the Grazing Animals Project – which was proving a successful partnership between the agencies, Wildlife Trusts and farmers, showed that many had realised rewilding was an advancing practice and should not be ignored.

Bringing back the Beaver: a joint conference with the Cotswold Water Park Society and Derek Gow Consultancy, May, 2006.

The purpose of this Network meeting was to further the cause of beaver re-introduction in England. I recall that Alan Featherstone, Rick Minter and I had travelled to France in 1991 to explore r-introduction issues, and yet, fifteen years on, only the Scottish government was making moves toward introduction. Simon Pickering at the Water Park organised a register of interests (he has since moved but maintains his involvement - simon.pickering@ecotricity.co.uk).

During the meeting, a range of issues were addressed: such as, do beavers' activities at sites with public access present a health and safety issue? What are viable populations for beavers and what distances will beavers travel to access nearby cropland?

It was noted that the Environment Agency was interested in catchment scale re-introduction for England, as a trial, but it remained a challenge to get awareness and interest in beavers into mainstream professional thinking and practice. A recently launched Wetland Vision (a joint initiative with DEFRA and NGOs) was discussed as a vehicle for focusing a commitment on re-introduction – in particular whether a beaver trial would be able to illustrate the benefits for water management as well as any problems.

There was already ample evidence from overseas and beaver's role in water retention needed clarifying and promoting to policy makers and politicians. A key reference on this aspect is Frank Rosell, et. al. 'Ecological impacts of

beavers and their ability to modify ecosystems'. *Mammal Review* 35 (3-4) July 2005.

Scottish Natural Heritage already had much information on the benefits and the effects of beavers which could be used by practitioners elsewhere in UK and it was agreed there was no point in duplicating the information and research already produced. Duncan Halley offered to show people beaver habitat and management issues in Trondheim, Norway:

The situation in Scotland was indicated as open for partnerships of relevant bodies to propose demonstration projects which would show the consequences of beaver activity in different situations. In the Cairngorms written and e-mail support for beaver reintroduction would help back the case for including this in the Cairngorms Management Plan.

In Wales, Toby Aykroyd reported there was ongoing consultation amongst all stakeholders in relation to beaver reintroduction and his 'Beavers Mean Business' initiative was trying to catalyse action and interest in relation to the benefits, including for tourism. There were varying views about timescales for action with a feeling among some 'we now need to get on with it', whereas others felt there should be more time to persuade and involve bodies so that they have a chance to be on board.

Scary or what? September 2006, Cirencester.

A meeting to discuss the re-introduction of species generally was held at an organic farm's small conference centre near Cirencester. It was a joint initiative of WN and BANC and chaired by Adrian Phillips of the University of Cardiff – who is also an IUCN commissioner. Seventy six people attended with wide representation from English nature, the National Trust, the Wildlife Trusts, DEFRA, the RSPB, the Countryside Council for Wales, the Welsh Assembly and the Council for the Protection of Rural England. Troy Bennet traveled from France to contribute to wolf discussions and Robin Rigg from Slovakia. Dan Puplett and Alan Featherstone came down from Scotland to contribute their perspectives on the potential at Glen Affric.

Presentations were made by Roy Dennis on the experience of 40 years of bird re-introductions, especially of sea eagles and kites; Derek Gow on the issues of beavers; David Hetherington on lynx; Martin Goulding on boar; Peter Taylor reviewed bear and wolf introduction programmes in Europe and the USA; and Matthew Oates and David Bullock of the National Trust reviewed experiences and opportunities with wild herbivores. Group discussions were facilitated by Rick Minter and Alison Parfitt.

Big cats in Britain.

Following the Cirencester meeting, a seminar to specifically address the issue of feral big cats in Britain was convened at Oak Hall, Keynes Country Park at the Cotswold Water Park on 10th September. Thirty seven people attended with Rick Minter convening what had become, for him, after his own personal sighting of a black panther in Cumbria, a special area of interest.

Rick Minter introduced Jonathan McGowan, of the Bournemouth Natural History Museum, who had spent over ten years tracking animals in Dorset and Wiltshire. He presented the mounting forensic evidence for breeding populations of melanistic leopard and puma. Chris Moiser, a zoo keeper and Frank Tunbridge, who had tracked and encountered animals in and near the Forest of Dean, gave presentations. Discussion groups then fed back to the plenary.

Jules Pretty OBE, Professor of Environment and Society at University of Essex, chaired the meeting and summed up proceedings. Evidence had mounted that viable populations of big cats existed and this was accepted by numerous police forces (and confirmed by a spokesperson for the Forestry Commission in 2009. ed.). If damage mounted and in particular, anyone were injured, there would likely be calls for an eradication programme. There was clear evidence of melanistic leopard (or jaguar), puma (possibly also melanistic forms) and lynx. WN should be prepared for the eventual 'outing' of the cats and present information of their potential benefits to the ecosystem – in particular upon deer numbers. Jonathan MacGowan had been convinced that predation on deer and badger had altered behaviour and browsing patterns. His work was published in ECOS and there is a section under species re-introductions.

Rewilding Middle England, 22 November, 2006 at Cropston Visitor Centre, Leicester Wildlife Trust.

This meeting was organised by Micheal Jeeves of Leicester Wildlife Trust and chaired by Jules Pretty. Sixty six people attended with discussions ranging across the nature of the 'black hole' for wildlife in the Midlands, to habitat restoration projects, with Chris Gerrard of the Great Fen Project reporting on this large scale reedbed and grazing marsh initiative. Sam Lathaway reported on the progress of the new National Forest and Ruth Needham on the Trent Project of rewilding the river. Kieth Kirby of Natural England, Andrew Halston of the Environment Agency and Jonathan Spencer of the Forestry Commission presented the outlook of government agencies. There was representation from managers of the Wildlife Trusts, the Grazing Animals Project, the National Forest and National Trust's Wicken fen.

Rick Minter and Alison Parfitt facilitated discussion groups and feedback on reintroductions, wild herbivores, Biodiversity Action Plans and 'ecosystem services', with Michael Jeeves and Peter Taylor summing up the day. An article by Michael Jeeves was published in ECOS and is represented in Part II.

Making wildland pay – a review of markets and enterprises from wild land and rewilding. A one-day workshop hosted by the Knepp Estate and WN in Sussex, 12 April 2007.

This event brought together practitioners with examples of markets and enterprises based upon wildland. Thirty five people attended with representation across the government agencies, wildlife trusts and individual projects.

Jason Emrich, project manager at Knepp, outlined the estate's programme and experience to date – with the main purpose being to return several thousand acres of former farmland to wildland and use near-natural grazers such as Tamworth pigs and English Long Horn cattle, which would also provide an income from organic meat production. Exmoor ponies and fallow deer added diversity to the grazing regime.

Frans Vera of the Dutch Forestry Service and author of the seminal 'Grazing Ecology and Forest History', presented 'Fascination will Pay', an appraisal of the economic benefits from wild cattle, deer and horses grazing the Dutch river floodplains and the polder at Ooostvaadersplassen. Views from the UK Forestry Commission (Alison Field) and Environment Agency (Bill Watts) were also presented, discussing the FC's experience of managing visitors and rewilding its forestry practices, as well as the more general economic benefits of wildland ecosystem services in flood control and water quality.

Discussions facilitated by Rick Minter and Alison Parfitt centred on key questions: such as the economic drivers for wild land: what are the priorities and how can they be sustained? In what ways can wild land add value and offer a brand to farms, estates, nature reserves, forests and related ventures ? How can Government bodies assist enterprises linked to wild land? e.g. through payments, advice, training, etc

I was commissioned by WN to write a review of the UK experience of relevant economic ventures – such as income and jobs created by visitor centres or branded marketing of wildland products, health and educational usage etc.. A report 'Wildland Benefits' is available for download on the Ethos website.

Wild, free and coming back? The return of key species to Scotland....what, where and how? 16-17th September, 2008. Followed by optional visits to Alladale's large mammal project, 18 Sept; Glen Affric 19 Sept - Caledonian ecosystem restoration, & wild boar experiment; Carrifran wildwood, 20 Sept - whole ecosystem restoration in the Moffat Hills.

Hugh Fullerton-Smith briefs the group at Alladale, October 2008.

This conference was hosted jointly by the Wildland Network and Trees for Life at Findhorn, Forres. The meeting was held in the Universal Hall at the Findhorn Foundation and field visits were made to Alladale, Glen Affric and the Carrifran project. Alan Watson Featherstone of Trees for Life and Steve Carver introduced proceedings and Rick Minter and Alison Parfitt facilitated discussions and working groups. Sixty eight people attended, with many traveling from England and some from the continent. There was a wide representation of interests, with many students, individuals and managers from voluntary bodies such as the John Muir Trust – though fewer from the government agencies than WN would normally expect. The field trips were well attended with staff of the Alladale project hosting a day of briefing and walking into the glen; staff of the Forestry Commission and Alan Featherstone of Trees for Life hosted the tour of Glen Affric and Philp Ashmole and Hugh Chalmers took us round Carrifran.

On the first morning, Roy Dennis of the Highland Foundation for Wildlife gave a presentation on the history of bird introductions – with Scotland's extensive experience of sea eagles in particular. Iain Valentine, head of animals, education and conservation at the Royal Zoological Society of Scotland, relayed progress and prospects on beaver re-introductions in Scotland. Peter Cairns spoke about 'facing the predator – are we ready?' and his organisation 'Tooth and Claw' also organised an exhibition of high quality photographs on this issue. Alan Featherstone covered targets and visions for the return of Scotland's missing mammals and there was then a discussion on targets and time-lines. The afternoon was then split into discussion groups on species issues: beaver, lynx, wolf, herbivores and birds. In the evening, the conference was treated to a performance of 'Where the Wild Things Were' by the storyteller Margot Henderson.

On the second day of what was WN's first residential conference, Hugh Fullerton Smith, manager of the Alladale Wilderness Reserve, Philip Ashmole and High Chalmers of the Carrifran Wildwood project and Alan Watson Featherstone with Liz Balharry of Trees for Life, gave presentations on the theme of restoring whole ecosystems – 'what's happening in Scotland'. There then followed a presentation by Kenny Taylor on the 'Lore of Fauna Celtica'.

The gathering thus wove a thread between the science, public perception and folklore of animals and the issue of re-introduction, particularly of predators. David Hetherington, Britain's leading expert on lynx, chaired discussions on perceptions of predators, in particular the barriers created by myths as well as apparent economic interests. Simon Ayres chaired discussions on the potential livelihoods in the tourist or educational potential of introduction schemes; Chris Marsh chaired a session on farming issues and David Blake presented issues related to game shooting; I chaired a session on community-based re-introduction projects led by Roy Dennis, and Tony Whitbread chaired a session on ecosystem

restoration and how it might be driven by key re-introductions.

A number of key questions arose:

- Is it best to promote reinstatement of iconic species in their own right, or to promote restoration of entire ecosystems, with reinstatement of keystone species as a necessary component?

- Can we identify specific parts of Scotland where large-scale habitat restoration could create conditions for reinstating particular iconic species?

- How can we mobilise support from politicians, agencies, NGOs, and private individuals to establish rewilding as the primary management objective in particular large areas?

The general feeling from the workshops was that species reintroductions and ecosystem restoration needed to be pursued in tandem – and that key species could drive restoration, for example, of wetlands by beaver or open forest by wild grazers. There was already a well-developed appreciation of habitat networks and opportunities, and although there was a rising level of awareness of wildlife generally, there was little public appreciation of the missing species or the scale of ecosystem restoration required. It was agreed there was a need for concerted action with regard to public perceptions and also a need to seek common ground among the conservation organisations**.** There was still a need for more detailed mapping of opportunities and more integration of objectives among disparate organisations with regard to wildness and the need for ecosystem restoration.

On the question of how to mobilise support from politicians, agencies, NGOs and private individuals, the general feeling was that more could be done to establish rewilding as a primary management objective in some large area schemes. Thoughts on target audiences ranged from a rewilding 'task force', for example through Scottish Environment Link or the RSPB, and that a rewilding NGO needed to be created that could channel funding.

On the issue of farming it was evident that communication lines were not well advanced and that this community and perhaps also the game and fishing community, were far less aware of the potential balance of positive with negative impacts than was the case with forestry. There was clearly a need for economic support (subsidy) to include wildland objectives, such as payments for wild grazing regimes. Detailed examples of impacts in European communities that managed beaver, boar and predators in particular, should be communicated.

With regard to livelihoods from reintroductions, group discussions identified the following key issues:

- there would be a need for infrastructure to gain revenue, for example as happened in Yellowstone National Park, USA, with regard to wolf watching;
- land managers should be involved at a very early stage, for example, learning lessons from sea eagles on Mull;
- There are numerous indirect spin-offs from tourism and a need for a Farming and Wildlife Advisory Group form of service on rewilding – particularly with regard to keepering and the game community.

However, there were questions regarding the sustainability of car-based tourism and the dangers of 'commoditisation' of nature. A long term strategy would need to be in place for sustainable tourism, with better prospects if overseas travel became more expensive.

There was detailed feedback from the groups discussing perception of predators and general agreement that lack of public knowledge and education was a key issue and should be addressed well in advance of any plans for reintroductions. The role of the media is likely to be crucial – with a tendency to polarise views where there could readily be common agreement. It was important to establish common ground amongst all stakeholders. Experience-base education would be invaluable – for example, at wildlife centres where people can see wolves and lynx. Lessons needed to be learned from European experience – for example of opposition to reintroduction of bears in the Pyrenees or the positive approach in Sweden where government rewards landowners for the presence of wolves, lynx or bear (in contract to more negative government responses in Norway).

Often, predators had an 'image' that was far from the reality, with a tendency to be 'demonised' – these polarities could be offset by a strong programme of public education, starting in schools. The work of 'Tooth and Claw' in this respect was highlighted – and it was agreed that TfL with a contribution from WN would co-fund a DVD production for educational use.

The conference discussions raised many more questions than could be answered, and it is useful to re-iterate some points here as they show a certain level of critical self-reflection and realism, rather than an ungrounded enthusiasm: for example -

- The restoration work at Carrifran is taking place in a policy vacuum: the project has its own targets but these do not relate to any formal conservation policy context;

- Biodiversity Action Plans (BAPs) are about setting objectives for conservation policy and targets. But, rewilding points to further products beyond those within a conservation policy context. Rewilding could thus inform an evolving BAP policy.

- Conservation policy is wedded to a species-specific mindset. It needs to be shifted to embrace a wider awareness of what matters in nature and become more flexible.

- In their early stages, Trees for Life struggled to have any influence in conservation policy related to their interests. Thus they decided to get on and do it, as a way of actively demonstrating their philosophy. The practical results of TfL's work have served to influence both policy and practice.

- Are we humans and policy makers willing to give up control of nature? Rewilding challenges us to explore this.

- Beavers are a hybrid in policy and organisational terms. How can we learn lessons from the success of lobbying for birds and bird habitats?

- Can we achieve a mammal-based message about the worth of reintroductions, which matches the relative success of bird conservation?

- Who is 'we' in these discussions? When making recommendations and when taking things forward, it will help to be clear who 'we' is (this re-iterates the point about a rewilding advisory group)

- European legislation dictates many of these conservation-related issues and can take 10 years to take effect. Need to recognise this when planning ahead on these issues.

- What about setting up a large lobbying group to push for the return of key species, especially as a follow-up to this event?

A number of key points arose after Kenny Taylor's presentation that do not often get addressed within the conservation community – for example, that we need a closer relationship with nature (eg. as when solo in the wild) and to reconnect with ancestral knowledge and feeling for nature that would have been more right-brain than left. There was a need for *new* stories about the creatures we want to bring back that would re-create the *power* of the old stories which existed within a shamanic consciousness – as in the power of totem animals in tribal cultures such as the American Indians. There was an argument that we have lost the knowledge of how shamanic journeys and the power and presence of animals can help us get round obstacles - including the limitations of old style conservation thinking! A signpost example is Jerome Bernstein's book *Living in the Borderlands*, *The Evolution of Consciousness and the Challenge of Healing Trauma* www.borderlanders.com/index.html about the cultural issue and loss of experience - a work that underlines the need to understand that eco-restoration sites can be healing for us as well as healing for the earth and for a cross over between the 'felt experience' and science/facts – this should be what environmental education does and for this there was a need for the right images and cultural engagement, especially with children and it is we (grown ups) who don't realize this connection. The idea arose of creating a prize for a children's story which explores a positive / mysterious / respectful / magic relationship with nature – the Good Wolf Prize (i.e. not the big bad wolf again)

Four workshops discussed and reported upon reintroduction of beaver, lynx, wolf and wild herbivores. Each group heard an outline of context, and questioned and commented on that, before discussing three questions. 'Visitors' from other groups then had time to review and contribute before key points were chosen.

The beaver group concluded that most large river systems in Scotland would be suitable and that reintroductions should be on a catchment scale. There was a need for openness and honesty with the public and education was crucial in avoiding misinformation and lobbying by uninformed special interests. The issue of sub-species and the 'right' kind of beaver was less important than establishing genetic diversity and adaptability to modern conditions – thus mixing populations from Norway, eastern Europe or Bavaria should not be seen in a negative light.

On the question of lynx, uppermost was the simple fact that the public does not know lynx - we are working with a blank slate and need education to win hearts and minds. Habitat is already suitable and available but there would need to be an ecobridge/connectivity across the Central Lowlands to link up with border forests and Northumberland. There was a need to target landowning organisations & advisers, prepare the ground for creating incentive payments – rather than compensation/profit and foregone payments. There would also be an issue of hunting versus protected status issues eg. at what stage to control. There was a general feeling that following an educational programme lynx was very feasible – habitat and prey animals were available, Eurasian populations could provide animals and there was practical experience in Europe of relocating animals. the key requirement would be to get a group or landowner and the Forestry Commission of Scotland on board to champion a project. The first such site might become iconic and would provide a potential 'branding' for local lynx-friendly produce, as occurs in parts of Europe. Political support would be essential and in this respect, learning from previous release projects would provide better understanding. A schools' education pack could provide the background.

On wolf reintroductions there was a clear need for **a**n advocacy group for all large carnivores. Advocacy and education is more important than more information and an education & demonstration centre would be invaluable in this regard. But there was also a realistic sense that a paradigm shift would be necessary –a change in ourselves and attitudes with a need to rethink the whole question of risk.

On the issue of source population and viability, whilst there is general agreement on the availability of habitat and prey, the most appropriate source population might be from those habituated to red deer (perhaps in Scandinavia). There would need to be a robust management policy of dealing with individuals wandering from core areas of wildland, such as in the Cairngorms National Park.

There was an obvious marriage possible between conservation & ecosystem issues and the charisma of an animal with considerable tourist potential. We needed a European 'map' of experience with wolf; to study socio-economic, psychological & cultural as well as ecological issues, particularly with regard to conflict areas such as traditional hill farming – although current framing trends could create an economic opportunity. What was needed was imaginative communication with initial stakeholders in forestry, tourism interests and heritage and an incentive rather than a compensation approach.

On the question of herbivore reintroductions there was a feeling that Scotland had too many wild herbivores and among conservationists that domestic breeds would better deliver management objectives – with less complications for management! There was a pressing need to reduce deer populations and little understanding of the complex interactions between different wild herbivores – for example, wild cattle, moose, wild horses and wild boar. Feral goats were also an issue – as non-natives, should they be encouraged or eradicated? In certain areas there would be conflicts of interest – for example, for ground-nesting birds. It was not clear where specific sites existed or where there might be interest in a broad spectrum of grazers – Trees for Life has experimental pens for wild boar, as did Alladale, where moose were also kep in an enclosure to begin a breeding programme. There was a clear potential for economic benefits from eco-tourism, hunting and marketing of wild meat.

Participants were asked what they would like to see within ten years – here are some post-it notes from the conference discussion board:

"The first Lynx from Slovenia or Norway brought over by SNH/Forestry Commission/Tress for Life!"

"That reintroductions as a common talking point – schools, newspapers and acceptance!"

'White tailed eagle around all Scotland's coast. Red kite everywhere. Beaver pilot successful and spreading widely. Lynx reinstatement well underway"

"Common Cranes breeding up Scottish straths"

"Scottish Gov recognition through laws protecting all reintroduced species"

"Wildcat population stabilised & expanding. Beavers a success. Boar & Lynx started"

"Beavers properly established in the wild"

"Beavers fully reintroduced. Licence for Lynx trial"

"Beavers & Lynxes living widespread in a habitat that can support them indefinitely"

"Wild cat, Pine Marten & Polecat returned to the Southern Uplands"

"Wolves West of the Great Glen"

"Field study week an integral part of every school year through to the top year. A wilderness week to feature at least twice in every pupil's education"

"A public receptive to ecological restoration and hungry to see it happen"

"A Species Action Plan for Lynx"

"Beavers, wild boar, and Moose established. Realistic proposals for Lynx and serious discussion about Wolf"

"Political will & resources to meet EU obligations re reintroductions"

"A fresh perspective with our lost fauna and each other & a more Biodiverse UK"

"Beavers successfully reintroduced. Lynx reintroduced. Current species doing well eg Wildcats"

"More productive and integrated ecosystems with prolific runs of salmon feeding other animals along streams in Scotland. Greater awareness, understanding & examples of people living together with wildlife"

"Cranes displaying near beaver ponds beside forests with Lynx roaming free"

I was asked to make a summary reflection on the proceedings. Perhaps the key aspect was the need to avoid polarisation through advance planning, participation and above all education. There was work to be done showcasing the experience from projects in Europe and the USA and there was a cultural shift required in the general public's relationship and appreciation of wild nature, predators and risk – as well as a paradigm shift in management practices of control and focus upon specific objectives. The role of science, though essential, should not take precedence over the cultural elements of a closer relationship to nature – and in particular, there was a need for an understanding of nature as healer and educator, with each species having a certain 'medicine' or meaning, as they formerly had in shamanic cultures. It was clear that there was enough habitat and perhaps also enough goodwill in the conservation and forestry communities – it was less clear where the game conservationists would stand, and it would seem farming interests were implacably opposed, though largely out of ignorance and fear of economic losses. Education was the most important 'next phase' and in particular making use of pilot schemes and examples from Europe.

In this respect, there was an agreement to set up species working groups and begin production of educational materials {ed. note: we did not manage to follow up the species working groups in a productive way but Peter Cairns and 'Tooth and Claw' did produce the DVD and their work with photography and the book 'Wild Europe' has carried through the first phase of the public education). Rob

MacMorran has set up a Scottish Wildlands Group with a newsletter.

Wildland Research Institute (Wri) launch, Leeds University, 21st Oct 2009

The WRi launch was the culmination of a 'wild' week of celebration in Leeds. The first day saw the opening of a stunning exhibition by the wildlife photographers who are Tooth & Claw and the week ended with a first staged performances of Samantha Ellis's play *The Last Wolf in Scotland*. In between, primary and secondary school children came into the University to do workshops as well as see the exhibition. And both Roy Dennis and Jay Griffiths gave thought provoking talks as part of an evening debate with an audience young and old who had come from both sides of the Pennines.

The launch day itself was a seminar for nature agencies, national parks & conservation NGOs as well academic representatives and activists to set some early research priorities. About 50 people worked through an agenda including:

- sketching out trends and drivers for wildland
- 3 presentations about national and European context & agendas
- detailing wildland issues
- imagining good and bad futures for wildland 50 years on
- back-casting what could, should happen to get us from here to 50 years on
- and then thinking of what we want and need to know to enable those changes.

The three presentations enlarged the context for the day, which were summarised as:

1. Working towards better protection of Europe's wilderness.

Zoltan Kun, Executive Director, Pan Parks Foundation, gave a briefing about wilderness/wildland in Europe, e.g. the EU Prague conference resolution (Apr 2009) and the Wilderness Think Tank and Pan Parks network.

2. Wild Europe, Turning Ideas into Policy.

Toby Ackroyd, who has developed the Wild Europe Initiative, sketched the formative steps and detailed an action plan for the Wild Europe Initiative as well as finishing with next steps for more wildland in the UK

3. Current projects, Intent and Implication.

Keith Kirby, Chief Woodland Conservation Officer for Natural England, talked about wildland as a continuum and what it might look like. Then he offered a framework which relates degrees of wildness and scale. This very helpfully allowed us to see notions about wildland past and present and position current projects, e.g. Knepp, or species reintroductions, e.g. Red Kite, in relation to each other. It provides a helpful overview for what can be a confusing diversity of projects and intent which are broadly more wild.

Delegates suggested that 'heaven', for those of us alive in 2060 and wanting more wildland, would mean that there is green space in every neighbourhood and wildland in every region. Other aspirations gave us 30% of all land will be near natural and that the National Wildland Network would be complete, connecting uplands and lowlands, urban and rural. Sketching out steps in decades between then and now revealed a range of thinking or prophesy which included:

2040 - 2050

- Large scale Government buy-out of non viable farms to allow landscape scale wildland project
- Network of IUCN II sites designated
- Education provides courses for 'new' land stewards

2030 – 2040

- Culture of 'wild nature' as normal and is universally accepted
- Individual landowners cooperate & create core areas
- Changes of attitude after official reintroductions of species (lynx especially)

2020 – 2030

- Flagship report proposes PAN Park network & identifies sites
- Tourist Boards accept value of re-introductions

The Key research questions that emerged were:

- How do we deal with the switch from human control to natural process?
- What does this cost – in economic and cultural terms? Currently any cost benefit analysis is skewed by what we do not know.
- Would economic interests loose competitive edge by doing this? And how?
- What is the cost benefit of ecosystems?
- Need to look at the climate change effects on ecosystem delivery.

I personally argued against a standard academic research agenda and for greater focus upon *ways and means analysis* - i.e. What do we need to know, for instance, to achieve 10,000 sq kms of wildland in England, in Wales and in Scotland? This would involve weighing costs against benefits to arrive at cost efficiencies and current experience is too short a time to evaluate e.g. six years of Wild Ennerdale cannot tell us enough, yet, about benefits. So how do we value? How do we use numbers to value? But a ways-and-means approach could also be complimentary to a cost benefits approach: What areas do we have now that could be wildland ? What can we learn from schemes to date and can we identify gaps and assess transferability of overseas examples. What is determining how rewilding is taking place in different countries across Europe? How is this happening? Who is making this happen?

The issue of monitoring arose, as it always does in a research environment – what are the successes and failures? What data do we need – as there is little data about protected landscapes and reserves efficiency. From these discussions the meeting moved to considering what are the best tools, strategies, and methodologies to influence and campaign for more wildland and how can we achieve core wildland areas in England, Wales and Scotland? We also need to identify what could prevent this, ie. talk to all stakeholders (social science research) to identify potential conflicts along any route we take to achieve this goal. A complete record of the seminar and the presentations is available on

www.wildlandresearch.org<http://www.wildlandresearch.org/>

Gathering at the entrance to Carrifran, October 2008.

Since then!

In December of 2009 the coordinating group of WN met to review progress and consider its future work. It was agreed that the 'network' phase had delivered on its key objectives – to further communication among practitioners and to raise awareness on rewilding issues. In that year, 'rewilidng' as a term had been heard on the lips of an environment minister giving a keynote speech, yet there were significant areas of work that still needed addressing. Prime among these was reform of the EU Common Agricultural Policy that supported domestic grazing regimes for conservation purposes, but had no payment scheme that would properly support 'wild grazing'. Although there was evidence that UK agencies would bend the rules in this respect, the situation needed improving at a European level.

We can feel happy that there is a beaver 'reintroduction' pilot project, but not at the limited scale, nor the negative response of the Scottish government to the discovery of a free-living population of beaver on the river Tay. There is only a limited enthusiasm for the Dutch model of combining free-living 'wild' horse, red deer and wild cattle. On the other hand, there appears growing acceptance of wild boar and growing realisation that Britain has a population of feral big cats that appear to be breeding. We are likely to see more small beaver projects – for example, with the Wales Wild Land Foundation in the Cambrian mountains.

The 'new austerity' has already seen the abandonment of a sea eagle project in East Anglia, but moves are continuing to repopulate the east coast of Scotland.

The 'species group' idea has seen little activity, but there is an overall agreement that the lynx should be the main target species. In this regard the work of 'Tooth and Claw' and the WN-sponsored DVD is a step in this direction.

There is still a need for more coordinated thinking and planning between the main players on large scale management schemes – for example, the RSPB, the Wildlife Trusts, the National Trust, Woodland Trust and the Forestry Commission, and we have yet to see a government initiative in the form of a 'challenge fund'. Political developments may not favour government participation and it is to be hoped that whatever happens to the public land resource, key elements of forward thinking in the Forestry Commission and Natural England will be retained in the 'public service'. The voluntary organisations who might be expected to take up the cause – if government disposes of its forestry and conservation responsibilities to the private sector, are not yet well-practised and disposed toward cooperative schemes. The major public-private initiative in Ennerdale has depended a great deal upon the foresight and sensitivity of public servants within the Forestry Commission and it would be a great risk to have to fund this entirely from the private or voluntary sector.

The Wildland Network may have completed this phase but there is still a need for conferences and sharing of experience, and BANC will take up that role – an autumn conference is planned for 2011 at the Neroche project, led by the Forestry Commission, at which many of these themes will be discussed and networking can continue.

The data base

Re-wilding projects in the UK

ECOS 27 (3/4) 5-7 (2006)

VICTORIA WARD, MARK FISHER & STEVE CARVER

While a number re-wilding projects have been underway in Britain 30 years or more, it is only in the past few years that rewilding (and indeed just 'wilding') initiatives have really got underway. The need for a one-stop-shop for such information has never been greater, thus the Wildland Network is collating information on all such projects in the UK. This information is now available in an online resource and will be updated as and when new developments occur. The database was devised with a some key aims in mind:

- To provide a comprehensive description of the number and range of different re-wilding projects currently underway in the UK;
- To show the current potential for the development of connections between areas of wild land, and ultimately, the creation of a network of core wild areas and nature corridors across the UK.

The needs of all species

The growing interest in the potential for re-wilding parts of Britain's landscape has led many to rethink the practicalities of the UK's fragmented pattern of nature and wildlife designations. Echoing the sentiments of many, Salwasser sums up the reasoning behind this, arguing that wild land, unless it possesses millions of acres "cannot sustain a broad enough distribution of seasonal habitats to supply the needs of all species" which depends upon "favourable conditions in many places and freedom for individuals to move throughout a population of large size" (Salwasser, 1988, 87).[1] It is this thinking, which has led to the promotion of more joined-up thinking about nature conservation in the UK. Such an approach foresees the development of an effective network of wild lands and nature corridors which will stretch throughout the UK, encompassing not only large core areas of wild land, but also smaller isolated nature reserves and re-wilding projects and providing safe pathways for wildlife to move through areas of intensive agriculture and across our towns and cities. In order to plan this network it is necessary to have some idea of the current state of wild land or potential wild land in the UK.[2]

The gazetteer of re-wilding projects will provide details of where projects are currently operating and the steps they are taking to return land to a more wild and natural state. Moreover, further information on the size of projects and methods being undertaken is paramount in assessing the viability of linking projects together. The benefits of the projects database are summarised below

- Seeing the whole picture may encourage others to become involved or start up their own projects.
- The database will act as a resource for those considering setting up their own project in demonstrating the range of potential for management options, partnerships, funding opportunities and methodologies.
- The database will identify areas of possible land linkage, and show the different routes other projects are taking.

What's included…

The database contains certain basic details about every known project, including name, location, an overview of the re-wilding methods being used, and a list of contact details. Information on land designations covering in the area, ownership, management and administration details, funding sources, year the project commenced, size of the area covered, habitats present, a list of target species and planned reintroductions. To date, the details of 41 projects have been entered into the database.

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Use of the database

Making the database open to everyone has the advantage of publicising re-wilding efforts as widely as possible, and allowing gaps in the database to be spotted. Already in the English

Midlands there is interest in adding to the data base, so the region can represent its efforts to pursue natural processes and wild nature. New entries will be submitted online, thus keeping the database up to date. In the meantime, while permissions are finalised, a simple list of project names is available on the Wildland Network web site (www.wildland-network.org.uk). The authors would be grateful if any omissions are notified via email.

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The South East

Home Counties wildland – the new nature at Knepp

ECOS 27 (3/4) 44-51 (2006)
The 3500 acre Knepp Estate in West Sussex is a mix of ancient parkland, woodland, arable and pasture. Five years ago its owner, Charlie Burrell, decided on a wildland project for the estate 'where natural processes predominate and long term financial stability is achieved outside of a conventional agricultural framework'. The project is providing a baseline ecological and economic study for potential rewilding in the English lowlands.

PETER TAYLOR

I knew it was possible, even sensible, but I had never actually seen it happening – fields upon fields of once arable land becoming wild again. Each field was different – some had been intensive rye grass for dairy production, others for winter wheat, and the pasture was wilding up slowly, with bird-sown sloe and dogrose, and sprouting jay-stashed acorns. The hedges were rank and brimming with berries. Where arable fields had simply been left, there was a mass of thistle heads, willowherb and fleabane, but some fields had been tilled and resown with wildflower mixes, then cut and the hay removed to drain the over-nutrients. It was October so I had to imagine what the spring would be like.

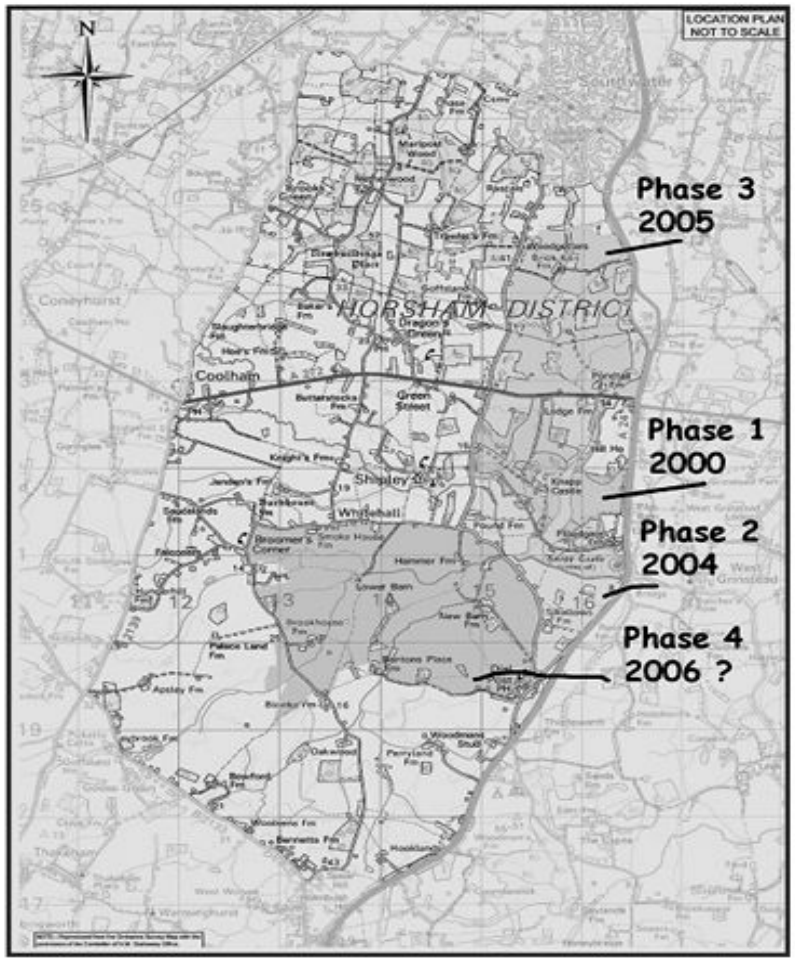
Nature in abundance

For Charlie Burrell the most significant thing about spring at Knepp is the *sound.* In all his years as a farmer he had not known what was missing. In spring the once silent fields are now buzzing and humming with a myriad insects and the cascade of bird songs. For me, in this balmy autumn, it was the *feel* of the place that was extra-ordinary.

We approached a part of the estate known as the lags – an old channelled stream system where the rewilding had blocked up drains and instigated little tree-dams to bring back the meanders. What were formerly neatly grazed bare meadows were now a mass of sallow and wet pools, home for snipe and very soon, it is hoped, some beaver. The sallows had already invaded half the adjacent field.

Suddenly, Charlie's acute hearing picked up a grunt and out of the scrub trundled seven massive red-brown pigs – right up to our legs, nuzzling recognition and prodding for nothing more than affection. These were a free-living group of Tamworths – adapted to forage and requiring zero maintenance. They can turn over half-an-acre of pasture in one night snuffling for roots and grubs. They will even eat carrion. The disturbed ground gets colonised very quickly – one patch was now a mass of dock.

Charlie's one sadness is that local farmers look in horror at what they perceive as a 'mess' of invaded fields and rank hedges. But it is early days. This is a rewilding, for sure, but it also contains compromises that may be of more relevance to some farmers than they might at first realise. The Tamworths will provide high-quality organic pork for market. There are now some 60 head of old English Longhorn cattle, also requiring minimal maintenance and no supplementary feed, and the organic free-range beef will be sold at a premium to local markets. Thus far, about 1400 acres of former farmland are rewilding around a core of ancient parkland, currently being restored under a Countryside Stewardship scheme. The restoration is focussed upon its former role as a deer park, and fallow deer have been re-introduced with the intention to extend wild grazing to the whole estate, which will be ring-fenced, and diversify the mix of herbivores. A small group of Exmoor ponies has been introduced and we visited Knepp's first foal – its mother keeping a good distance from our intrusion, and the herd with one stallion will soon build up. Roe deer are plentiful on the estate.



The Knepp Estate planning phases

The gameplan for going wild

Most internal fences in the park have now been removed – but the currently impassable A272 cuts across the northern half which is grazed by a second group of Longhorns. Having moved on from the deer-park ideal, the objective is now to allow this land to scrub up before the grazing is increased. Ultimately, if the A272 can be crossed by an eco-bridge or tunnel, and minor roads crossed with cattle grids, the whole 3500 acres, including a few hundred from a collaborating neighbour, could become southern England's first functional 'wildland' site. There is the potential to link to the Sussex Wildwoods project to the west and to create wild river corridors with other collaborating land owners.

At present the project is open-ended. Charlie would like to see a full-spectrum of wildland emerge – the Longhorns would be replaced with truly wild Aurochsen (Heck cattle), beaver would be introduced, perhaps the European wood bison, and red deer. Wild boar are likely to colonise – they are now only a few miles distant. Lynx would be the only effective predator – but this animal would require a much larger range – in the richest habitat about 20 km^2 . Even if Knepp were extended to twice its size it would provide only one such territory and thus would have to be part of an ecological network. However, there are rumours of lynx being released by activists – of what kind of activist, or lynx, no one seems to know, and there are regular sightings further west in the Mendips and the Dorset heaths.

Charlie is well-advised on the techniques and dynamics of rewilding – his oversight group includes Hans Kampf and Joep van der Vlassaker with advice from Franz Vera, the pioneers of the Oostvaadersplassen in Holland and the Large Herbivore Foundation that now supplies a steady stream of projects throughout Europe with wild cattle, horses and bison. Knepp's advisers also includes experts from English Nature and the National Trust who are studying the project with great interest, and consultants are examining the economic implications of the venture and the various markets it is creating.

The crucial question is… how relevant is this to other wildland projects? Is it a model that interested farmers could follow? To my mind, there are two key issues: what are the economic implications, and is there potential for a network of such sites? There are other issues regarding long-term sustainability and ecological objectives, but these are perhaps less pressing and can be answered only by observation as the project unfolds.

The viability of a wild estate

The economic aspects are the subject of detailed study by Natural England. At present the CSS deer-park restoration is central and there is an annual grant for the land it covers, with

some relaxation of the original criteria to cover the new objectives of rewilding. The rest of the project is covered by the Single Farm Payment scheme which can be applied because the project is still 'farming' in the sense of production of pork and beef. These two sources of finance will be supplemented by expansion of the Longhorn herd and the Tamworth pigs, with some small income from wild venison. Overheads are very low – but all the animals with the exception of the deer, are subject to daily inspections and normal veterinary regulations. Animal welfare and regulatory issues concern whether or not to intervene at difficult calvings, supplementary feed in hard winters, castration of bull calves (to mitigate fighting), weaning and removing calves before the next year's calving (lowering the risk of the calves being abandoned) and the introduction of Heck cattle's wilder and more feisty genes with consequent risks to stockmen, visitors and the quality of meat for market.

I could have pored over the economics – there is a mass of data and a thoroughly worked business plan available for scrutiny, but this kind of study is of limited relevance. The crucial questions relate not to current incomes or projected incomes under current schemes, but what will happen to agri-environmental grants in the not-so-long term of 10 or 20 years. Most landowners have long-term security in mind for their families and heirs, and rewilding is reversible but at a cost. There is, of course, no clear indication that the EU schemes will continue at current levels of support – and a clear indication that they will not, given the twin pressures of GATT (global agreements on trade) to liberalise markets and the expense of new EU membership in eastern Europe. What is required to secure wildland projects and ecological networks is a new long-term assured grant structure specifically designed for two levels of wilding – the non-productive core which would operate as a sanctuary, and productive buffer zones that could use semi-domestic stock, shooting and other appropriate enterprises to support its economy. My own preference is for core areas not to be shot over for sport, but culling would almost certainly be necessary.

The changing farm infrastructure

Charlie Burrell and his family are cushioned to some degree from these uncertainties – the estate's core business is now property management and the 20 staff are secured by employment in this business. However, there are some useful lessons for other estates: the dairy and arable farms were closed down meaning reduced employment overheads and a net loss of jobs, and farm buildings were suddenly redundant. It came as a shock to be shown one of these buildings now let as three separate light industrial storage spaces with an income of £18,000 per annum equivalent to the average net profit of the 300 acre farm unit! This story is apparently repeatable all over southern Britain – and indeed, my own *Somerset Gazette* carries a farming piece this week on that theme – farms can earn *more* by letting their outbuildings than they can from farming the land. The Knepp estate has a flourishing business in light storage, craft workshops and other small operations running from its old farm buildings. There are important planning implications here of course, although national guidance is for local planning authorities to show as much flexibility as possible in the new use of farm buildings.

Most farmers would be reluctant to give up 'farming' and become property managers – there is a social and psychological component here that is not to be under-estimated. They have been schooled by a production ethic. They are 'progress' minded and do not like to 'step back in time'. As many ecologists advising farmers will testify, money does not necessarily buy cooperation in biodiversity objectives.

True wildland will entail no domestic stock, so grants schemes need to be evolved that do not require conventional 'production'. The dilemma is that farmers may not come on board unless they can still 'farm'. In this respect, Knepp offers a useful test-bed in this early part of the rewilding jouney. There is a market for organic beef and pork, as well as wild-shot boar and deer. In the Forest of Dean, as we learned on a recent Wildland Network outing with the Forestry Commission, surrounding farmers have been making a surreptitious £300 per night letting to shoot the frequent wanderers of a small forest herd of wild boar that has been there since 1989.

Strategic thinking on wildland

Whether such a mixed enterprise would be viable without some kind of public-funded support scheme will emerge from the more detailed study commissioned by Natural England. This mix of woodland and pastoral production does not, however, have to be an effective economic model for larger-scale agricultural change in order to be of great relevance. The future for nature lies with corridors and buffer zones linking core areas – the ecological networks pioneered by the Dutch. On a longer timescale of a few thousand years everything we do for biodiversity in England will be trammelled by a wall of ice. In terms of European temperate zone species survival what happens between Latvia and Romania is crucial – without an effective corridor for migration, north-west Europe's mammal fauna (at least) is doomed. If Western Europe can influence what happens in south-eastern Europe, we will have done far more than anything our own national species targets can achieve. Scarce public funds could be targeted to special areas – rather than dispersed, perhaps ultimately ineffectively, over a generalised agricultural support scheme.

The future for agriculture is now bound up not only with EU subsidy schemes, but also a developing markets for biofuels. Reduction of subsidy at one time was thought to mean more marginal land for rewilding, as happened in New Zealand – but the opposite can happen – where production is intensified for biofuels, as well as generally to compete with global low-cost production of basic foodstuff. The future for the natural world would be grim – isolated natures reserves amidst ever-intensified farming, unless there was a programme of enlarged core-areas and corridors.

In such a programme there would be a spectrum of wildland – buffer zones and wildlife-friendly corridors can be a mix of organic farming, productive forestry, and appropriate small business enterprises. Knepp also runs a Polo Club, clay pigeon and pheasant shoot. Pony trekking and wildlife-watching, mini-conference centres and school visits can all play a role in such conversions.

English Longhorn cattle and grassland at Knepp (Charlie Burrell)

Animal welfare and public perceptions

Charlie Burrell is not motivated toward the 'safari-park' end of the business model. If it were economic, he would be happier to see the full spectrum of wildland with no domestic or semi-domestic stock and a low level of visitor disturbance – in other words, to act as a core-area where natural processes held sway. He is not averse to wild-shot game meat – whether pheasant, boar, cattle or deer (horses, even wild ones, are never included, of course!). And in any case, populations would require culling not just for the sake of the woodland flora and regeneration, but also for animal health reasons.

The latter is a major issue for wildland practitioners. If domestic stock are used as analogues for natural grazers – as with the Longhorn and Tamworths (and also with regard to Exmoor ponies, which though truly wild animals, are not perceived by the public as such) then farming and animal welfare regulations apply. This means daily veterinary oversight and intervention during poor winters. Carcasses have to be removed, disease controlled, and injuries ameliorated. Starving animals would engage public interest as well as regulatory concern. Animals would have to be removed to an abattoir for killing.

These rules do not apply to 'wild' animals such as deer – even though these species are just as sensitive to pain and starvation. Deer and wild boar can be shot on the land and the meat marketed locally. Such regulations would not likely be extendable to wild horses, and maybe with some difficulty to wild cattle or bison – at least not in relatively small areas in southern England. The Dutch projects have had trouble with public reaction to carcasses lying around as the populations adjust via natural death to winters or competitions for mates.

At a few sites we visited points where the wildland of the estate abutted private dwellings. Charlie had the rough edges removed in a buffer strip of mown grass sufficient not to disturb sensitivities – mostly with regard to blown thistle down! Clearly, public education on wildness may be a long process – but one that could bring dividends. The estate welcomes school parties and is currently engaged in efforts to assuage local parish council concerns – which are mostly about tidiness of the countryside.

An ecological network in lowland Britain?

What then is the potential, whether by core areas at Knepp or corridors and buffer zones, for an ecological network in southern England – and elsewhere in the lowlands? The land at Knepp is part of the Sussex Low Weald natural area – heavy bolder clay, with much woodland and ancient iron workings. There is some interest from neighbouring estates and a 10,000 acre connected block is not out of the question in the long term. Linkage to the nearby Sussex Wildwood Project would entail a 'good many fields' in the four miles distance – but Tony Whitbread, chief executive of Sussex Wildlife Trust, and a long-term advocate of wild grazing regimes for woodland, is on the advisory group. There are potential river restoration schemes within the Knepp estate and also extending outward. Pulborough Brooks, the RSPB reserve is a few miles to the west on the river Rother. Links could perhaps be made to the extensive woodland of the Weald and the South Downs.

The lessons of Knepp could be applied to other potential large land-holdings as core areas, and also to buffer zones along rewilding river corridors. Truly wild woodland zones with natural grazers would likely be a mosaic of canopy trees, glades, scrub and riparian pasture – home perhaps for a lynx or two (and doubtless of benefit to our naturalised puma and melanistic leopard). Buffer zones on marginal former agricultural land that were partly

productive with organic beef and pork would be resilient to predators such as lynx, as well as providing undoubted additional biodiversity benefits.

A mosaic of surprises

As I was leaving Knepp, I spied a pair of stonechat. They were not on the baseline-survey list of 2005, and not a species I would expect of pasture and parkland – they like it a bit rougher! This land would doubtless bring back many bird species and prosper others on the Estate that are struggling such as turtle dove, skylark, marsh tit, yellowhammer and reed bunting (it is thought the decline in woodland and farmland birds is a combination of intensive practices such as winter sowing and a general decline in insect numbers). Four pairs of buzzard have colonised – and we saw one fly up from a rabbit kill. Red kite are recorded and there are lapwing, stock dove, barn owl, green woodpecker and nightingale all likely to increase as the meadows and woods develop. Currently water shrew is the most notable wild mammal – but otter may come, and European wildcat could be introduced. Knepp offers current refuge for several nationally scarce Lepidoptera – including silver-washed fritillary, some scarce beetles and bees, great crested newt, and the great yellow cress as the only unusual plant.

But biodiversity targets are not the only benefit, or even the main relevant criteria for success. Knepp offers a glimpse not only of the potential for cores and corridors, and to act as a test-bed for wildland and buffer-zone economics – it offers an *experience* of what nature can be like and of what it may feel like to lessen control and slow down enough to listen – not just to the sound of birds and insects, but also to the human heart that somehow got lost along the ways of a crowded and busy world. In all these respects, Charlie Burrell is a pioneer and I came away vastly encouraged not just by the sights and sounds of a rewilding land, but also by the professionalism of the project, the focus of expertise and open minds, and, to their great credit, government agencies willing to support an open-ended project such as this, and learn alongside it.

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Wicken Fen – realising the vision

28.3/4 (2008)

To secure the future of Cambridgeshire's fenland wildlife and to re-establish lost species, the National Trust is taking action beyond the existing fragments of wetland.

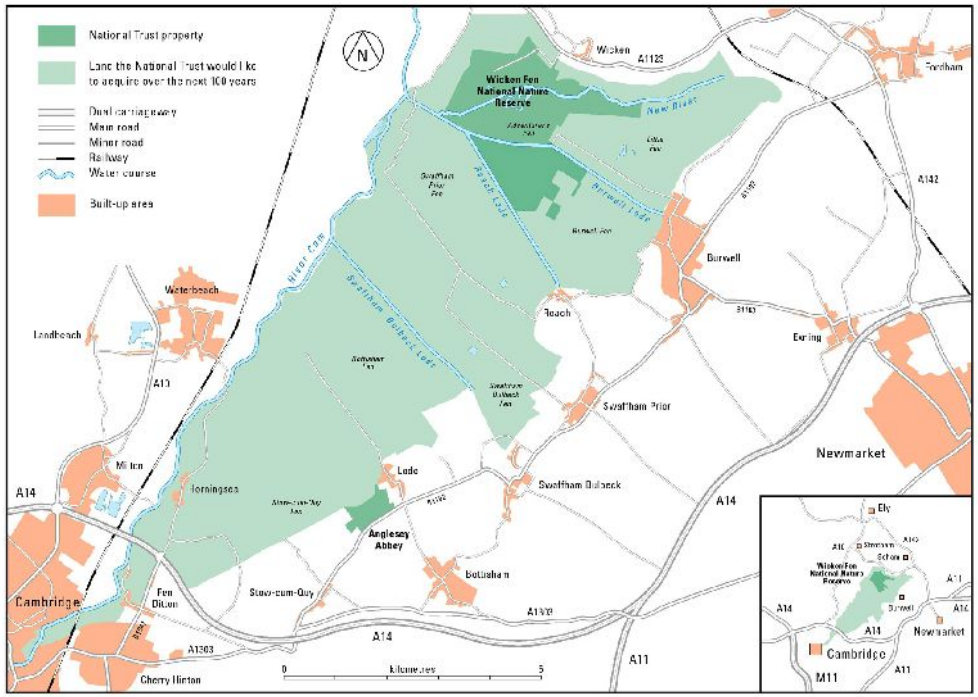
ADRIAN COLSTON

Wetland expansion – thinking big

The National Trust is proposing to acquire up to 3,700ha of farmland to the south of Wicken Fen in Cambridgeshire over the next 100 years. This extension of the wetland will provide exciting benefits for people and wildlife. Recent considerations on the plight of Cambridgeshire's wildlife have concluded that radical approaches are required to achieve real improvements.[1]

The landscape of Wicken Fen (National Trust)

The whole of the proposed new reserve at Wicken lies within the boundaries of the Swaffham Internal Drainage Board. The wetlands of the area would be restored by a combination of natural regeneration and the raising of water levels via a reduction in drainage pumping and the use of sluices.



The National Trust's fenland vision

Recreation opportunities

Access to the countryside around Cambridge is currently limited. There is an extensive public footpath network but the area could not be described as 'good walking country' on account of the arable nature of the landscape. The Wicken project can enhance recreation opportunities by the creation of cycle paths, footpaths, horse trails and circular routes from the city centre to the countryside. It can provide a positive link between city and countryside.

It is essential that access to the new reserve does not rely on car transport. The desired creation of the corridor at the southern end of the area into the centre of Cambridge offers great potential for cycle, horse and foot access. In addition, the railway station at Waterbeach and the possible new station at Chesterton also increase the access potential. There is also a good bus service linking the Fen Edge villages with Cambridge, again encouraging access to the area by public transport.

The Cambridge phenomenon

Cambridgeshire's economy is experiencing some of the fastest growth in the UK. There is a huge desire within the University, the City and the local councils to promote Cambridge as the high technological capital of Europe. Consequently there is much inward investment occurring with many prestigious multinational firms locating to the area to utilise the highly skilled workforce and the research potential.

By 2025, it is predicted that 105,000 new houses will need to be built in the county. There is currently a vigorous debate surrounding the publication of the Regional Planning Guidance and the review of the County Structure Plan as to where and with what environmental conditions these new houses should be built. The Wicken Fen Vision offers a counter-balance to the inevitable housing development. It would provide a green lung of open countryside accessible to the public, and with a wide range of environmental and amenity benefits.

Tourism and the local economy

Whilst the urban areas of Cambridgeshire are flourishing, economic development in the farming sector is depressed, including in the Fens. The new reserve has the possibility of providing additional jobs in the locality as a result of employment on the reserve. There is also the possibility of additional economic activity from visitors to the reserve, and there may be new demand for accommodation, and increased visitor spend in pubs and cafes.

Sharing the vision with the community

For the new reserve to be successful and popular it will need backing from the local community and the business sector in Cambridge, along with a large number of voluntary and statutory bodies. The idea of creating a new large wetland in Cambridgeshire was debated at a Citizen's jury in Ely in 1997 and was favourably received.[2,3]

If this ambitious project is to proceed the National Trust will have to work in partnership with many diverse organisations and individuals. Development of partnerships will be the main thrust of implementing the ideas for expanding Wicken, so much effort is being devoted to establish these vital links.

Following a series of meetings during 2000 the National Trust has approved the principle of implementing the Wicken Vision and the project now forms part of the recently published National Strategic Plan.[4] The project has been widely discussed and much useful advice has been received internally ensuring that the Trust has adopted a holistic approach to the initiative, rather than viewing it simply as a nature conservation initiative.

Konik ponies in Wicken Fen (Adrian Colston)

In addition the Trust has sought views widely outside the organisation to determine the feasibility and desirability of the project. Over 350 presentations have been given by the Wicken Vision Team and to date the reception has been overwhelmingly positive. The Trust has also contacted all the landowners in the project area informing them of our ideas and we have met over 70 in person.

The vision takes shape…

In October 2000 the National Trust acquired the first area of land at Guinea Hall Farm (115 acres) which is immediately adjacent to the east of the existing reserve. This was funded entirely from resources within the National Trust. All future purchases will have to include partnership funding.

A second purchase of 415 acres of Burwell Fen Farm was acquired in October 2001 for £1.7m including a grant of £933,500 from the Heritage Lottery Fund.

In 2003 the Trust was offered £800,000 from the Office of the Deputy Prime Minister to acquire land to assist with the creation of the green lung north of Cambridge. Negotiations are currently underway for an additional 500 acres of land.

Wildlife, landscape and livelihoods

This Wicken Fen project being pursued by the National Trust is putting wildlife back into the countryside on a landscape scale. It is integrating the requirements of wildlife with the needs of local people, the economy, and tourism. It is this holistic approach which has encouraged such widespread support. The project will help demonstrate how a new era of nature conservation in the lowlands can develop where habitats for wildlife can be restored without being divorced from the needs of people.

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A more detailed account of the Wicken Fen project can be found in 'Beyond preservation: the challenge of ecological restoration' in Decolonising Nature, *Edited by WM.Adams. Earthscan (2002).*

The Wicken Fen Vision: the first 10 years

ECOS 28 (2) 58-65 (2009)

In 1999 The National Trust launched the Wicken Fen Vision. Here we review progress and evaluate the public support in the first 10 years of this century-long project.

STUART WARRINGTON, CHRIS SOANS & HOWARD COOPER

The Vision – what's it all about?

In 1999, the National Trust embarked on a 100 year project, the Wicken Fen Vision, to encourage the development of a landscape-scale nature reserve for the benefit of people and wildlife across 5,300 hectares (53 km^2) of land between the National Trust's Wicken Fen nature reserve and Cambridge. One of the early drivers for this project was the concept of thinking big and trying to deliver nature conservation on a large scale, rather than just working even harder on our existing high quality 255 ha designated site. The ecological reasons for working on a larger scale are well understood, with support from topics such as species-area relationships, island biogeography, minimum viable populations, metapopulations and habitat fragmentation. Large areas may also address some of the issues relating to the effect of scale on conservation efforts, potentially also improving ecosystem functions and climate change resilience.[1]

There was also the recognition, passionately expressed in ECOS by Adrian Colston[2], that we need to do much more for wildlife in the 'black hole' of inland, central England, in counties such as Cambridgeshire where less than 3% of the land has the status of Site of Special Scientific Interest.

The National Trust developed the guiding principles below and the Vision strategy with the help of many advisors, both internal and external. The four guiding principles for the Wicken Fen Vision are:

1. We will manage the land to enhance its nature conservation value, protect the depleting peat soils, secure sufficient water resources and seek to preserve and interpret the cultural heritage.

2. We will ensure that the Vision has a sustainable financial future and supports the local economy.

3. We will work in partnership with local people, landowners, businesses, government agencies and voluntary and conservation organisations.

4. We will encourage, public access and recreation, scientific research, volunteering, community engagement and learning

For nature, the aim is to allow the development of a mosaic of habitats, such as wet and dry grasslands, reed beds and shallow pools, woodland and scrub, largely where soil, topography and hydrology dictate. The actions of large grazing animals will help to develop the habitat mosaic along with control of hydrology. Right from the start the Vision was also about providing significant public benefit such as improved access for local people and visitors to the countryside of the area, a 'green lung' for walking, cycling and horse riding, and also a boost to the local economy through tourism opportunities.

Why the National Trust and why at Wicken Fen?

The National Trust has been in existence for well over 100 years and it has the experience, expertise and resources to make this long-term project a reality. The Trust has made a commitment to "plan and manage on a landscape scale to create a network of high quality habitats" in its nature conservation policy.[3] The Trust also has the unique ability to declare its land 'inalienable' which means it cannot be sold or mortgaged. We do not, however, have the powers of compulsory purchase and will have to approach all of the 120 landowners in the area to see if they might sell us their land now or in the future and then raise the necessary funds.

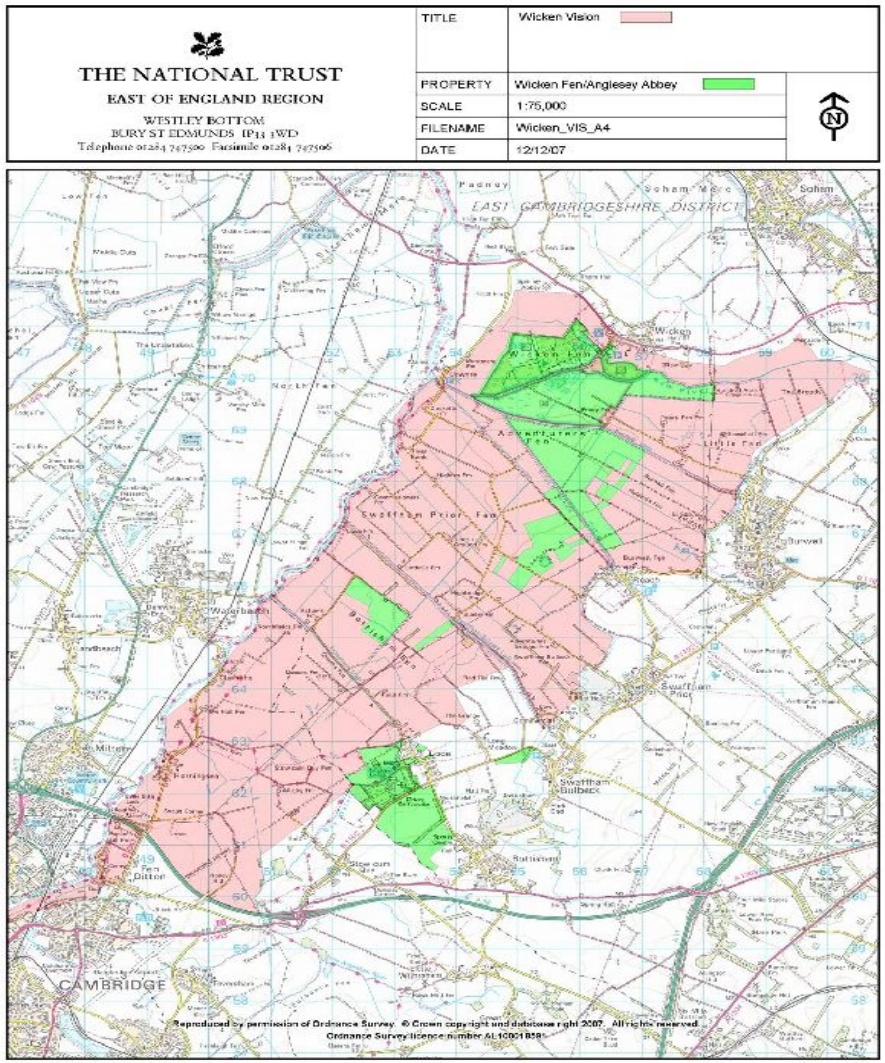
Wicken Fen is an ideal place from which to launch a landscape-scale project. It is an internationally important wetland, but even at 255 ha in area, the designated site is too small to guarantee the long-term survival of all of its numerous rare and special species. Wicken Fen is vulnerable to damaging influences from the surrounding more intensive land uses and is isolated and quite some distance from other wetland reserves. It has often been described as an 'island nature reserve in a sea of arable agriculture'. The Fen is at the north edge of a very shallow basin, with gently rising ground to the north, east and south and the embanked River Cam to the west.

Land drainage for farming over the last 300 years, and especially in the last 80 years with efficient pump-drainage, has resulted in significant shrinkage and oxidation of the peat in this basin and the land levels have dropped by up to four metres, leaving the undrained peat of Wicken Fen well above the farmland. The land in this basin forms a single hydrological unit and this is the 5,300 ha area of the Wicken Fen Vision. About 2,000 ha of peat soils remain in this basin. This peat is of variable depth and quality but it may form the basis of fen habitat creation in the long-term. The area can also be divided into different management units, if necessary, by roads and Lodes (the local name for an embanked small river). Thus habitat and especially wetland creation could take place in stages during the deliberately long timescale of the project.

The worth and relevance of the project

We would argue that the project is even more important now than when it started. The Government has admitted that it is not on course to meet its 2010 biodiversity target and biodiversity is still declining especially in the wider environment outside of designated sites.[4] Furthermore, halting biodiversity loss must not be the end-point for nature conservation and our ambitions should go beyond this to enable growth in biodiversity into the future.[5] Large landscape-scale habitat creation and restoration projects will make a major contribution to this growth in biodiversity. In addition, issues such as ecosystem services, carbon storage and sequestration have grown in importance since 1999 and landscape-scale projects may well have the scope to offer these wider environmental benefits.

Also, the development pressures have increased significantly in East Anglia in recent years. The city of Cambridge is forecast to grow to over 250,000 people by 2025. Access for people to green space is a key target on the Government's health and well-being agenda. As it develops, the Wicken Fen Vision will be providing improved access to a greener landscape close to the city, and it could provide a key focus within the emerging Cambridgeshire green infrastructure strategy.



The vision unfolds -purchases by 2007

Vision to reality?

One of the greatest strengths of the Wicken Fen Vision and the related Great Fen Project[6] near Peterborough is that they are much more than ambitious plans. These projects are tangible, with action on the ground. In 2004, Adrian Colston[7] provided a 5-year review and reported that 215 ha of land had been purchased in two parcels. Since then, a further 203 ha has been purchased in 5 parcels. Overall, the Trust now owns 857 hectares in the Vision area (16.2%). There is no set target, but we wish to acquire about 500 ha each decade, thus there is good progress in the first 10 years. The project has already secured over £4m in grants to assist with the land purchases from farmers and subsequent site management, including improved public access.

Big creatures - big attractions

Conventional approaches to habitat creation and restoration are often highly prescriptive and intensive in their approach. The results can be wonderful and can make a significant contribution to Biodiversity Action Plan targets, but these projects can be financially costly both in their creation and subsequent management. The Wicken Fen Vision approach is deliberately less intensive. As land is acquired, we allow natural regeneration of vegetation, in places supplemented with seeding at low rates with appropriate grasses. We aim to isolate land from the farm drainage systems and to control water levels as far as possible without affecting drainage of neighbouring farmland.

Once vegetation is developing we introduce large grazing animals. Grazing animals are critical for adding a vital element of dynamism to that created by the variations in water levels. On the first purchased areas, we have introduced free-roaming, self-reliant herds of highland cattle as well as konik ponies. We chose these animals as they are 'fit-for-purpose' and they have thrived living all-year around within the project area. The herds have naturally increased to over 30 koniks and 40 highlands and have become a visitor attraction in themselves. On newly acquired land we work in partnership with local farmers to put in place extensive summer cattle grazing for a few years while the vegetation develops.

Konik ponies (National Trust)

The exact composition of the habitat mosaic that develops is less predictable but we believe it will be more responsive and adaptable to long-term environmental change. The Trust is deliberately aiming for a 'lighter touch' for the management of the Vision land, and we believe this will also be more financially sustainable. We continue with our intensive conservation management on the classic old fen, with sedge harvest, litter cutting, ditch slubbing and the like.

Extensive grazing with highland cattle and Konik ponies (National Trust)

How are the habitats progressing?

A great deal of research has been carried out at Wicken Fen over the years[8], including fundamental ecological research by Godwin, Tansley, Walters and many others. Research and monitoring also underpin the Vision project. We have investigated the water, soils,

topography, archaeology and land use of the Vision area and recently have commissioned further research into the hydrology and carbon budget, taking into account climate change predictions.

Surveys into the wildlife of the area are carried out by professionals, University students and by volunteers (some of whom are national experts). Of special note is the Fen Restoration Monitoring Project[8], hosted and supervised by Anglia Ruskin University and funded by the Esmee Fairburn Foundation, which is investigating both the Wicken Fen Vision and Great Fen projects with vegetation and soil surveys, hydrological monitoring, aerial photo analysis and further studies. There are new projects underway to investigate carbon flux, dung beetles and grazing animal behaviour. The fundamental point is that you need to know how your project is developing and fill in the gaps in your knowledge. Wicken Fen has a Research and Recording Group to help organise, monitor and steer this vital work. Communicating the research results both within the project team and your own organisation and to a wider audience is also very important.

Gaps to bridge?

Helping people enjoy the Wicken Fen Vision area is a key target and we have made major progress in creating a spine route that crosses the area from north to south. In early 2008 a new bridge was installed over Swaffham Bulbeck Lode opening up new routes for walkers, cyclists and horse-riders and linking with paths we had made on land recently purchased. We are planning another bridge over Reach Lode to be completed by summer 2010, which will link into a new Sustrans cycle route as well as greatly extend the footpath network. We have also commissioned a Transport Plan to look into current and future ways for people to access the Vision area.

Do people support the Vision?

As with almost all large 'greenspace' projects, there is a close alignment and strategic fit between existing Regional and County strategies and our Vision strategy. The Environment Agency and Natural England are strong supporters of the project.

Well over 500 talks and guided walks have been given over the last 12 years about the Wicken Fen Vision. There have been newsletters distributed from the Visitor Centre, via the web and delivered to all local households.[9] The project gets regular local and regional media coverage, especially when a new parcel of land is bought. With all of this activity, it came as a surprise that feedback revealed that a significant number of Cambridgeshire people said that they had not heard of the Vision project and would like to know more.

Thus in Spring 2008, the Trust embarked on a major consultation exercise, with eleven meetings in local villages and drop-in sessions in the towns of Cambridge, Ely and Newmarket. Thousands of Wicken Fen Vision booklets, including a questionnaire, were distributed by hand to every local house and from the Fen. The Wicken Fen website also allowed online feedback. The objectives of the exercise were: a) Raise the public profile of the Wicken Fen Vision; b) Build public support and manage expectations for the Vision; c) Engage the public in the strategy consultation process; d) Create methods for dialogue; e) Position the Trust as a consultative, open organisation.

We got a range of valuable feedback on people's views and desires for the countryside and the Vision. In summary, 83% of the 500 respondents to the questionnaire thought the Vision was an excellent or good idea, 11% had some reservations and 6% were against. We believe this shows that there is considerable support for the Vision. To maintain and develop our work locally, we have also set up a Parish Council Chairs' meeting and a Recreational Users Group, both of which meet at least twice a year.

Junglyfication – good or bad?

Oppositional views do exist. There are opinions expressed that the farm landscape should not be changed and it should remain agriculturally productive and must not be 'junglyfied'. Letters have been regularly written to local newspapers and there is currently an e-petition.[10] As has been found with many projects, small opposition groups can make a lot of noise and they have learned to use the power of the press and now the internet very effectively. They do not have to get their facts right, they can hijack meetings and they write to the local press and politicians with astonishing frequency. Countering these claims and correcting mis-information can use up much energy, time and resources. For example, in November 2008, the Trust paid for a one-page 'advertorial' in the local Ely Standard paper, to deal with some of the misconceptions, such as that the Trust wants to flood the fens and that malaria will result. The lesson to be learnt is that you have to be prepared to invest a lot of time communicating, listening and working with local communities and that you have to keep up this effort throughout your project. Further drop-in meetings in each local village will take place in 2009. However, strong support has been forthcoming from many influential commentators, such as Tony Juniper.[11]

Lessons for now and the future

Here is some advice we can relay from our experiences so far:

Integrate multiple objectives: Large, landscape-scale projects must recognise that to actually deliver this new approach to wildlife conservation in our crowded island requires integrating the requirements of wildlife with the needs of local people, the local economy and tourism.

Build widespread support: You need to get support at all levels, from politicians and statutory organisations as well as local people and organisations.

Help people experience the place and the wildlife: Creating new opportunities to gain access to and experience this developing and inspirational countryside on foot, bike and horse are an essential part of these projects and this can be the most significant and positive way to generate financial and public support.

Finally, **hold you nerve**: you know what you are doing is right and really important and you are in this for the long-term benefit for wildlife, people and the environment. In time, these large landscape projects will make a hugely positive contribution to our wildlife and to people's wellbeing in this busy and congested country.

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{Editor's note: We have not had an ECOS article yet on the Great Fen project referred to in the article above - and this is a major omission which we hope will be rectified soon. It is an ambitious and recently very successful project that has mapped out a potential 9000 acres of future wetland habitat in the vicinity of Woodwalton Fen and Holme National Nature Reserves near Peterborough. The partners - Huntingdon District Council, the Environment Agency, the drainage board - Middle Level Commissioners, and the local Wildlife Trusts, have recently won a Landscape Partnership Project grant of £8.9m from the Heritage Lottery Fund, with a remit to create new greenspace for people, new opportunities for recreation, education and business - as well as for wildife. The project's 'masterplan' as well as consultation history can be downloaded at www,greatfen.org.uk

There is much emphasis on recreation and celebrity involvement, with a major visitor facility planned, new access routes and interpreted walks. Whilst this would compromise the wild element of the fens, the current land surrounding the NNRs is intensively farmed and there is much to be gained by connecting the reserves: 'nature conservation objectives are therefore major influences on the masterplan – to link habitat between Holme Fen and Woodwalton Fen and to create linkage of woodland through natural regeneration of the isolated woodlands to the south of the site. Although there are isolated pockets of nature conservation interest elsewhere within the Great Fen area, the land is generally intensively farmed and of limited wildlife value. A primary objective of the masterplan is to transform this situation – to greatly increase wildlife and habitat diversity across the whole project area, and to buffer and link the currently isolated designated sites of national and international nature conservation importance'.}

From Weald to Wild

ECOS 25 (3/4) 46-49

The Sussex Wildlife Trust's work at Butcherland is using less prescriptive management to create processes that will lead to prime pasture woodland.

TONY WHITBREAD

Connections across the Weald

The Weald of Sussex and Surrey is a strong candidate for rewilding in lowland England. It is well-wooded, has a high degree of habitat connectivity, retains many forest species and has a network of non-wooded habitats. It is against this background that the West Weald Woods Project was established.

Ebernoe Common - north, and Butcherlands, west, looking to North East. (Rich Howorth, Sussex Wildlife Trust)

The clay vale of the Low Weald in West Sussex and Surrey is bordered to the west and north by a greensand ridge, while river valleys mark the eastern and southern edges. The area is highly important for nature conservation, having two candidate Special Areas of Conservation (cSACs), one National Nature Reserve (NNR), three Sites of Special Scientific Interest (SSSI) and many Sites of Nature Conservation Importance.

Woodland type varies from managed broadleaves at Chiddingfold Forest to pasture woodland at Ebernoe Common and old growth forest at The Mens. Species found in these woodlands reflect past and present management. For example, rare butterflies, typical of forest glades and rides occur in Chiddingfold Forest while Ebernoe Common NNR is exceptional for its rich lichen flora, typical of large trees in open areas and for bats. The Mens is particularly important for fungi, being the only known site for three species of *Russula*. A key challenge is to improve connectivity across the landscape unit. This will benefit a range of species at a variety of scales.

The Mens at Crimbourne Stud, looking North East.(Rich Howorth, Sussex Wildlife Trust)

Why a landscape-scale approach?

The above question can be addressed by looking at two example species groups – bats and butterflies. Bats require a wooded matrix between woodland blocks, while butterflies require a connected patchwork of openings within woodland, as the following two paragraphs explain.

Ebernoe Common is an important roost site for the barbastelle bat, but this species relies on the surrounding landscape for feeding. In early evening these bats disperse using hedges, belts of trees and woodland edges as flight lines. Individual bats will hesitate where there are gaps in this network, waiting for darkness before venturing further. Breaks in woodland connectivity reduce the bats foraging efficiency and reduce the value of the area to this species. Conserving individual sites in favourable condition is not enough, this species needs a functionally connected forest habitat network throughout the landscape.

Butterflies tell a similar story. The distributions of wood white, pearl-bordered and small pearl-bordered have all reduced considerably. These species require a connected matrix of woodland clearings within the forest. They have poor powers of dispersal so need 'permeable' habitats through which they can move in order to spread and interact with other populations. Favourable sites alone are not enough if they are going to make up lost ground, what is needed is a functionally connected landscape through which species can move, interact and colonise.

Superficially these examples may seem just interesting ecological cases rather than an argument for rewilding. Nevertheless the common theme is the need for a functionally connected forest habitat network. In the past, traditional agriculture and forestry provided this connectivity, but this is not the case today. Current land management practices tend to fragment the landscape. Rewildling may provide an alternative vision that could re-build a connected landscape.

Rewilding a landscape - the practical implications

A rewilded tract of Sussex and Surrey is a long way off, and may not even be desirable in a landscape with so much current and historically recent human influence. Nevertheless there may be steps that can be taken to getting more naturalness, an incremental rewilding, that might deliver this connected, permeable landscape required by a range of threatened wildlife. Such a landscape might function better ecologically, and so would be more adaptable to changes such as from climate change. It is also likely to be an attractive landscape with many social, economic and amenity values. Tourism and local woodland produce are obvious examples, but how about the controversial idea of 'wilderness meat' from wild, de-domesticated grazing animals?

What are needed are practical projects that shape the landscape in this general direction. One such project is being developed by the Sussex Wildlife Trust in this West Weald area – the Butcherland / Ebernoe project, explained below.

Butcherland and Ebernoe Common - no end in sight

Ebernoe Common is a fine example of pasture woodland. There are, however, ecological conflicts here. Lichens require large old trees in open-canopy pasture woodland while Bechstein's and Barbastelle bats require dense old growth forest. This conflict indicates the need for more structural diversity at a larger scale. The current site is too small to accommodate the range of habitat requirements.

In 2002, the Sussex Wildlife Trust purchased Butcherland, 80 ha of farmland adjoining Ebernoe Common. This consists of old arable fields, set-aside land, hedges and strips of woodland. Our objective is to create pasture woodland, expanding the features found on Ebernoe and enhancing habitat connectivity. This will be achieved through a near-natural approach rather than the traditional form of management planning. Normally, a clearly defined end-point is set and the land is managed to achieve this. However, setting such an end-point would be against the principle of a near-natural approach. Instead we have just a broad a vision of pasture woodland and will encourage the natural processes that will lead to its establishment.

The lack of a clear end-point, however, means that measuring progress is difficult. A system is required which allows the area to develop towards pasture woodland, but is not prescriptive about what habitats develop where. This may be achieved by setting broad limits of acceptable change. If the site moves outside these limits, action will be taken, by influencing the processes that deliver the required habitat. In the case of woodland cover, for example, the normal approach might be to plant or regenerate trees where we wanted the woods to be. The near-natural approach, however, sets broad limits for acceptable change such that woodland cover across the whole site is between 30% and 70%. The natural processes involved, natural regeneration and grazing could then be influenced to maintain these limits.

Butcherland scrub-edge (Rich Howorth, Sussex Wildlife Trust)

This is the approach that is being trialed at Butcherland. Our short-term management is setting up the conditions for longer-term natural functioning. In this case it means altering the site from a pattern of fields and hedges to one of open and closed woodland, and wooded glades.

The site is poorly wooded at present, so woodland and scrub expansion, and future forest glades, are being encouraged. The project has four broad phases, as summarised below.

Phase I	Agricultural land prior to set aside being established. Hard boundaries between fields and woods.
Phase II	Set-aside land fenced, mown areas developed in old fields to establish future preferential grazing areas.
Phase III	Commercial stock introduced at very low stocking densities. Scrub and tree regeneration developed and future woodland glades become established.
Phase IV	Fencing removed, leaving just perimeter fencing. Change to traditional cattle breeds acting as wild herds within a wider area including all of Ebernoe and Butcherland..

Butcherland 50 years on…

A defined habitat pattern will not be set as an end point, but a recognisable pasture woodland ecosystem should be forming after about 50 years. Ecotones between wooded and open areas should be wide, tree regeneration in patches of thorny scrub should be scattered throughout the area and preferential grazing areas should have turned into permanent forest glades. There will be a dynamic between wooded and open habitat, driven by regeneration on one hand and grazing pressure on the other.

The approach at Butcherland should illustrate what could be done in the wider West Weald Woods area. The objective is to develop a naturalistic grazing regime that allows the development of pasture woodland and through this, a complex network of open and wooded habitat. Applied over a large scale, this should deliver the habitat connectivity that is required by species of conservation concern in the area.

Managed retreat in Essex: rewilding the coast at Abbots Hall

ECOS 27 (3/4) 36-43 (2006)
The coastal re-alignment at Abbots Hall Farm involves the creation of 87 hectares of saltmarsh, saline lagoons and grazing marsh resulting in a more sustainable coastal defence. This article describes how the project was achieved and the benefits it has delivered.

ANDREW MAY, JOHN HALL AND JULES PRETTY

> "Ours was the marsh country, down by the river, within, as the river wound, twenty miles of the sea… I found out that the dark flat wilderness beyond the churchyard, intersected with dykes and mounds and gates, with scattered cattle feeding on it, was the marshes; and that the low leaden line beyond, was the river; and that the distant savage lair from which the wind was rushing, was the sea.."

Charles Dickens, Great Expectations (1860-61)

Salt-marshes provide a valuable environmental service – a sea wall with no salting in front of it can costs £5m per kilometre to construct, but only a tenth of that if there is a salting. But salt marshes are disappearing.[1, 2, 3] They are squeezed against sea-walls, damaged by pollutants, and drained for farmland and housing. Should we continue to invest in repelling the sea, with costs likely to spiral, or should we bring back biodiversity to the coast?

The Blackwater estuary is a land and seascape of massive skies that stretch forever. This coastline is home to hundreds of thousands of wetland birds, including Brent geese, dunlin, knot, shelduck and redshank. The fisheries amongst the marshes contain important stocks of oysters, cockles, herring, bass, mullet and eels. Fronting the north bank of the Blackwater estuary is Abbotts Hall farm, until recently a 280 hectare conventional arable farm. This farmland is protected by a two-metre seawall, on the river side of which are remnants of saltmarsh. The farm itself dates back at least to the Domesday Survey of 1085. In 2000, with the support of several organisations, the Essex Wildlife Trust purchased the farm with a grand landscape redesign in mind. This is productive farmland, yet the Trust researched, planned and managed five breaches in the sea-wall in 2002, and allowed salt-water irrigation to create new saltmarshes, coastal grazing, reedbeds and saline lagoons.[4, 5] The remainder of the farm is now devoted to sustainable agriculture methods and habitat improvement, including the reinstatement of hedgerows, ditches, copses and field margins.[6,7]

Abbotts Hall Farm – the dynamic context

The Essex coastline stretches some 480 km and supports an abundance of wildlife. However Essex is losing 2% of its saltings area each year. Sea level rise is already placing pressures on hard coastal defences, such as sea walls. These are in turn preventing the saltmarsh and inter-tidal areas from migrating inland, which they would do as a response to sea level rise. As a result, the outer edge of the saltmarsh and the fronting mud-flats are undergoing erosion at a rate of up to two metres annually. Coastal re-alignment is therefore a potentially useful approach for both habitat creation and coastal defence. The rationale is based on a combination of flood defence requirements and habitat creation to replace lost inter-tidal habitats.[8]

Further sea level rise will reduce the intertidal area of mudflat within an estuary, especially in an estuary constrained by sea walls. However mudflat area on its own may be unimportant for birds. What is important is the biomass and availability of invertebrate food which depends ultimately on primary productivity and the time the mudflat is available to birds by being exposed by the tide. Thus sea level rise could carry a double problem for wading birds – reduction of saltmarsh productivity and a decline in the time their potential food is available. Estuaries and saltmarsh creeks are also important for commercial shellfisheries and nurseries for marine fish, and their functions too would be threatened.

The Blackwater estuary is one of the largest estuarine complexes in East Anglia covering 4395 ha.[9] It has extensive areas covered by three types of statutory designations: Ramsar, Special Protected Areas and Sites of Special Scientific Interest (SSSIs). In 1996, the mid-Essex coast had 70% (3,237 ha) of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. Up to 50% of these inter-tidal flats have been lost over the last 30 years.[2,8]

The Crown estate delegated its consent to English Nature. Above the saltmarshes and often behind sea walls there used to be extensive areas of grazing marshes. Traditionally these old enhanced saltmarshes have been grazed by sheep all year round, or by cattle in the summer months, such as today at Tollesbury Wick, an Essex Wildlife Trust reserve. In 1946, the War Commission changed 90% of grazing marsh into agricultural land. Essex has an extensive area of arable land - a proportion of which falls within the coastal zone. Furthermore, sea level rise is particularly relevant to Essex where the coast is predominately low lying. The 1953 floods illustrated this when a tidal surge from the North Sea caused 1,200 breaches in the sea defences of East Anglia, pushing sea water up to 3 km inland and

resulting in 307 deaths. As a result many Essex sea walls were reinforced and raised, thus increasing the impact of coastal squeeze on the inter-tidal habitat.

Delivering the project and working with its stakeholders

In October 2002, some 80 hectares of new intertidal habitats were created by breaching 3.5 kilometres of sea wall fronting Abbotts Hall Farm along the Blackwater estuary in Essex. The scheme was undertaken by Essex Wildlife Trust, supported by the Environmental Agency, World Wide Fund for Nature, English Nature and the Heritage Lottery Fund. Two planning application were made. The first covered the construction of the spur walls, hides and jetty, raising the track and the excavation of a lake. The second application covered the excavation of the creek systems, the breaches of the sea wall and tidal flooding. The Environmental Statement supported the application. For works that affect flood defences and coastal protection additional regulations apply. Consent for land drainage was required from the Environment Agency under the 1991 Water Resources Act and from English Nature (now Natural England) for the coast protection work. The Trust also had to obtain a Water Abstraction licence under the Water Resources Act (1991) to fill it with freshwater from a local watercourse. For Abbots Hall Farm the Crown Estate owns land below the mean high water mark. Consent was also needed for the construction of the jetty as this extended below the mean high water mark.

Removal of the sea-wall and flooding of pasture land. (Archive)

The older consultation for the scheme was with 30 organisations, and the latter consultation was with over 100 individuals. The BBC included interviews and opinions from many local people, water users and those that live in the floodplains protected by the sea walls. At the same time the BBC Wildlife Unit at Bristol made a documentary about the project before it had been constructed or planning permission granted. The resulting film was seen by an estimated 1.5 million viewers (with four repeats) and won best environmental programme for 2003.

The second consultation was created in two ways as a result of the initial communication strategy. The design features were to be inclusive, e.g. the jetty, new footpaths, restraining sill to breach B, feeding of the sewage treatment works at Wigborough through the new lake, and by a communication strategy that was both formal (meetings with the oystermen, newsletters, and leaflets), and informal, comprising of chats and meetings with those that had concerns or wished to develop products and outcomes. This included expansion of oyster grounds, sheep grazing, samphire harvesting, asparagus, guided walks, plus the opening of a visitor centre. To address the early concerns of the Blackwater Oystermen, additional monitoring was agreed to and a specialist advisor on oyster culture was appointed to act as` professional arbiter if required.

On 4 November, a large spring tide flooded through the five breaches in the sea wall. Elliot Morley MP, the then Parliamentary Secretary for Fisheries, Water and Nature Protection welcomed over 1,000 people to mark the sea water coming back onto the land and the beginning of new coastal marshes. Local people were invited to sail their small craft through the breach and to be the first to navigate on the marsh since it was enclosed 400 years ago.

The breach at high-tide (Essex Wildlife Trust)

Habitat and species gains

Since the coastal re-alignment in October 2002, 10 species of fish have been found to be using the area for feeding and breeding, including sand smelt, three spined stickleback and common goby. Most notable are sea bass and Blackwater herring. Other marine species include shore crabs, common jellyfish, lugworms and common shrimp. Water voles have been recorded on site as well as great crested newts and all four species of the commonly encountered British reptiles. The sea slug (*Tenellia adspersa*) has been rediscovered on site adjacent to the sluice where it was found during the original borrow dyke survey.

In the autumn of 2003, hundreds of over-wintering waders and wildfowl arrived to feed on the new wetlands. These included teal, mallard, spotted redshank, black tailed godwit and golden plover. Above this the new ESA grassland attracted brent geese, with wintering counts peaking at 1,700. Little egret numbers peaked in autumn 2003 with some 30 roosting in the willow by the new lake and feeding in the inter-tidal areas.

Considerable numbers of birds using the Blackwater SPA are also making use of the new realignment. The peak overwintering count during 2003-04 was 2275 for all species. This included wigeon (186 and also roost on site), teal (270 and also roost on site), little egret (13), lapwing (1050 and roost at low tide), golden plover (820 and roost at low tide), dunlin (75), ruff (15), spotted redshank (23), greenshank (6), redshank (81), snipe (50) and linnet (250). In addition, water rail has been observed on two occasions within the new re-alignment. The number of breeding birds of note on the re-alignment include shelduck (7 pairs), oystercatcher (7 pairs), avocet (3 pairs), redshank (5 pairs), skylark (27 pairs), and yellow wagtails (6 pairs), whilst on the new lake, pochard (10 pairs), tufted duck (7 pairs) and occasional teal, shelduck and avocet.

Since October 2002, saltmarsh plants have rapidly colonised the inter-tidal habitat.[10] Plants relatively tolerant of the conditions associated with immersion by seawater first colonised the bare sediment. The plant community at Abbotts Hall is now dominated by glassworts (*Salicornia* spp.), grass leaved orache (*Atriplex litoralis*), sea spurrey (*Sperguloria* spp.) and annual sea blite (*Suaeda maritima*). Shrubby sea blite, shrubby glasswort and sea purslane are now beginning to establish. Particular efforts are now being made to re-establish Sea Hog's Fennel (*Peucedanum officinale*). This is one of the rarest coastal plants in Britain, and occurs in only three isolated populations, the largest being in the Walton Backwaters, with most growing on the Essex Wildlife Trust reserve, Skippers Island. It is the exclusive foodplant of Fisher's Estuarine Moth (*Gortyna borelii*). In the UK, this moth occurs only in the Walton Backwaters area (and one other secret location in Kent), with the majority of the population confined to Skippers Island.

Both of these species have been adopted as a Biodiversity Action Plan (BAP) species for Essex and consequently are the focus of research and conservation effort. The plant also supports another rare moth *Agonopteryx putridella* that is a national BAP species and occurs both in the Backwaters and Kent. The long-term viability of the Sea Hog's Fennel population and its dependant moth species is threatened in the Walton Backwaters. Skippers Island is low lying with deteriorating sea walls. As a consequence of sea level rise, inundation at some point in the future is inevitable. The resulting prolonged immersion would have a severely detrimental effect on the plants and moths. The ideal solution to safeguard the plant and its dependant moth species would be the creation of a string of coastal sites which are not threatened by the sea and could be sympathetically managed and protected. Sea Hog’s Fennel has thus been planted at Abbotts Hall Farm which is now in an ideal location to introduce the Fisher’s estuarine moth too.

Visitors and interpretation

Since April 2004, Abbotts Hall Farm has been open to the public. Although not fully open all week, eight thousand people were shown around the farm to view the coastal re-alignment in its first year. In addition, many group visits have been arranged, including for partner organisations, farmers, community groups, clubs and coastal management professionals. A major attraction for the public is the birds and the first of several hides have been installed including a recycled plastic hide. Regular leaflets, newsletters, publications and media correspondence have been produced.

Combating the problems of coastal erosion and loss of associated habitats will be linked to the concept of sustainable fisheries. This is an important message for visitors and the local community, whilst at the same time retaining these habitats to support wildfowl such as brent geese and waders such as curlew and to retain the character of the estuary landscape. There will be a major interpretation and education focus on this important subject in view of climate change and coastal realignment.

Economic and ecosystem benefits

The new wetland was designed to function over at least a 200 year timescale. By having no landward counter wall, the entire habitat can migrate landward to accommodate future sea level rise without the need for any further interference or construction. The main economic benefits have been as follows:

Flood alleviation: the project has saved an estimated £500,000 over the next 20 years on sea wall maintenance. It has also provided improved flood defence at the terminal counter walls to east and west.

Wastewater treatment: the project has improved the water quality of the estuary by further treatment of the Wigborough sewage treatment works by feeding the outfall water through the new lake and the developing reed bed. This also assists in control of stormwater flows from the works with direct improvements to the water quality of the estuary.

Recreation: the scheme has provided a new barge jetty for people to land and have a bridge between the sea and the land. There are also 50 hectares of restored high tide navigable water for small craft, and about 5km of new permissive footpaths on the farm itself.

Ecotourism: the project has ecotourism benefits not only at this site, but through the potential of joining up with the adjacent landowners at a future date on an enlarged wetland that stretches from West Mersea to Tollesbury and covers over 3,000 hectares.

Fisheries: independent monitoring has shown that the site is an important provider as a habitat for fish fry, in particular commercial fish such as herring and sea bass. An EU wide estuary fish monitoring methodology is now being developed, based on Abbotts Hall.

Water quality: research has shown that new saltings, created by realignment, improve water quality by soaking up both heavy metals and agro-chemicals. 80 hectares of new habitats at Abbotts Hall will assist in this function for the estuary.

New food sources: sheep are being raised, and alternative crops of samphire, asparagus and sea spinach are now being sold to local restaurants.

Taking the experience to Wallasea and beyond

Experience from Abbots Hall has been used to establish a second major coastal realignment at Wallasea, Essex, in 2006. This comprises 115 hectares of new wetland built to replace similar areas that had been destroyed by development at Lappel Bank on the Medway and Fagbury Flats on the Orwell at Felixstowe. The final phase of breaching took place in July 2006, creating 115 hectares of wetland, comprising 90 ha of mud flats (including lagoons and 7 artificial islands) and 25 ha of saltmarsh. 1,600 roosting birds and 76 species are using the managed realignment. A comparison was made between the high tide data from the winter and passage tidal counts and the national populations, taken from WeBS Core Counts. This showed that the managed re-alignmenmt is nationally important for ruff in the winter, with 1.2% of the UK population and for avocet (2.2%), greenshank (1.3%). This shows that the Abbott's Hall managed realignment site is already making a significant contribution to the winter bird usage of the Blackwater Estuary SPA.[11]

New habitat after re-alignment (Essex Wildlife Trust)

Essex had 30,000 hectares of saltmarsh 400 years ago. As a result of enwalling and erosion this was reduced to 2,800 hectares by the early 20th century. Only 50 hectares had been re-created in the decade before Abbotts Hall Farm and Wallasea added 200 hectares. The experience and evidence from these schemes now give prospects of further rewilding along the Essex coast.

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MIDDLE ENGLAND

Rewilding Middle England

ECOS 27 (3/4) 8-16 (2006)
Must the central lowlands of England forever be tame? The opportunities for wild land in the region, and the threats to it, are explored in this article.

MICHAEL JEEVES

Ordered, planned and predictable

Browse through the magazine or website of Trees for Life[1], the inspiring nature conservation organisation working in the Scottish Highlands, and the idea of what rewilding is about is easily understood, even though it is a difficult concept to define. Restoring woodland to where it once was, together with lost predators and grazing animals, allowing natural processes to function, people interfering as little as possible, with few or no pre-determined outcomes, are just a few factors involved. Forrest Gump's mother said, "Life is like a box of chocolates, you never know what you are going to get". Well, nature conservation should be a bit like that, except that targets and planning are taking over to such an extent that the surprise factor is now missing. Whether it be 'x' hectares of reedbed, 'y' percent of scrub or 'z' pairs of lapwings, we know the plot from the outset.

Nowadays the Highlands are a spectacular and wild-looking landscape even if they are often said to be degraded, holding much less wildlife than they once did. Down in Middle England, however, it is all very different. The landscape from the East Riding of Yorkshire right through the Midlands, towards the South Coast, but extending eastwards into East Anglia, is 'champion' country, or what Oliver Rackham calls the 'planned countryside'.[2] Most of the woodland long having been removed, the open field system was developed here, from Anglo Saxon times into the Middle Ages, and the region was later subjected to the Enclosure movement. The result is little biodiversity and an extremely tame, neat and ordered landscape – the Black Hole of Middle England.[3,4] Common land is generally scarce and there are few places that are not used intensively for something by people, who are present in huge numbers, together with their buildings and roads. The cities, towns and villages too are increasingly tidy, with little room for wild nature.

Take a look at the Wildland Network Rewilding Projects Database[5] and it appears that little is happening in Middle England. The situation is not quite as bad as this, but the challenge of rewilding this region is surely greater than anywhere else in Britain. So, what then are the main issues, threats and opportunities?

Attitudes of people to wild land

At a nature reserve open day a while back a woman and her children looked at display boards showing two large colourful images, one of a meadow full of green-winged orchids and another of an oilseed rape field. To the amazement of the staff in attendance the woman pointed to the oilseed rape photograph and said "isn't that wonderful children!" It was a good lesson in not assuming that everyone likes the same things. So, do people want wild land? Perhaps there is a need to find out.

It is probable that many people are happier when wild land and fierce animals are in remote places. There is certainly also a strong contingent that wants nature reserves to be like parks, with surfaced paths, dog bins and other formalised features and facilities. Others do value wilder land and more might if they had the chance to experience it. What is certain is an imperative to engage more fully with people over the rewilding issue and perhaps to acknowledge that different levels of wildness are appropriate for different situations.

Predators, large herbivores and other keystone species

Wolves, brown bears, lynx and wild cat disappeared long ago from Middle England, and most of the smaller, less fierce animals have been exterminated or severely reduced in number. Recently some have returned, for example otter, red kite, buzzard, sparrowhawk, raven and polecat. Exotics such as big cats (especially melanistic leopard, puma, and the former native Eurasian lynx) are considered by some to be established here and ospreys have been released at Rutland Water.

Osprey at Rutland Water (John Wright, LRWT).

It is said that large predators and herbivores are essential to enable ecosystems to function properly[6], but they make nature more exciting for people too. Only a few years ago Buzzards were rare visitors to most of Middle England, now they are a common and spectacular sight. It should not be too long before red kites are widespread too, but it will be interesting to see whether ravens and polecats are welcomed back in the same way that the birds of prey were. Persecution is still a problem, especially of corvids, although stoats, weasels and foxes suffer too. Attitudes to predators are mixed, as is discussed elsewhere in this issue.

Although it is unlikely that the region will ever have wolves or bears again, there could be stronger populations of some of the species already present and perhaps the re-introduction of pine marten and goshawk in places such as the National Forest. Here and elsewhere there might be possibilities for re-introducing beaver and maybe other keystone species like wood ants. Large herbivores are already being utilised on some conservation sites and their involvement in nature conservation should be explored further. These animals are much admired by human visitors too, and can stimulate people's interest in a nature reserve or wild place.

Existing sites and reserves – their wild credentials

Middle England has, of course, some good places for wildlife. There are National Nature Reserves such as Sherwood Forest, with its fantastic veteran trees, and many other nature reserves and SSSIs. Together these only cover a small percentage of the area, and moreover not all of them are really very 'wild'.

Take nature reserves, for example. They are a real success story in nature conservation, but how wild are they? Table 1 has been adapted from the National Trust for Scotland's Wild Land Policy 2002 and includes suggested indicators of wild land in Middle England.

Table 1. **Indicators of wild land in Middle England**

Positive indicators	**Negative indicators**
Natural processes allowed to function – 'nature in charge' e.g. natural regeneration, extensive grazing, flooding, predators not controlled, non-prescribed management outcomes	Natural processes constrained – 'people in charge' e.g. tree planting, hedge laying, mowing, flood defence, dams (reservoirs), predators controlled, prescribed management outcomes
Sense of remoteness	Closeness of built-up areas
Large size	Small size
Scenic grandeur (rough terrain, cliffs, rocks, flowing water, sea)	Uninspiring scenery
Solitude	Presence of crowds or group activity
Quietness	Man-made noise
Absence of re-assurance in a hazardous and challenging environment (risk)	Security, tameness
Extreme weather such as gales, heavy rain, frosts and blizzards frequent	Extreme weather rare
Absence of man-made structures e.g. nest boxes, tern rafts, hides, seats, surfaced paths, fences, roads, pylons, overhead wires, buildings, signs	Presence of man-made structures

By scoring each indicator between one and five (negative to positive), but multiplying the natural processes score by a factor of three to reflect its importance, admittedly crude wild land values of individual sites can be compared. The total possible score is 55 and for illustration some of the nature reserves of the Leicestershire and Rutland Wildlife Trust when assessed using this system give some interesting results (Table 2).

Table 2. Wild land values of some Leicestershire and Rutland Wildlife Trust nature reserves

Reserve	***Score*** *(out of max 55)*
Launde Big Wood (SSSI)	37
Charnwood Lodge (NNR)	34
Prior's Coppice (SSSI)	32
Cossington Meadows	28
Rutland Water (SPA)	18
Cribb's Meadow (NNR)	17

The Trust's wildest reserve at present is Launde Big Wood, a good-sized, fairly remote ancient woodland, most of which is purposefully 'managed' with minimum intervention. Next comes Charnwood Lodge, a very large varied reserve with rough terrain, rock outcrops and low-key management. Other LRWT ancient woodlands score highly too, such as Prior's Coppice. Here there are repeated calls for the muddy rides to be surfaced, but these have been resisted so far in order to preserve the wild feel of this marvellous woodland, not to mention the wildlife that lives on the rides. Next on the list is a wildish floodplain wetland, Cossington Meadows, and then a gap to lower scoring reserves.

Grasslands such as Cribb's Meadow are carefully managed through grazing, mowing and 'weed' control to achieve a desired sward height and elimination of unwanted species. While it is a lovely and relatively remote place, Cribb's Meadow is not especially wild. Rutland Water Nature Reserve is remarkable in that it holds a tremendous amount of wildlife, but the reserve scores poorly in terms of wildness. This would probably be true for most of the large wetland reserves in Middle England, where attracting large numbers of visitors is a high priority and there are therefore hides, surfaced paths, interpretation centres and so forth, as well as controlled water levels and intensive management. Colin Tubbs wrote passionately nearly 30 years ago about the paradox of increased wildlife but reduced wildness where nature reserves are created. He thought that "too many reserves have lost their appeal through the safari park approach of their managers…".[7] Clearly some places do require a high degree of human control in order to maintain traditional practices such as hay making and others like Rutland Water provide an important role in introducing people to wildlife, but a better balance needs to be struck between honey-pot, ordered reserves, and wilder ones.

For comparison, Chee Dale, a superb nature reserve in the Peak District, just outside of the region being considered, appears to score highly with 43 using the indicators in Table 1, while Beinn Eighe National Nature Reserve in the north of Scotland amasses a hugely impressive 51.

There must be potential for some reserves to be wilder and they could be used as demonstration sites to promote wildness as a concept. It is another matter on SSSIs and other legally protected sites, at least at present. The objective of getting SSSIs into 'favourable condition' through prescribed means severely restricts the scope for wildness. For example, a lowland reservoir in Leicestershire notified as a SSSI for its draw-down zone plant communities developed a wonderful tangle of wet woodland along its margins in the absence of grazing. This woodland, itself an important habitat, is being cleared in order to try and restore the specialised draw-down zone plant communities, even if that is near impossible to achieve because of eutrophication of the water. Also, on heathlands, one of our wildest landscapes, despite the fact that they are the product of centuries of management, suggestions have been made that one Leicestershire SSSI should be compartmentalised with fencing to facilitate control of grazing. On another stock must be removed in the winter, so the whole concept of extensive naturalistic grazing is undermined. This is all to achieve defined levels of scrub, bracken, bare ground and ericaceous shrub cover. There seems to be little room for the dynamism of nature.

Farmland

The notion of letting nature have a little more say is a difficult pill for many farmers to swallow. Even the conservation-friendly farmers want to be in charge, so realism is necessary when contemplating the rewilding of farmland. The new Single Payment Scheme has already produced narrow field margins of rough grass and the Environmental Stewardship Scheme is surely going to benefit wildlife. These schemes will not, however, result in a wilder looking land, where the emphasis is still on prescribed outcomes and control. Abandonment of much land in the rich area of Middle England seems unlikely, but if farmers were paid through these schemes to set-aside areas for several years, on a

rotational basis with much less interference than hitherto, then that could create some wild places in the countryside. If these places were located next to rivers or existing good sites, that would be even better. There are a few examples of this happening and they are producing encouraging results. Negative perception of so-called 'weeds' is something that will have to be overcome.

The creation of more woodland on farmland should be encouraged and it will surely be necessary to link existing woodlands to make them more viable ecological units, especially with the threat of a changing climate. More land is being bought by people who do not necessarily want to farm, so there must be potential to find a few who are interested in doing something exciting and different. A large private estate in south Warwickshire, known as the Forest of Dennis, is already being established by one (Felix Dennis, a wealthy publisher) who is aiming to create an area of woodland extending over an astonishing 25,000 acres (approx. 10,000 hectares).[8]

Rivers and floodplains

If the opportunities for rewilding are limited on farmland, the situation on floodplains is much more promising. There are currently many conservation initiatives along river valleys, often taking advantage of old gravel workings. New reedbeds are springing up everywhere, as well as marshes grazed by wild-looking longhorn cattle, wet woodland, lakes and more reedbeds. River valleys are recognised for their existing and potential value to wildlife. There has even been some restoration of rivers that have been engineered in the past, such as the River Tame at Middleton Hall.

Numerous gravel pits, grants to enhance them, the scarcity of arable farming and relatively small land holdings, wet land, enthusiastic non-governmental organisations, a dedicated government body (the Environment Agency) and support from water companies and local authorities have all combined to facilitate successes in river valleys. With more gravel extraction inevitable and a probable decline in the profitability of floodplain farming, perhaps even more can be achieved in these places. There are still threats, such as high land prices in pony paddock areas, development and climate change. The latter may lead to drastic measures to reduce increased danger of flooding of towns and cities through the construction of dams, thereby taming rivers again.

Existing woodland

Although the cover of woodland in Middle England is generally low, there are some denser wooded areas, like Rockingham Forest in Northamptonshire. In most of the region, though, there are only quite small, scattered ancient woodlands and fox covers. A few places have concentrations of relatively new and sometimes large conifer plantations, often on former heathland. Many of the older woods were once intensively managed by regular coppicing, but during most of the twentieth century were either neglected or planted with conifers, and then neglected. This has resulted in the loss of some wildlife, but neglected woods are wilder than those with carefully mown rides and coppice coupes surrounded by tall fences to keep deer out. Ironically perhaps, deer are considered by many conservationists to be a major threat to woodland biodiversity, yet others see the absence of large herbivores in ecosystems as a critical issue. It all depends on the circumstances of course, but there are mixed messages being sent here.

Woodlands are the best places in Middle England to find wildness. They can offer a refuge from twenty-first century civilisation, at least as long as internal roads, tree tubes, external noise and the like are kept to a minimum. Natural processes are being used to rewild a number of damaged ancient woods, for example in Forest Enterprise woods such as Owston Woods in Leicestershire.

Area-based projects

Conservation, landscape and recreation work has increasingly become focused on defined areas. One of the best examples is surely the National Forest. This initiative started in the early 1990s and through its innovative Tender Scheme the area of woodland in the Forest has been increased substantially. The Tender Scheme rewards landowners handsomely for carrying out not just tree planting, but conservation, access and recreation work. It is certainly a model that could be used elsewhere. Community Forests (the smaller tracts of mixed woodland helping to revive the edge of many cities) would benefit from having similar grant schemes, because encouraging farmers to plant trees is difficult. A farming representative memorably said recently that there are only two things that will make farmers plant trees - money and mental illness!

The Great Fen Project, Sherwood Forest and OnTrent are other exciting area-based initiatives. There are more in the early stages of development throughout Middle England. The challenge is to get rewilding higher on the agenda of some. There must be the potential

in the National Forest for wild land, if only because much of the new woodland may well end up unmanaged. Hopefully increased wildness can be achieved in a more positive way though.

Biodiversity Action Plans

BAPs are now a well-established part of nature conservation, enshrined in many a strategy. The principles on which they are based are good – strong partnerships, agreed priorities, objectives and targets. Of course there are problems, not just a shortage of resources to actually do much, but also an implied message that biodiversity can only be increased through targets, planning and control.

Notwithstanding concerns from both sides of the argument, BAPs can be used to further rewilding initiatives. It really depends on how the plans are written. The fact that so many grant schemes now demand that projects contribute to BAP targets means that BAPs must be taken notice of. The important thing is to ensure that the plans include rewilding concepts. Local BAPs perhaps have more flexibility for this than national ones and for example the Leicester Leicestershire and Rutland floodplain wetland Habitat Action Plan was used to help secure funds towards the purchase of 100 hectares of land adjacent to the River Soar.

Quarries

In addition to the numerous sand and gravel pits on floodplains and elsewhere, Middle England also has, because of its geological diversity and location, many other quarries. These have considerable potential for restoration to benefit wildlife and wild land too. The key is the creation of a varied topography with a nutrient-poor substrate and the use of natural processes as drivers in the evolution of the site.

Lafarge Aggregates started one innovative project in the mid 1990s, in the largest granite quarry in Europe, at Mountsorrel in Leicestershire.[9] Following the construction of a new landform, the original restoration plan was to topsoil the landform and then plant trees. The Leicestershire and Rutland Wildlife Trust suggested that instead no topsoil be used and that the trees be left to regenerate naturally (the land has on one side an ancient woodland). To its credit Lafarge was keen on this idea, no doubt partly because of the scarcity of topsoil, and it was supported strongly by its forestry consultant, Leicestershire County Council and English Nature. The results were remarkable, with up to 58,700 trees per hectare growing within five years (R. Pakenham pers. comm.).

Public perception is important and certainly Lafarge had to think hard about what local residents would say about a quarry company appearing not to do anything on land it had turned into a ‘wasteland’. In the event little adverse comment was received.

With many quarries still being worked and more undoubtedly to come, opportunities for wild land are there to be taken. Often mineral companies do not actually own the land they are working, which is a problem, and that the planning system does not seem to be able to adequately ensure the long-term future of restored sites.

The wild side of towns

Wild land is now very scarce in many towns and cities. Open space is at a premium and even where it occurs twenty-first century wealth enables ordered landscaping to rule the day. Acres of grass are regularly mown, trees and shrubs are planted and maintained, and householders increasingly concrete, slab or brick over gardens. One conservationist was galvanised into a scathing attack on the destruction of wild land in London and its replacement with landscaped wildlife areas, making the point that planted or sown trees and other plants are not actually wild.[10]

Contemplation of wild land in urban and suburban situations begs the question do wild places have to be big? There is much discussion of large areas in conservation circles these days, but small wild places have value to wildlife and can bring much pleasure to people too. If more gardeners could be encouraged to let just a small part of their land go wild and local authorities did the same with parks, a great deal could be achieved. The culture of the neat and tidy approach is a major obstacle and wild land is frowned upon as the product of the idle.

A new era of conservation?

While sound science and policy are familiar themes in nature conservation, philosophy is rarely mentioned. The truth is that nature conservation is as much an idea as anything else and ideas have changed over time. We look after what we like, especially charismatic and attractive species. Of course policies and science are both important, but opinions are many and varied on what we are trying to achieve. Long may it be so. Wild land, or wilderness, is certainly an idea and everyone will have an opinion on it.[11]

But if there are exciting wild land projects being developed in the Scottish Highlands and other upland parts of Britain, why bother with Middle England? Aldo Leopold, the

great American wilderness advocate, when considering the apparent acceptance that Grizzly Bears were going to become confined to Alaska in that country, wrote that "relegating Grizzlies to Alaska is like relegating happiness to heaven; one might never get there".[12] We need some wild land everywhere.

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THE SOUTH WEST

Towards the wild - A Dartmoor trail

ECOS 25 (3/4) 50-54 (2004)
A local charity is helping people contribute to improving heath and moor on Dartmoor, and shaping a wilder future landscape.

ADAM GRIFFIN

Moor Trees – reviving Dartmoor

Moor Trees is a charity based in the Dartmoor National Park. We began our work in 1997 with a vision to restore a natural forest dynamic back to Dartmoor. From the inspiration of Alan Featherstone and Trees For Life we grew into a community organisation linked by a strong sense of the tree as a symbol of life.

Moor Trees wanted to bring balance back to the overgrazed moorlands and undervalued woodlands, to create an initiative for new, near-natural or wilding zones. We decided to implement this by:

- planting trees and encouraging natural woodland regeneration
- promoting the value of a natural forest ecosystem, and
- encouraging people to get involved in ecological restoration.

Our national conference in 1999 explored new approaches to grazing systems and conservation in National Parks. Equally it served as a reminder of the wound of the lost UK forest wilderness and it challenged the mindsets that are species-centric and headage payment orientated in National Parks.

Moor Trees has created the Wild Dartmoor Forum, to continue the dialogue between key landowners local authorities, agencies and environmental groups. Interest grew in a feasibility study for an experimental wilding area, but the weight of opinion at the last meeting was to first start learning from similar studies and experimental areas, as there were no immediate resources for our own study.

Native trees and the wild heart

The Dartmoor National Park Authority 2001 management plan states that "it is impossible to predict with any accuracy what the scale and speed of the effects of global warming will be on Dartmoor's landscape and wildlife." The plan goes on to say "National park experts are only now beginning to think about how to measure such concepts as the "wildness" of Dartmoor, even though many would agree that this is Dartmoor's most special quality."

Spurred on by this recognition of wildness in the management plan, we began practical projects, growing and planting trees and implementing several educational projects including traditional storytelling and informative walks and talks on the ecology of Dartmoor.

Our tree planting work linked ancient and secondary native woodland and creating new woods for wildlife benefit. George Peterken's guidelines on minimum managed size of 25 ha (or if unmanaged 50ha)[1], have helped us towards developing our *Wildwoods Service* for landowners. This is a free service, which provides help with making grant applications, free trees from our local community tree nurseries and volunteer help to plant and maintain the trees for up to five years. In return we ask the landowner to enter into a 20-year agreement to safeguard the trees against exploitation. We offer management agreements further beyond this time frame, but asking for more that 20 years could take us into another generation and this may put people off.

In its first year, our *Wildwoods Service*, helped plant over 4.6ha of new woods which linked or extended nearly 50 ha of ancient and secondary woodland. Our seven community tree nurseries around the moor are currently growing over 10,000 local native trees. The species we grow are mainly those that make up the fragments of upland or Atlantic oakwoods that remain on Dartmoor. We only collect from ancient woodland, as it is this genetic heritage which is most adapted to the local conditions, but it may also be the best to survive climate changes.

Wildwoods Community Tree Nursery (Adam Griffin)

The challenge of climate change

As a response to climate change, there is much speculation as to what we should be planting and how we should manage it. The integrity of natural processes and the ability of an intact natural forest dynamic to heal itself, has much to teach us. This is why we try to mimic natural woodland regeneration and encourage our volunteers when planting to learn about this vital natural process. It's fun and quite a challenge to engage with something that is, by its nature, chaotic, particularly as we are often trying to avoid it in activities at home or work.

We get hundreds of people coming out in all weathers to help sow, weed, plant and nurture the trees. For many it symbolises a giving back to the earth from which we take so much and the benefits of the chain reaction that occurs once a tree is established.

Not just trees

The last tracts of a biologically intact wilderness in the British Isles, have long gone, but often the interest in stories of the wild and what it was like to have bears fishing on the Dart and wolves tracking herds of Aurochs, stirs great interest. Our traditional storytelling and our 'time machine' slide shows have been a success and a step towards reclaiming what might be 'forest wilderness' in British terms.

Many people come to these events with the perception of a plantation 'forest'. To quell any fears of our vision being just about trees, we remind them of the medieval hunting forest that still annotates our older maps. We also explain the habitat diversity of past UK forest and of many present temperate forests abroad. This is, however, one end of the spectrum and often hill farmers are at the other end. Hill-farming subsidies have dramatically altered the character of remote regions like Dartmoor. As a result of livestock headage payments, the UK sheep population rose 37% between 1981 and 1993 to reach nearly 44 million.[2] In 1999 alone, £2m was spent on subsidies for hill farming on Dartmoor.[3]

Restoration of heath and moor

Large areas of heather moorland on Dartmoor have been turned into grass moor (now 5,300ha) due to the "'heavy grazing of the heathland, a habitat of far greater wildlife value".[4] As a result, the primary purpose for designating Dartmoor as an Environmentally Sensitive Area (ESA) in 1994, was to promote the restoration of upland heathland, by reducing grazing numbers. It is good news, then, that by February 2004, 70% or 60,000 ha

of eligible land in Dartmoor ESA was under agreement, with all of the 36,000 ha of Dartmoor Common Land either in ESA or under discussion.[5]

Planting at Harbourneford, South Dartmoor (Adam Griffin)

With over 1,000 registered Dartmoor commoners with grazing rights, it has been a remarkable feat for DEFRA to gather most of them into the Environmentally Sensitive Area scheme. It will be interesting to see the effect this has over the next five years. Now the ESA scheme is changing to Environmental Stewardship (ES),[6] the challenge is to continue to take farmers and landowners forward into a new era of conservation land management on Dartmoor.

Bracken has been regenerating rapidly, particularly in the southern half of the moor. It has shaded out important heathland and provided cover for gorse and rowan to start the next step in succession. Now there are over 5,000ha of it, and this could be for several reasons. Overgrazing forces sheep to move to areas often much further away, giving time for the bracken to colonize quickly. The reduction of grazing could also mean cattle are no longer present to push through it and trample it down, and of course rising temperatures due to climate change may also be a factor.

Rediscovering the wild

Along with poor quality grass moor and the change to the agri-environment schemes, these bracken areas present an opportunity for change. There is a chance to create new experimental wilding areas; natural networks of habitats linked in a patchwork to allow species to move in response to climate change and for the possible reintroduction of species extinct from the area. Places where natural regeneration could be allowed to develop with no loss of biodiversity from the other internationally important habitats alongside them.

Whatever the different stresses and priorities on wilding, or rewilding, amongst practitioners, at least we are starting the process of discovery. Moor Trees continues to grow and develop as a practitioner of ecological restoration. We are helping to trigger debate and stimulate action to achieve new, near-natural areas. My hope is that tomorrow we will be linking up Dartmoor with other areas across the country, from Bodmin Moor to the Lakes, from the Norfolk Broads to the Yorkshire Moors, from wildlife corridors to habitat highways!

Extending the woods on Dartmoor (Adam Griffin)

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The Neroche Scheme: transforming landscapes, working practices, communities and lives

ECOS 32 (in press, 2011)

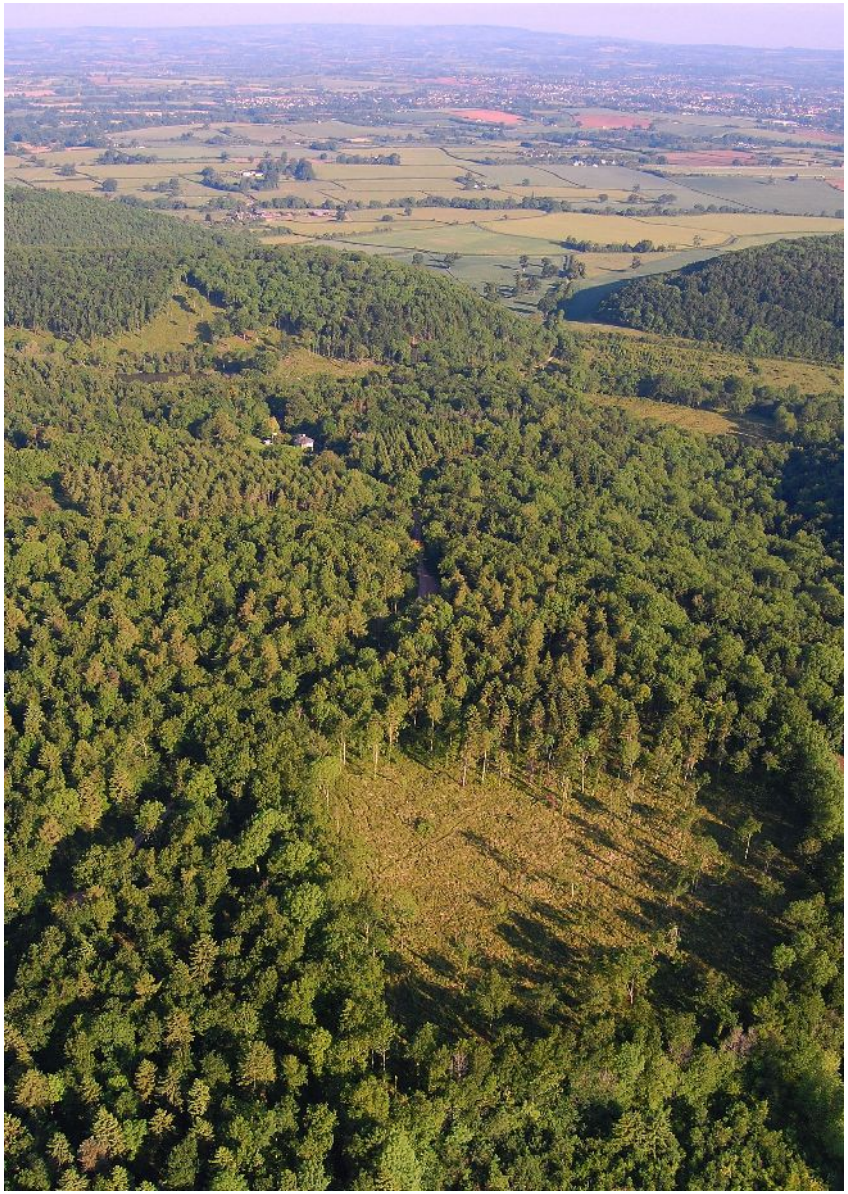
A leading example of landscape scale transformation that includes woodland grazing, habitat recreation, improved access and educational projects is nearing the end of its first phase and engaged in securing a future for multi-purpose forest management with an ethos of public service as well as timber production.

GAVIN SAUNDERS

The scarp slope of the Blackdown Hills south of Taunton has an almost continuously wooded horizon, much valued by local people for its wild secrecy compared to the relatively open moors of Exmoor, the Quantocks and the Mendips. Hugely varied, these woods span the full spectrum from deeply ancient combes of oak, ash and hazel, through planted pine, larch and spruce, to scrubby willow and birch which has only recently reclaimed former wet pastures on the springline.

The larger part of the woods here, close to the border between Somerset and Devon, is leased by the Forestry Commission and collectively this holding is called the Neroche Forest. Neroche derives from the ancient Royal Forest of that name which covers part of its area, and the Norman hillfort of Castle Neroche which overlooks it. The word Neroche has an obscure derivation, thought to originate from the Old English words *nierra* and *raecc-wic* meaning '*the place (kennels) where rache (hunting dogs) were kept'*.

The Forestry Commission leased the estate in the late 1940s, shortly after its acquisition by the Crown Estate Commissioners in lieu of death duties, following the death of the last Lord Portman. The Portmans had held the lands for more than 500 years before that, during which their successive lordships had created lavish deer parks and built a family seat (now vanished) which for a century or so was the finest early Renaissance manor in southern England. They also captured the Duke of Monmouth in a Somerset ditch in 1685, enclosed the ancient commons from the waste and pioneered modern agricultural and forestry techniques, amassing a fortune and a name manifested in the title of Lord Chief Justice and a London residence in Portman Square. But all that had gone by the end of the Second World War, and the Crown, while retaining the fertile pasture lands of the estate for lucrative tenancies, gave over the rest to the new state forestry service.



Neroche forest from the air (Gavin Saunders)

Neroche Forest was never a very good bet for a decent return from plantation forestry. The steep, wet slopes grew excellent Douglas fir and some other species, but the cost of getting them out was always likely to neutralise their value. But nevertheless the imperative to increase the size of the national forest estate drove the planting of these hillsides, and by the 1960s much of the former rough heathland commons had been populated by conifers, while some of the broadleaved woods had given way to mixed plantations.

Fast forward forty years and the Forestry Commission had matured into a much more multi-purpose organisation, seeking to provide a public forest which met the public's desire for places for recreation, the conservation lobby's demands for a secured biodiversity, and the continuing exigency of a viable timber supply. Neroche, viewed during the 1980s and early 90s as a low-priority commercial forest and even considered for disposal, rose to the top of the pile when the cards were re-shuffled in favour of the new multiple environmental objectives.

However, though it presented a great landscape spectacle, and though it contained a concentration of SSSIs, the environmental attributes of Neroche were under severe threat, and its recreational value was poorly realised. Creating a modern forest required a re-balancing, with a shift away from dense conifer towards a more diverse forest structure, re-visiting the truer definition of a forest as a mixture of trees and open space. The fact was that much of the rarest and most iconic wildlife in the Neroche forest needed more open space, albeit sheltered within a matrix of woodland, and even the wildlife of deep woodland could not thrive under the dense shade of spruce, fir and hemlock.

Thus the scene was set for a new investment of funding, expertise and popular interest into Neroche. In 2003 the Forestry Commission began to develop a bid to the Heritage Lottery Fund under its emerging Landscape Partnership Scheme, and with the support of the Blackdown Hills AONB, Somerset and Devon county councils, English Nature and a partnership totalling 17 different organisations, it secured £2 million from the HLF in 2006, as part of a programme totalling £3 million.

The Neroche Scheme proposals were initially driven by the biodiversity-centred goal of restoring a landscape-scale network of open space within the forest. But the HLF's Landscape Partnership Scheme required a wider, more comprehensive approach to heritage in all its forms, and the new partnership was encouraged to address a much broader palette. That impetus was crucial, and ensured Neroche become much more than just a landscape-scale habitat project.

The Scheme set out to address all aspects of landscape heritage through a suite of 23 separate projects[1]. These invested in the fabric of the heritage (habitat restoration and built heritage conservation), sought to make it accessible to all (physically and intellectually),

and improved people's ability to look after it into the future (through true community participation, volunteering, and skills training). The Scheme set out to do more than simply address each of these themes in isolation: it sought to weave together the delivery of overlapping solutions and innovations which require different groups to work closely together. In this way it set out to work with the landscape as a many-faceted whole, and connect that whole to the everyday experience of its people.

The Scheme has been governed by a Partnership Board comprising representatives of the funding partners and members of a Local Stakeholders Group (LSG). The LSG comprises eleven members of the local community who were closely involved in the design of the original bid (and acted as arbiters over which projects found their way into the final delivery plan), and have acted as ambassadors for the Scheme amongst their communities. As a consequence of that experience, latterly the LSG decided to establish itself as an independent charitable company, the Blackdown Hills Trust, to take forward the spirit and objectives of Neroche into the future.

Delivery of the Scheme was led by a core team, employed by the Forestry Commission and based with the Blackdown Hills AONB Partnership in Hemyock. The team comprised a Project Manager, an Access & Interpretation Officer, a Community History Officer, a Forest Works Supervisor, a Forest Schools Officer and two Admin assistants.

Landscape-scale habitat restoration

The dilemma for the Forestry Commission was that, in order to maintain larger areas of open space in the forest, the only practical and sustainable type of management would need to involve grazing. But to create areas of forest large enough to sustain grazing livestock, conifer harvesting would need to be rapid and on a large scale – despite the Commission's preference for continuous cover forestry. The ecological and psychological shock of this was unavoidably severe: however informed local people were of the proposals, once the forwarders and timber trucks moved in, the change was traumatic.

Seven separate blocks of forest were selected for major harvesting to create open ground. All of them were areas which historically had been open before the Commission plantings in the early 1950s. 220 hectares were opened up between 2006 and early 2009, for restoration as open space and wood pasture. A further 40 hectares of conifer was removed from plantations on ancient woodland sites. On each site, stumps were lowered and brash raked and burned on site. For six months after felling, the newly opened areas looked raw and quite bleak. Within a year the land had begun to re-cloth itself, but the shock of that initial change – regardless of the fact that it was only the conifer cover which had been removed – was too much for some local residents who had been used to the old character of the Forest. Some of those remain, to this day, deeply unhappy about what was done.

As a result of this period of upheaval, nearly sixty years after the Commission had first started its afforestation programme in the area, a new landscape began to take shape within the Neroche estate. The network of re-establishing marshy grassland, wet heath, scrub and wood pasture began to be managed using a herd of English Longhorn cattle, acquired by the Neroche Scheme using Lottery funding, and managed for the project by a local farmer.

Longhorns – a new ingredient with an old pedigree

Livestock grazing in woodland, on a large scale and with a positive environment purpose, is not a common feature in South West England, though it has a long pedigree elsewhere. For Neroche, a breed of cattle was needed which would suit a public forest, would thrive in the unconventional conditions of former conifer plantation, and would bring individuality to the Forest, in keeping with its character. Experience from Sherwood Forest and elsewhere led the Neroche Partnership to the English Longhorn.

Maintaining the sward -Longhorns in Neroche forest meadow (Gavin Saunders)

.....*People-friendly Longhorn in forest meadow (Gavin Saunders)*

The English Longhorn is an ancient and beautiful breed. Once an official Rare Breed, Longhorns came close to extinction in the middle years of the twentieth century but have proved themselves to have a valuable role to play in conservation management. They produce high quality beef, they are hardy, thriving on poor, variable forage, and importantly they are docile and deal well with the public.

The longhorns have acquired a strong following, with many people already regarding them as an iconic part of the Neroche forest. There were to be problems for the new project in its first few years however, with some ill feeling towards the cattle, based partly on remaining unhappiness about the change in the forest, partly on discomfort felt by some at the idea of large livestock in a public woodland setting, and partly welfare concerns about the cattle themselves. This came to a head in 2010, when a very small group of local individuals mounted a surreptitious campaign against the project, with secret filming of overwintering facilities and allegations of welfare breaches by the projects' grazier. Fear over the potential effects of this on the farmer's wider business forced FC to end the relationship with him in late 2010 and take the herd away from the Blackdowns for the winter to escape unwelcome attention. At the time of writing, a new arrangement is being finalised with two new graziers splitting the herd between them, financed from Higher Level Stewardship.

Rebuilding biodiversity

The small open glades within the previous conifer plantations owed their survival to the efforts of the local Branch of Butterfly Conservation, who had managed them by hand over many years, keeping back the woody scrub and cutting and raking the grass. Thanks to their efforts, small, vulnerable populations of rare butterflies were hanging on. These small reservoirs of open habitats were expanded and connected by the Neroche felling programme into a wider network.

Nature abhors a vacuum, and very quickly a new tide of vegetation began to sweep across the new clearings. Within three years, ground which in 2006 had been under deep conifer shade and devoid of almost all flora, had amassed up to 15 species of flowering plant per square metre ^{2}. Volunteers who worked with the Neroche Scheme in these early years were able to track this change, recording the reappearance of important butterfly foodplants like cowslips, vetches and trefoils. Alongside this monitoring, Butterfly Conservation's volunteers continued to record the presence of the most threatened butterflies. Wood white responded to the new conditions almost straight away, but poor summer weather made for two successive bad years for butterflies in 2008 and 2009. 2010 was better, but the tenuous prospects for these iconic insects remain difficult to predict. The

recovery of the newly cleared areas into the fullness of their new character will take some years: a fully stable vegetation will probably not be reached until a decade after the initial clearance of the trees. Retaining the butterflies and the rest of the wildlife they represent through that period will require good fortune as well as careful management.

A modern forest for people

Despite the prominence of the felling and grazing work, the wider set of projects in the Neroche Scheme gave it many more dimensions, and a far greater immediate relevance to local people. Creating safe, easy access for all into the forest was a key objective, together with exploring the cultural and historical heritage of the area, investing in the conservation of built heritage features, and widening the scope for education, training, volunteering and the arts.

The Scheme conserved the important Iron Age and Norman fortress at Castle Neroche, and supported the National Trust in work to conserve the iconic Wellington Monument, a 19th-century obelisk built to commemorate the Duke of Wellington. A popular Community History Project helped establish three new local history groups, and built capacity in a range of groups and individuals to research, explore and document their local heritage. Amongst the key achievements of this work was a popular community excavation of a lost medieval village site on the edge of the forest, and the publication of a major heritage book, 'Along the Wild Edge', containing over 30 chapters by local people exploring the area from an archaeological, artistic and ecological perspective [3].

Storytelling in the forest (Gavin Saunders)

Neroche adopted the Blackdown Hills AONB's long-cherished plans to create a long distance off-road trail in the area, and developed a popular 13 mile circular walking and horse riding trail, called the Herepath Trail, to enhance the public's experience of the Blackdown Hills landscape. Named after the Saxon word for 'People's Paths', the Herepath attracted 20,000 visits in its first three years. In addition an all-ability 1km loop trail was established through part of the FC forest to a major new viewpoint over Taunton, creating a highly popular destination for a range of audiences including the elderly and disabled users. In total the Scheme has created, enhanced or interpreted over 60km of off-road trails.

Neroche chose to develop a close relationship with the local arts community throughout, using natural sculpture, storytelling and music to convey the qualities of the heritage in new, arresting ways. The approach was to create art works which were ephemeral, or made from local materials, and add to people's enjoyment of the landscape without marking the landscape permanently. A music and storytelling programme in 2008 reinvigorated local folklore and culminated in an event called Punkie Night, bringing 300 children and parents into the forest after dark for a hugely memorable lantern procession. The interpretation programme for the Scheme also developed innovative hand-held Digital Trail Guides to

enable people to carry words, pictures and sounds describing the landscape with them on their explorations.

Learning in the landscape

Neroche chose to use the Forest School approach to outdoor environmental education to enable children from all primary schools in and around the area to experience the forest landscape as a normal, regular part of their learning. The Forest School ethos focuses on the child rather than primarily the environment, using learning styles that maximise the emotional, social and developmental benefits of education, in an outdoor setting. Practitioners use learning and teaching strategies that raise self-esteem and develop confidence, independence and communication skills, and use woodland settings for the tools they offer – space to explore, materials to use, and boundless stimuli for all the senses. The project has invested in training nearly 40 local school teachers to become qualified Forest School Leaders and Assistants to OCN Level 3 or Level 2, thereby embedding outdoor learning into the ethos of more than 20 schools. The impact on children and teachers themselves has already been profound.

Forest school (Gavin Saunders)

Meanwhile a diverse events programme has used a variety of themes and approaches for attracting people into the forest, including bushcraft, outdoor art courses, green woodworking, archaeological survey, wildlife tracking and practical habitat conservation. Family Bushcraft days have catered for some 300 people, and have been an especially popular way for families to spend time together in a natural setting. The approach here has been to use the forest as a setting, not for didactic teaching about the environment, but simply as a space in which people can be – interacting as families, and finding out more about themselves. The Scheme also included a Health Walks project which has brought hard-to-reach audiences from nearby urban areas into the forest for guided walks and other activities, while a partnership has evolved with the mental health team at Somerset NHS Trust to use bushcraft on a long term basis with patients with psychotic illnesses.

The Scheme worked hard to establish an active volunteering programme, providing opportunities for practical site conservation, wildlife recording, local history research, oral history recording and other activities. Initially the numbers of volunteers were limited, but after about three years the effort suddenly began to pay off, and latterly the number of tasks organised for and by the Neroche Conservation Volunteers has doubled to meet demand. Since 2007 over 1100 volunteer days have been accrued.

Finally, the Scheme ran a successful apprenticeships project, training a team of three local young people to NVQ Level 2 and 3 in Forestry and Conservation Management, to enable them to develop local careers in the countryside. This laid the foundation for a further pilot across the Blackdowns and East Devon which began in 2010, testing a new model for a national forestry apprenticeship.

Evaluating a complex landscape programme

Neroche has provided valuable lessons – good and bad – on the value of a collective approach to heritage conservation, which seeks to transcend barriers between professions and approaches to the management and celebration of landscape. Many of the most exciting moments of the Scheme have come where very different practitioners interact, and previously distinct perspectives coalesce.

The Scheme has learned much about the practicalities and ultimate value of true community involvement, and the investment of time needed to keep people on board effectively. Through the support of the Heritage Lottery Fund the Forestry Commission has been able to put its principles about multi-purpose forestry into practice at Neroche, and reinforce its commitment to maximising the value of the heritage it manages and influences.

An evaluation of the Neroche Scheme carried out by Forest Research in 2010[4] chose the word 'transformation' to describe both the physical and psychological effects of the programme. It summed these up as follows:

- "Transformations in the landscape – the physical opening up of the Neroche forest benefited wildlife but also affected how some people now relate to and experience the landscape.
- Transforming work practices - participating in a holistic project encouraged a broader perspective and inspired some partners to be innovative and visionary, as well as building up knowledge and confidence.
- Transforming lives - some individuals, groups and families found a new sense of enjoyment and wellbeing through activities offered or initiated by Neroche. This gave people opportunities to connect with family and nature and experience their natural environment, local history and cultural context, which they would not otherwise have had.
- Transforming small communities to become 'Big Society' - members of the rural communities of the Neroche area were encouraged and empowered to use their abilities to influence the planning and management of projects and activities in their area, discover new interests and roles in supporting conservation and community activities, and take responsibility for their upkeep through professional training or volunteering."

Future plans

Generating an on-going momentum for legacy projects to succeed the 5 years of Lottery funding for Neroche has proved difficult, frustrated by the recession and causing anxiety about the longevity of the Scheme's achievements. Some legacy funding is secure, but the future of the public forest estate and the Forestry Commission makes the future uncertain. The HLF-funded Neroche LPS comes to an end in September 2011, but the Neroche Partnership remains committed to continuing and building on the progress of the last five years.

The Forestry Commission remains fully committed to the forest grazing programme in the recovering habitat network created by the Neroche Scheme, and is now working with the new Blackdown Hills Trust which will take on a lease over the grazing units, and receive HLS payments to finance the involvement of the new graziers. Putting this project on a long term, economically sustainable footing, by creating an added-value product and/or a valuable pedigree breeding herd, remains the aim, but the partnership has found this a longer, harder road than perhaps it anticipated, with a clear need for HLS support for the next few years to buffer the project while the new graziers establish themselves.

Meanwhile, building on the challenges and successes of the forest grazing project within Neroche, FC has worked with Butterfly Conservation, the Blackdown Hills AONB and Natural England to initiate a new conservation grazing project across the wider AONB, called Beef & Butterflies. The overriding intention here will be to bring the Neroche approach to community participation to bear on the thorny issue of collaborative working within the livestock sector, seeking to persuade owners and managers of marginal wetland habitats on the Blackdowns to work more closely together, sharing experience and finding common solutions. Beef & Butterflies has secured funding through the Blackdown Hills' Local Action for Rural Communities (LARC) programme for an initial three year project.

Neroche has also secured funding through the Woodland Carbon Task Force, which has also been placed with the new Blackdown Hills Trust, for a programme of new work exploring the scope for more effective community engagement in managing underwood in FC woodlands, and for encouraging an increase in new woodland planting across the wider Blackdown Hills.

Alongside these programmes, the enthusiasm and vigour of the volunteer network created by Neroche is beginning to be focused onto the evolution of a new, permanent community woodland centre at Young Wood, in the heart of the Neroche Forest, where the spirit of Neroche – people and nature in a forest for all – can take deeper root.

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THE NORTH EAST

Eee, it's wild oop north!

ECOS 25 (3/4) 29-33 (2006)

This article describes some of the issues and progress on wild land and rewilding in Northern England, including Geltsdale and the North Pennines AONB.

STEVE CARVER & PETER SAMSON

The wilds of the North

Thousands of years of human history have created a mosaic of different land uses, in which even those that appear to be wholly natural are in fact the product of human action in recent or more distant times. Nevertheless, there are parts of northern England that do retain a feeling of wildness; of wide open vistas uncluttered by obvious signs of human action, a sense of remoteness, solitude, tranquillity and of nature in the raw.[1] These areas tend to be in the uplands, though selected forests and coasts also engender some of the same feelings. Recent changes in the economy of upland agriculture in England and Wales, brought on partly by economic forces and partly by crises such as BSE and FMD, have created an opportunity for re-wilding in marginal or less profitable areas.

Defining wild

Definitions of wildness, wilderness, wild land and natural areas are frequently contested. James Fenton goes some way towards providing us with working definitions of wilderness and wild land.[2] These are:

> **"Wild land:** An area where natural ecological processes are paramount (can be of any size).
>
> **Wilderness:** An area little affected by current civilisation where nature and natural processes are in charge, and where people can isolate themselves from other people." (After Fenton, 1996, p.17)[2]

Although northern England possesses some of the largest tracts of land outside of Scotland that fit this definition of wild land, the emphasis in England and Wales might best be placed not only on conserving existing areas, but on developing new wild lands where the opportunities arise.

The National Parks in England and Wales, and now in Scotland, are together with other conservation areas such as Areas of Outstanding Natural Beauty (AONBs) and National Nature Reserves (NNRs) are key candidates for rewilding schemes because of favourable management and planning structures and the wilder character of these landscapes. Indeed, the notion of rewilding got a major prompt in 1991, when the Edwards review of National Parks of England and Wales proposed "a number of experimental schemes on a limited scale should be set up in National Parks where farming is withdrawn entirely and the natural succession of vegetation is allowed to take its course".[3]

The Council for National Parks (CNP) then outlined plans for enhancement of the wild qualities of National Parks in its 1998 publication *Wild by Design*.[4] The document describes two broad categories of wilder areas:

> **"Semi-natural areas,** which appear natural but are in fact influenced by management for agriculture or forestry.
>
> **Near-natural areas, where the land is totally divorced from agricultural or forestry use – in which natural processes are encouraged to maintain the diversity of habitats, and vegetation is free to vary naturally with variations in the physical environment."Mapping what's wild**

The authors have mapped landscape variables pertaining to wildness and rewilding potential using Geographical Information Systems (GIS) and national datasets to map the wilderness continuum according to remoteness, both from settlements and mechanised access, and naturalness of the landscape in terms of absence of obvious human artefacts and ecological integrity of the land cover.[1] This approach has been published in an interactive form to survey public per-ceptions of wild land in Britain. http://www.ccg.leeds.ac.uk/teaching/wilderness/.

A typical map of the wilderness continuum for England and Wales is shown in Figure 1, with inset of the northeast in detail. Boundaries drawn on the inset map show how wild land areas intersect with designated conservation area boundaries including the Northumberland National Park and North Pennines AONB

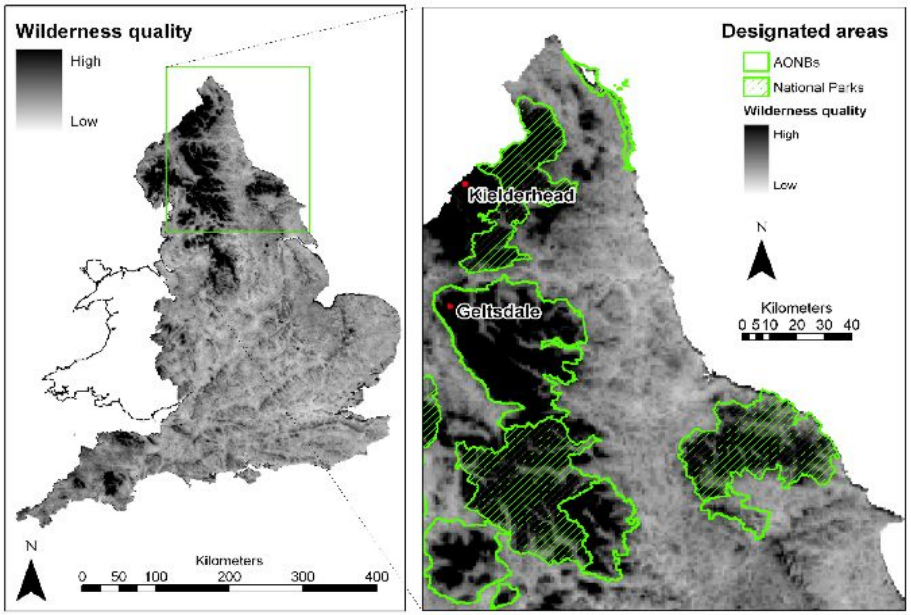

Fig. 1 Mapping wilderness quality in the North East

Rewilding the North-east

Several rewilding projects are local to the Northumberland National Park and North Pennines AONB and their respective management plans refer to enhancing naturalness and biodiversity through appropriate land management and agri-environment schemes. With the renewed interest on natural processes as drivers for nature conservation, a number of areas in northern England illustrate different approaches. There are examples on privately owned land (e.g. shooting estates and utility companies), areas in public ownership (e.g. Forest Enterprise and Ministry of Defence) and reserves owned by conservation bodies (e.g. Wildlife Trusts and RSPB). Some examples are set out below.

Kielderhead (Forest Enterprise)

One of the longest standing examples of rewilding (although this term is not used) without the influence of agricultural grazing has taken place at Kielderhead, deep in the Kielder Forest on the border between Northumberland and Scotland. The area had originally been intended to be planted with conifers, but by the time the foresters reached the area it was realised that the altitude and climate were too severe. As a result, this 3,500 ha area has remained unplanted. The eastern half remained split between three agricultural units, with the western half having no management input over 30 years. The site forms part of the Kielderhead and Emblehope Moors SSSI.

In the case of Kielderhead 'no management input' means no sheep grazing, other than from occasional escapees from the neighbouring farm units, grazing by a flock of feral goats, varying in size but currently at about 70 individuals, natural grazing by deer, no pest control and no burning. The impacts of this has been development of a lush vegetation with heather regenerating naturally, very little development of shrubs because of the grazing by goats, and little in the way of seed source, some regeneration of Sitka spruce and an interesting bird community with moderate numbers of red grouse, hen harriers, peregrine falcon, merlin, golden plover, dunlin and other upland waders.

This area was the subject of a report commissioned by the Countryside Agency on the social and economic effects of developing new wild land. The report concluded that taking extensive areas out of agricultural production for rewilding projects would lead to negative social and economic impacts for the region, but did concede that opportunities exist for extending and enhancing areas of semi-natural habitat and developing nature-based tourism across the region.[5] However, the report was published ahead of recent CAP reforms, and so may paint a less than true picture of rewilding opportunities under the new regime of the Single Farm Payment.

Geltsdale

The RSPB Reserve at Geltsdale in the northwest corner of the North Pennines AONB is one of the RSPB's largest reserves in England. The reserve consists largely of high moorland and blanket bog, with a substantial coverage of woodland on the lower slopes. An ambitious project is now under way to redevelop the open woodland coverage of the historic wood pasture known as the 'Kings Forest of Geltsdale'. The project will create a 200 ha area of woodland pasture, combined with the retention of farmed areas, which will enhance the local landscape in accordance with AONB Management Objectives. The area has been temporarily isolated by fencing, and trees have been planted to kick-start the regeneration process. Planting is at a variety of densities with up to 40% open space. Extensive cattle grazing will be introduced once the canopy cover is beyond browsing height.

Wild Ennerdale

Since 2000 the National Trust and the Forestry Commission have been devising proposals for a combined management plan for Ennerdale in the Lake District. The wild character of Ennerdale was identified as being of primary significance. In 2002 United Utilities joined the partnership and a vision for the project was agreed: "To allow the evolution of Ennerdale as a wild valley for the benefit of people relying more on natural processes to shape its landscape and ecology". The project is enabling natural forces to become more dominant in the Ennerdale Valley. It hopes the resulting area will provide special conservation habitats and an inspirational visitor experience. The project is explained in full elsewhere in this edition.

Naturalness and wild land

Both the management plan for the North Pennines AONB and that of Northumberland National Park Authority identify large sites where a minimum intervention approach can be established, monitored and reviewed. The North Pennines AONB Management Plan states: "Though active management has resulted in the countryside we see today, in some places the intensity has been such that wildlife has survived in spite of it, rather than because of it." It suggests that an approach that promotes naturalness in conservation can have the following advantages:

- scrub, woodland and rocky ecosystems will be restored more cheaply and less contentiously;
- natural dynamism will be restored which, in time, will promote habitats of increasing complexity;
- such landscapes would be richer in wildlife which is visually appealing, with more texture and seasonal colour;
- more natural landscapes can provide refuge for species needing a range of habitats, such as black grouse; and
- promotion of the conservation of common resources to help us understand the capacity of nature to recover form unsustainable exploitation.

The locations of these rewilding projects are shown in Figure 1a. These projects already lie within some of the wildest parts of the countryside, but are amongst large tracts of wild and remote country that offer up further potential for re-wilding projects.

Seeing the benefits for real

In *Wild by Design* the CNP highlights the challenge of rewilding as having "the commitment to leave minimal intervention areas on a much larger scale (landscapes of thousands of hectares) and over much longer periods (hundreds of years)".[4] The real challenge is the successful integration of rewilding objectives with primary industry such as farming and forestry, or in Fraser-Darling's words "Wilderness and Plenty".[6] The key to the challenge will be selling the benefits of rewilding to the farmers, landowners, planners, politicians, conservationists, pressure groups and local and visiting public, as an alternative to existing land uses. Already, a number of dedicated organisations, individuals and embryonic groups are attempting to do this.

More projects like Geltsdale and Wild Ennerdale, that illustrate the issues for real, will help us all learn from the experience.

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Rewilding the Tweed

ECOS 25 (3/4) 24-28 (2006)
This article looks at habitat improvement work focused on the River Tweed and its tributaries. Concentrated in the sparsely populated headwaters, in a landscape dominated by the effects of overgrazing, the work shows how organisations working in partnership can have an effect at the catchment scale.

LUKE COMINS

The river, its catchment and its landscape

The Tweed Rivers Heritage Project has begun to have a real impact on the expansion of native habitats of parts of the Scottish Borders and North Northumberland. The Tweed catchment is over 2000 square miles and straddles the English-Scottish Border. It is a rural area with farming, fishing and forestry being some of the mainstays of the economy, against a background of decline of the once famous textile industry. The river and its associated heritage is one of the region's biggest assets. Tweed Forum is an umbrella organisation which promotes the wise and sustainable use of the Tweed and its tributaries through integrated catchment management and planning. There are 30 members including many organisations with an interest in the management of the Tweed on either side of the English-Scottish border.

The Tweed Rivers Heritage Project (TRHP) was borne from a desire of the membership to take river management beyond the confines of the channel and look at the wider picture. The Project was developed by the membership "to conserve, enhance and promote the natural, built and cultural heritage of the Tweed and increase the recreational opportunities and quality of life in the region." After a thorough consultation process; rigorous project rationalisation and integration, the resulting project consists of 50 schemes with a total spend of £9m. Half of this comes from the Heritage Lottery Fund whilst the rest is made up of a complex funding package with over 60 different funding partners.

The project recognises that the landscape is a function of natural, social and economic history and in managing this 'tapestry' it is necessary to look at all the threads that make it up. The 50 projects fall into four main categories: the natural heritage including wildlife and landscape conservation; built and cultural heritage associated with the river; access and recreation improvements in and around this heritage; and education and interpretation of the river and its heritage.[1]

The rewilding work revolves around key species, habitats and landscape. The majority of this work has been carried out in the more mountainous headwaters which represent the most remote and undeveloped parts of the catchment. These include the Cheviots bounding the South of the catchment, Tweedsmuir and Moorfoots to the West and Lammermuir hills to the North of the catchment.

Tackling habitat loss

There is one dominant ecological problem that has shaped these head water areas into their present state and that is the loss of habitat. This is largely due to agricultural intensification and, in particular, overgrazing. Due to historic clearances, the region has one of the lowest percentages (less than 1%)[2] of ancient woodland in the UK despite having a history of ancient woodlands, such as the Ettrick Forest and Jed Forest. Much of the natural habitat has been cleared or drained to improve the pasture potential and the high stocking densities have meant that the grazing pressure has been intense. In addition to the clearance of trees and shrubs to increase the grazing area, there has been a corresponding loss of heather and herb rich meadows; wetlands have been drained and what vegetation remains is reduced to a short turf of very little ecological value. There are no fallow periods so natural regeneration can never take place. This has led to an upland landscape dominated by bald rolling hills only interrupted by the occasional block of non native commercial forestry.

In the riparian zone the loss of lush marginal vegetation around the watercourse through severe grazing combined with poaching by livestock has led to a decline in the integrity of the banks particularly during high flows. This is largely because healthy marginal vegetation binds the bank substrate together and acts as a cushion against high flows. This increased susceptibility to erosion leads to wide, shallow streams that have little wildlife value due to the complete lack of suitable habitat.

The irony is that it is often perceived by the general public as a wild and starkly beautiful landscape when in fact it is degraded and unnatural.

Rewilding - the objectives and the achievements

Whilst some habitat work was carried out prior to the project, much of it was done in isolation and it is only since the TRHP that efforts have become more integrated and

strategic as the bigger picture has been taken into account. A number of organisations have been carrying out similar types of habitat work in the upland areas under the TRHP although each of them have different approaches.

The main players with a riparian focus include Borders Forest Trust, which improves and expands native woodland through sustainable management; Northumberland National Park, with a wide landscape and biodiversity remit; and the Tweed Foundation which is concerned with fishery enhancements (Salmon fishing bringing in £13m a year to the local economy and supports over 500 jobs[3]).

All of these organisations work with farmers and landowners to increase and restore these lost habitats although this is conditioned by the needs of the farmer and loss of grazing area. Many of the land owners are keen to work on a far greater scale, but they are restricted by the majority of the land being under tenancy arrangements.

Despite these differing remits, the nature of the work remains similar with the two main prescriptions being the exclusion of livestock through fencing to allow natural regeneration, and the planting of native trees and shrubs. The effect on aesthetics and biodiversity is easily apparent in such an open landscape and the success can be gauged by the status of Local Biodiversity Action Plan indicator species such as Black Grouse, Ring Ouzel, otters and Atlantic Salmon which rely on the restoration of the whole ecosystem to maintain healthy numbers. The recent return of ospreys to the upper Tweed acts as a prime indicator of wildness and the Forum has actively promoted the tourist potential of such an iconic species.

Once fenced off, the riparian vegetation quickly takes off and streams narrow and become deeper providing better cover for fish. Shade from trees and shrubs guards against high water temperatures in the summer and the organic input from leaf litter increases the invertebrate populations and thus the food supply of fish. The increased vegetation enhances the microclimate and provides food and cover for a far greater variety of insects, birds and mammals.

The main difficulty in getting these projects established is the reluctance of farmers to lose valuable pasture, particularly as the valley floor offers some of the best grazing. To address this the Borders Forest Trust has reintroduced wood pasture up the valley sides. The project uses robust individual box tree guards that do not reduce the grazing area yet will have massive landscape and biodiversity impact in years to come.

River Lilburn - before fencing (Tweed Forum)

River Kilburn - after fencing (Tweed Forum)

The other big player in the uplands is the Forestry Commission with a very large landholding and with objectives much broader than timber production. The Forum has worked closely with the FC on opening up the often ecological barren old style conifer plantations and planting native species along the stream banks. Work to improve conditions for black grouse includes 'feathering' the forest edges to create a glade habitat, creating ponds and scrapes, blocking drainage ditches, scarifying rank heather and planting native trees. All this has additional benefits for the character of the landscape.

There are a host of other Forum members who have complimentary projects under the TRHP banner who are all restoring lost habitats including FWAG (ponds and tress), Scottish Water (native replanting around its upland reservoirs) and Scottish Borders Council (tree grant scheme) and Northumberland Wildlife Trust (restoration of raised mires).

The sum of the parts

The combined actions of many bodies have delivered benefits for biodiversity and the landscape along the Tweed. The accompanying map shows the work of just two organisations (BFT – Borders Forest Trust and TF – Tweed Foundation) involved in the project and how it is beginning to join up with the remnants of ancient woodland. This together with agri-environment and foresty grants such as Rural Stewardship Scheme and Woodland Grant Scheme are beginning to create a robust ecological network. However, efforts are often frustrated by being forced to compromise on scale, and this will only change through measures which encourage lighter stocking densities.

A further frustration is that the economic benefits are often not recognised. These include the more obvious such as fishing, but also the increasingly important nature-based tourism sector to which the success of the osprey and salmon viewing projects on Tweed are a testament. There are also the savings that could be made by reducing the flood risk to downstream areas by slowing the run-off and reducing the 'peak' of flood hydrograph.

Tweed Forum will continue to work with its members to encourage further habitat work on the ground. It will also continue to influence CAP reform and the implementation the Water Framework Directive, so these complement and add value to these efforts, rather than standing in the way as they have done in the past.

River Till - before (Tweed Forum)

River Till - after (Tweed Forum)

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THE NORTH WEST

Wild Ennerdale – letting nature loose

ECOS 25 (3/4) 34-38 (2006)
The bodies responsible for managing Ennerdale are letting natural forces etch out the future.

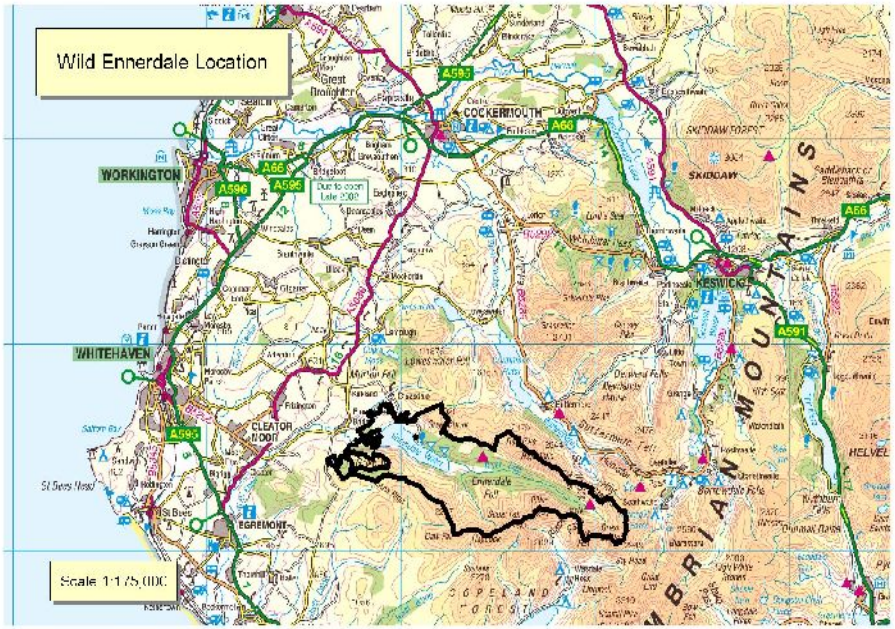
GARETH BROWNING & RACHEL YANIK

> "As he approaches the vale of Ennerdale, in whose bosom one of the most enchanting of the lakes is seated, he will find the rugged scenery of the country gradually refining, and as he winds round the foot of Pillar, he will discover a vista which cannot fail to strike the most indifferent observer with astonishment and pleasure"
>
> **Extract from William Wordsworth's *A Guide to the Lakes*, 1789**

A wild valley, a violent river…

Ennerdale has witnessed many changes to its landscape since Wordsworth wrote the above remarks over 200 years ago. During that time, the main influences have been farming practices, water management and the arrival of forestry activities in the 1920s. More recently, a new change is developing, supported by the three main landowners in the valley: the Forestry Commission, National Trust and United Utilities, driven by a range of economic, social and environmental factors.

The Ennerdale valley is located on the north west fringe of the Lake District National Park. The valley extends to around 4,500ha with an altitude range of 770m and valley width ranging from 1.7 to 5.2 kms. The majority of the southern ridge (1498ha) is a Site of Special Scientific Interest (SSSI) and cSAC, designated for being one of the best examples of altitudinal succession in England. This generates some of the most dramatic, awe-inspiring scenery in Cumbria. In the valley bottom flows the River Liza, one of the most wild and geomorphologically natural rivers in England. The Liza is not under direct human influence anywhere along its length and is constantly eroding new courses (moving as much as 100m in a flood event in the late 1990s) and regularly depositing vegetation and trees downstream. The western end of the valley is dominated by Ennerdale Water (338ha), a SSSI designated for its lakeshore habitats and flora and fauna which includes examples of nationally rare and local species, including the Arctic Char. Walking into the valley, the visitor is struck by the spectacular craggy mountains, numerous waterfalls, violent river, green conifer forest, mixed woodland and perhaps most significantly, the sense of remoteness and solitude.



Wild Ennerdale in the western Lakeland

What's wild about Ennerdale?

In the late 1990s the Forestry Commission and National Trust both agreed they needed a shared vision for the valley. Over the next couple of years the two organisations held numerous meetings and consulted with local communities, visitors and a number of landscape ecologists.

In 2002 the original partners were joined by United Utilities (owner of Ennerdale Water) and the 'Wild Ennerdale' partnership was formed, with a philosophy encompassing two key areas:

Biocentric - ecologically based: encouraging the greater involvement of natural forces in the long-term development of the valley in terms of the distribution, extent and variety of habitats and ecosystems that make up the future character of the valley.

Anthropocentric - people based: recognising that wildness is a human experience. Seeking ways to increase the sense of wildness by limiting the visible impact of people in the valley but at the same time encouraging the involvement of people in employment, economy and recreation.

The partners believe Ennerdale has wild characteristics in the context of the English landscape due to:

- the large scale of nature
- a sense of remoteness and solitude
- absence of intrusive man-made built structures
- opportunity for unrestricted and challenging exploration and adventure
- plants and animals of special ecological value
- impressive geological features
- cultural-historical features
- ecological processes freely shaping the landscape

The braided River Liza (Gareth Browning)

Looking forward, not back

'Wild Ennerdale' is not about re-creating a past landscape, but about allowing the character of the valley to develop into the future.

The vision agreed between the partners is to "allow the evolution of Ennerdale as a wild valley for the benefit of people, relying more on natural processes to shape its landscape and ecology". As a result, there is no fixed 'end point' for Wild Ennerdale as natural change often occurs over a long period of time, seldom responding to targets, deadlines and funding criteria.

Since the partnership was formed in 2002, efforts have been focused on gathering together a portfolio of information about the valley. A full vegetation survey was be completed in 2004 (2,649ha has already been surveyed by ecologists, with 34 National Vegetation Classification habitats identified[1]). This will be added to the Historic Landscape

Survey[2] completed in 2003 which identified 552 individual archaeological sites. The earliest occupation of the valley dates back to the Bronze Age and the report described Ennerdale as being of "exceptional archaeological importance."

Ennerdale (Gareth Browning)

What detracts from wild character

Much work has been done through discussions with local people and visitors to the valley to identify what they view as wild features in the area, and what features detract from the sense of wildness people experience.

Examples of detracting features people have identified include:

- the network of forest roads & tracks
- vehicle movements
- blocks of closely planted spruce
- stark boundaries between different land use
- areas of recently felled forest
- fences and signs which restrict the sense of openness; and
- the lack of diverse vegetation in some areas.

With help from a newly established 'advisory group' the partnership is drawing up proposals to reduce detracting features, enhance the wild features and give natural processes a greater involvement in the future development of the valley. GIS has been used to show the spatial distribution of 'wild' and 'detracting' features and has helped in understanding and identifying the distribution of the 'sense of wildness' across the valley.

The contradictions of conifers

The partnership is also exploring the future of forests and grazing and how the associated natural process can be given more freedom. Through the past four years of discussion, results show that people have mixed views about the conifer forest, viewing it as both a wild and a detracting factor. Specifically, the large groups of conifer in the central valley, the larch by Ennerdale Water and areas of well thinned conifer woodland is viewed by most to add to the character of the valley as a wild place. On many occasions, people remark that it reminds them of Canada or Scotland and that the combination of conifer, river, scree, crags and mountains within one landscape is very important. In contrast, the dense spruce and regeneration at the eastern end of the valley is seen as a significant detracting factor. This could also be attributed to the narrow width of the valley and the monoculture of the forest. To address this issue, all the remaining mature (seed bearing) spruce at the eastern end of the valley is currently being felled and will, over the next five to eight years, be replaced by the planting of native broadleaves produced from locally collected seed. In addition, there will be less clear-felling and restocking, and the forest will be allowed greater freedom to develop for itself. Levels and distribution of regeneration versus grazing will determine where and what species should regenerate.

The future of natural grazing

The Partnership wishes to see a greater involvement in natural processes influencing grazing patterns, with a move away from grazing that is wholly determined by land ownership, fences and subsidies. One natural process currently missing is a large dynamic disturbance factor which could be provided by introducing cattle. The introduction of cattle is planned to a pilot area of 145ha, with the potential to extend into adjacent sites over a 10 year period, covering an area up to 2000ha. The aim is to reach a point where the herd is

able to develop and explore the valley free from intervention and control. This clearly raises many issues, not least of which include public safety and animal welfare, however the partnership is keen to explore these with the appropriate bodies and is not committed to any particular timescales.

The work of Wild Ennerdale will involve setting certain 'trigger levels' for intervention. For example, were the valley to become significantly forested and obscure views of the crags and river, this would trigger intervention as views of these features contribute significantly to the sense of wildness.

Ennerdale: after removal of spruce in the foreground (Gareth Browning)

The next century…

So, what will Ennerdale look like in 100 or more years time? The reality is that we don't really know. The direction in which natural processes shape the valley and the influence of external factors, along with the degree to which we choose to let go or intervene as land managers will all have an effect. What happens beyond the realms of the present partners will be determined by future generations. We hope that the Ennerdale of the future will be a more diverse and robust environment and a major enhancement of what is perhaps its most significant characteristic – the sense of wildness.

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SCOTLAND

Alladale's wilderness – seeing through the fence

ECOS 29 (3/4) 18-24 (2008)
How far does Alladale's concept of fenced-in predators aid the cause of returning former native species to Scotland?

PETER TAYLOR

Following the September 2008 conference on species reintroductions at Findhorn[1], the participants were hosted at three different projects across Scotland: Alladale in Easter Ross; Glen Affric; and Carrifran in the Southern Uplands. Of these, Alladale is pressing ahead with bringing back the wolf, lynx and bear, albeit in restricted enclosures, whilst Glen Affric[2] and Carrifran[3] are pursuing native woodland restoration with landscape-scale management, and only much later envisage the full spectrum of predator-prey relations. The Alladale project may not see itself as integral to the debate on predator reintroductions, but many others believe it has great influence given its tangible goals of having large carnivores in place soon, and its high profile in the media. In this article I discuss the strategic issues presented by the project.

The House and the Glen

As we entered the Alladale estate, our motorcade wound its way up to the big house, via a newly bulldozed tradesman's track to the rear and the barn-cum-workshop where Alladale's project manager Hugh Fullerton-Smith briefed us on the project's progress amid all the paraphernalia of a construction operation. Outside stood a gleaming Japanese truck donated to the project. Overalled men scurried amongst the recycled steel beams, halfway shot-blasted and destined for new-build accommodation. A team of Polish builders would be at work – apparently there were no local takers.

In the briefing we heard the context and history of the Alladale Wilderness project , a story now familiar to the public from the recent TV coverage: the house is family home to Paul Lister and also a high-class hunting, shooting and fishing lodge. One reason he chose the estate when scouting for land in the Highlands was that it contains no Munros, which are a magnet for hill walkers who tick-off these peaks above 3,000 feet. Lister's ultimate aim is to bring back large carnivores to the 25,000 acre estate, and hopefully combine the holding with at least one neighbouring land-owner to double the overall size. This could happen by collaboration with an adjoining estate, or through acquiring one when the opportunity arose. Indeed, there was gossip about the prospective sale of a neighbouring holding during our visit.

Alladale showing regeneration after deer-culling (Peter Taylor)

A small fleet of new Landrovers – not the flashy models, but the genuine workhorses, took us up the glen to the mobile sawmill and the new hydro-station that will service the estate's electrical needs and export a surplus. Two itinerant Kiwi guys worked the sawmill. Elsewhere on the estate, half a dozen men, including locally skilled Scots have been

enlisted on the project to use their traditional land management skills. They also oversee visits from local schoolchildren, stretching their skills as they help explain practical estate work, and fishing and hunting, to eager young minds.

Coming to terms with the fencing

On the way I looked up at the rising hills either side of the glen – badly scarred by new fences. A large wild-boar enclosure and another for the recently imported pair of Elk (Scandinavian Moose), and then a whole series of rectangular pens along one side of the glen marked the experimental smaller wild-boar enclosures – about half-a-dozen, with varying family groups of boar. An Oxford University wildlife biologist oversaw that part of the project – to test out the boar as 'management tools' in controlling bracken and scarifying the heather-covered slopes for future tree planting. Deer had been culled from the valley in order to aid regeneration, but there was constant ingress from above.

Scars that will heal in time - fencing for deer exclusion zones (Peter Taylor)

The boar pens had smaller holding enclosures of galvanised metal, an assortment of buckets, feeding troughs and shelter for the pigs, which it was admitted, were of dubious parentage and in any case, once the study was complete, were destined for the local sausage parlour. They looked very wild to my untrained eye – quite thrilling on first close-up encounter, but the feeling rapidly wore off as they huddled for warmth, and watched intently to see if any extra food would be forthcoming. Some of the pens were half stripped of vegetation.

Penned wild boar - an experiment in bracken control (Peter Taylor)

Our tour took us next to the larger enclosures. The zoologists were studying a family group of boar that built dens but were as invisible as nature intended. The fences were electrified and pocked with day-glow notices of the danger. It appears that one public body required such a warning not to enter, and another regarded them as illegal under the right to roam laws. We learnt that the wider plan to bring back predators was caught in a similar wrangle – with ramblers objecting to the closed nature of the reserve, and government animal welfare regulations opposing keeping predators and prey in the same enclosure.

Finally, I saw the Elk. The male had his head stuck in a blue bucket of specially constituted moose-mash. I contemplated a photo through the steel mesh. Then I saw the female emerging shyly from a birch copse, and again there was a little thrill, momentary, as this prehistoric mammal stood amid Scotland's trees once more, and I could forget the fencing.

Elk - in Scotland after several thousand years absence (Peter Taylor)

The business ethos

Hugh Fullerton-Smith admits they have made some mistakes. They are doing their best to heal the fencing scars, which were a talking point at a previous visit from Trees for Life, who run the Glen Affric restoration project where much fencing has been installed with minimal landscape impact. Alladale is working hard to employ local artisans and bring much-needed employment through the project's support facilities. They are beginning an outreach to schools and the local community. They will build new bothies in an environmentally friendly way, sourcing local materials. The long term vision is to take away the fences (well, the internal ones – because we are reminded, this is not a re-introduction project *per se*). In reality, it is a safari-park on the South African model. As such, it is emphatically a business. It may offer lessons for others, but that is not its intention. It will provide jobs and an educational experience – but the main business, for now in the early stage, is still rooted in the deer-stalkers and fishermen who stay in the hotel.

We didn't get to meet Paul Lister. But a few days later I caught one of the Alladale programmes from the BBC TV series *the Real Monarch of the Glen.* It was very candid – a reality TV show that laid bare the personal dramas of the project, such as the departure of the hotel manageress under the stresses of advertising and running such a remote business. Paul gave the staff a stern talk-to about business acumen – including cutting the portions on the venison-with-everything menu.

Gaining acceptance?

Outside of the fence, the TV programme interviewed Cameron McNeish, a leading figure in Scotland's outdoor recreation movement. He has taken a defiant stance. In aggrieved tones, his voice represented 500 years of colonial oppression, dispossession and imposed values – even if all he talked of was the right to roam, now enshrined in Scottish law.

I suddenly felt the fragility of this project. If it did not meet the business goals, if the opposition prevented the dream, then how long would Paul Lister persist? Everything depended upon this one very rich man's whim. The whole estate could be sold on with hardly a dent in its traditional virtues. Is this a model for reintroduction projects in the Highlands? There cannot be room for more than two or three such 'Pleistocene Safari Parks' – and clearly, any further large scale fencing projects would encounter even fiercer opposition.

Given the lack of acceptance in some quarters, could the project learn from others' experience. Firstly, there is a spectrum of rewilding, and it might serve to explore the further reaches, as exemplified in Glen Affric and Carrifran. In the former, the land is held in a trust for all time and over 20 years the Trees for Life team has gained the active cooperation of nearby estates, the Forestry Commission and the National Trust - largely because there has been a great deal of giving of energy to those outside projects. Trees for Life worked with others planting trees voluntarily for two decades before being given an estate of their own. They held the dream – not just of a complete ecosystem but of a returning *relationship* to the forest, its animals and plants, and the spirit of wholeness that it exudes. The *wild* has to come from *within* first. Otherwise, people become mere watchers or worse, entrepreneurs and other *takers* where the sense of giving something back is lost. This can apply as much to adrenalin thrills as to high-quality venison-filled lunch-boxes that merely and momentarily make people feel connected to something wilder.

Anyone who has spent time with indigenous peoples notices first and foremost the gratitude and the giving – the *reciprocal* nature of the relationship. But what have we, in our vulnerable humanity and short lives, immersed now in an all-pervading economy, got to give to the land, to the Glen, and the spirit behind it all?

Finding friends

Two days later at Carrifran in the Southern Uplands, the smaller band of visitors was guided through the terrain. We reached an almost invisible turf-roofed bunker with a little stove, where the track faded, and all around, after only eight years, the forest was visibly returning and all trace of human exploitation receding. I realised that although it would not describe itself as such, this whole project was a ritual of a kind – not just a dream of something wilder returning that is beyond species and habitat plans, European directives or lottery grants – but an element of belonging shared by the holders of the land, the many hundreds with their stake in the project's goals. Of course, Carrifran also represents a constituency of people who have thought through the scientific basis, the practical management issues, the communication needs, and created a network of committed and skilled members who undertake tasks to manage and nurture it.

The contrast with Alladale is stark. Paul Lister risks creating opposition that runs deep in the Scottish psyche. It could be viewed as an old-style colonial enterprise where the wilderness becomes playground for a recreational indulgence – a man's world of hunting, shooting and fishing. It is also a businessman's adventure. Everyone works for a single landowner who is finite upon this earth. No one else can be truly committed, and there is no constituency of people who feel emotionally linked to the project and will strive to nurture it, and fight its cause for the long term.

These issues are inherent in the private landlord model. For the project to be successful it needs to find a mutually acceptable solution to the access issue as well as a way through the animal welfare legislation and the ecological dynamics of enclosed herbivores and predators. Then it would be an exemplar - one of a number of different schemes from which lessons can be learnt, across different sectors. Visitors would be able to see a spectrum of ecological relations and it would stand as a major educational project. As a business model for the wider private sector, however, it cannot be repeated without compromising its unique selling point – how many such safari parks would be viable in the Highlands?

Can the project be fine-tuned to tackle some of these issues? The outer fence is a problem, but then without the enclosure it is doubtful that permission would be granted for elk and boar as the project would flag up all the legal problems of re-introductions. On the organisational side, there could be scope for a wider membership and involvement (a Friends of Alladale), perhaps by setting up a charitable organisation or a link with other charitable bodies in a wider group whose membership and grant-aid could equally provide for traditional skills and employment. There are many models – some of which would keep the private landlord status and perhaps provide an example for others to follow, and others which might move closer to the Carrifran example of a dispersed membership.

Ecological integrity

On an ecological level, much headway could be made by pushing the envelope regarding boar, beaver and elk – not in the form of a fenced safari park, but a genuine re-introduction, whilst keeping the goals of wolf, lynx and bear alive for a later time. The idea of even an enlarged 50,000 acres acting as an ecological model for all these species is anyway dubious. This is still a small area and would be highly compromised by future climatic shifts and the inability of herbivores to migrate. The small numbers of wolves and lynx that such an area could support would need to be culled as they increased, and the area is probably too small for a viable brown bear population.

I may be unduly pessimistic but I can't see the project succeeding in its present strategy and it needs some element that will strengthen its position within the Scottish psyche. As it stands, if successful as a business, I am not sure it will advance the cause of reintroductions – indeed, it could work the other way where a future Scottish minister might well take the view that as people could see the animals better in such an enclosed space, Scotland need go no further to embrace genuine reintroductions.

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Alladale's fenced wilderness -making a breakthrough?

ECOS 27 (3/4) 30-35 (2006)
Will the vision of a complete Highland ecosystem at Alladale fare any better than previous proposals for reintroductions?

ROGER SIDAWAY

Given the fiasco over the reintroduction of the beaver into Scotland early this year, can wealthy landowners claiming the sanctity of private property rights succeed where more cautious conservation bodies fear to tread? To exponents of change, the tortuous process of developing rational evidence-based policies is daunting. It is tempting to conclude that caution only gets us so far and that it needs the brass neck of a passionate landowner to make large-scale species reintroductions happen.

Predators and fencing

Paul Lister, heir to the MFI retail empire, bought this Sutherland estate in 2003 and has invested heavily in an award-winning tourism enterprise. Alladale House offers luxury accommodation, seclusion and guided excursions into the hills as well as the usual highland opportunities for deer shooting and salmon fishing. Inspired by the safari parks he has visited in Africa, he now plans to re-introduce a range of predators to reduce deer numbers on his 23,000 estate and to persuade neighbouring estates to join in the scheme, thereby doubling its area. So far he has planted large areas with native trees and created a small 1200 electric-fenced enclosure stocked with 22 wild boar. His longer-term plan is to fence the remaining area and stock it with elk, wolf, lynx and brown bear. Lister sees this as a logical extension of his dream to restore a complete Highland ecosystem and the fence as the only way the Scottish Executive will sanction the reintroduction of controversial species like wolves and bears.[1]

Two aspects of the scheme make the proposal particularly controversial: predators and fencing. Although reintroducing the wolf to the Scottish highlands was first proposed in the late 1960s[2], the superstition and mythology surrounding the beast has prompted catchy headlines whenever new proposals are mooted. The Deer Commission for Scotland is unconvinced that predation is an effective means of controlling deer populations [3] while local sheep farmers are concerned about loss of stock from possible wolf escapes. Lynx predation is equally controversial in sporting circles. Hence the comment of Bert Burnett of the Scottish Gamekeepers Association: "I also don't believe for one minute that lynx wouldn't attack stock, and lambs would be especially vulnerable." [4] Lister counters these objections saying the animals will be tagged and compensation paid for loss of farm stock. But as the scheme is without precedent, the legalities are obscure. To release predators to run wild within the fenced area probably requires a licence under the Wildlife and Countryside Act if not a zoo licence. Admitting he needs Scottish Executive permission, Lister claims "It's totally do-able. It's just whether or not we can deal with all the red tape we've managed to swamp ourselves with in this country".[5]

Although there are precedents of sorts for fenced reintroductions in Scotland with 11 wolves already in the Highland Wildlife Park in Kingussie and beaver in a private enclosure in Angus, neither is on the scale of the Alladale proposal. The main opponents to a fenced enclosure on this scale are the Ramblers' Association, as it transgresses both the spirit and the intent of the 'freedom to roam' provisions of the Land Reform (Scotland) Act which gives Scottish walkers arguably the best access rights in Europe. Ian McCall, Ramblers' Scotland campaign and policy coordinator, claims the erection of the 10 foot high 50 mile fence would need special exemption from the Scottish Executive. Claiming to support the reintroduction of wolves ("If we can't reintroduce them without putting a big fence around them then it is not worth doing?" [6]) the Ramblers' are particularly concerned about the precedent such a fence would set in tempting other privacy-minded landowners and pop stars to dream up similar wheezes to preserve their splendid isolation in Scotland.

Another objection to a fenced enclosure is that it isolates the introduced population and its prey from natural patterns of migration with the likely need to curtail numbers by shooting rather than more natural processes of disease and starvation (which are unlikely to appeal to squeamish safari park visitors).[7]

Lessons from the failed beaver scheme

The history of attempts to reintroduce the European beaver to Britain were documented in *ECOS* 27 (1).[8] Prompted by the 1992 European Habitats Directive, SNH began a laborious programme of investigating the effects of introducing beaver into the wild in 1994. Forestry Commission woodland on the Knapdale peninsula was selected as the pilot reintroduction site, and the project gained popular support according to national opinion polls and local consultations. The main opposition came from influential local landowners whose views were often based on suppositions that European beaver, like their North American counterparts, are prodigious dam builders and eat fish.

> "The concerns raised about the reintroduction of beaver are mainly based on ignorance, conservative thought and fear of the unknown. …to an extent the stridency of a minority of the landed class is driven by a legacy of expectation that their views are correct and should be acted upon." [9]

Ironically when drawing up a programme of speakers for a lecture series at Edinburgh University earlier this year, I had no difficulty finding supporters but considerable difficulty in finding a speaker opposed to beaver reintroduction, even from known opponents in farming and angling circles. The 'opponent' from the Scottish Countryside Alliance sceptically questioned the basic premises of the scheme.

The decision by the Scottish Executive to refuse a license for the trial was even more curious. The Executive's permission was certainly required to release beaver into the wild.[10] But the ostensible reason, that reintroduction would have potentially damaging effects on an SPA, does not tally with the obligation on member states under Article 22 of the European Habitats Directive of 1992 to consider species reintroductions. Didn't the right hand know what the left hand was up to? A private complaint that SNH should not have been a proponent of the beaver scheme but as adviser to the Executive should have remained on the sidelines, also lacks credibility. It appears from the infighting that if the project had been promoted by an NGO such as the Scottish Wildlife Trust, it would have been successful.

Perhaps the circumstances surrounding the beaver reintroduction make it a special case. But if a carefully researched pilot scheme promoted by the Executives' conservation advisers is overruled by cautious bureaucrats[11], what chance is there that the Executive will favour the more ambitious Alladale scheme?

Paul Lister has done some basic-level consultation. He held a conference for landowners and land managers in Alladale in November 2004 and reported that they were 'generally positive' towards the scheme.[12] A public meeting in the neighbouring village of Ardgay in September 2005 was more eventful. A picture was circulated of a man who had been mauled by a bear and Lister apparently angered opponents by refusing to allow the proposal to be put to a vote. One less than happy participant said "He was there to put his opinion and that was all" [13], clearly illustrating the limitations of public meetings.

Lack of policy direction – Scary or what?

On the one hand, we have the wildland agenda cautiously tempering enthusiasm for charismatic species with recognising the need for research on predator-prey relationships and for gleaning the most from experience from bird re-introductions. The case for wolf reintroduction would certainly gain from the meticulous approach taken toward the lynx.[14]

On the other hand, as in so many other conservation topics, there is a lack of policy guidance. Witness the Scottish Executive's poor track record of developing policy on conservation topics and reconciling EU directives. The nearest we get is the 'species management' approach contained in SNH's recently completed consultation. This 'Action Framework' for species management includes four mammals: beaver, red squirrel, wildcat and water vole as 'species for conservation action'. Two 'invasive non-native species' species: mink and hedgehog (on islands) are proposed for drastic management, while red deer are categorised as 'species for sustainable use'. The observation that "The management of red deer as a sporting resource and the absence of natural predators, can lead to locally high numbers leading to levels of grazing and trampling on natural habitats" [15] is as near as the document gets to any notion of the wildland agenda. SNH's pronouncements following this consultation are expected soon.

We lack a well-defined and transparent decision making process to get from national policy to local consultation or vice versa. Whilst we dither, precedents could be set by irresponsible clandestine releases of wolf and lynx by groups such as the Wild Beasts Trust.[16] Although many suspect that the Wild Beasts Trust has not implemented its announced releases, lynx sightings across Britain are on the increase, along with consistent stories of unlicensed breeding and of various subcultures using lynx for 'sport'. Both the former native Eurasian lynx and (less often) the American bobcat are seen by witnesses. As *ECOS* goes to the press we learn of a new consultation by the Scottish Executive on invasive non-native species. Although wild boar is recognised as a former native species, it is one of the five mammals on the list of 150 species included in the consultation. The apparent purpose of this inclusion is to ensure that any reintroduction should be conducted responsibly, under licence as part of an official programme or project. See: www.scotland.gov.uk/Publications/2006/11/InvasiveSpeciesResponse

Where do we go from here?

Ideally we would chart our progress on reintroductions against broadly agreed species action plans with staged reintroductions over a 10 year period or longer. Even if this is the time to take risks we are left with the challenge of trying to gain more widespread support from within key stakeholder groups, especially from landowning, farming, forestry, and game interests, and indeed within many wildlife groups.

If we pursue ambitious species reintroduction projects beyond fenced experiments such as at Alladale, we will need to develop support, advice and outreach measures for the areas hosting these ventures. Here are some of the issues and measures which would need consideration:

What are the ecosystem consequences of the particular species in mind, and indeed, what are the likely effects of more than one reintroduced species within a habitat and neighbouring forest and farmland? We can never know or predict all the consequences, so how would advice and land-management services be provided to accompany the first tranche of say, beaver and lynx reintroductions?

How can local people, businesses, and landowners gain benefits from the reintroduction, and how can those who experience any disbenefits, be compensated, and/or be given practical advice and support? Grants, visitor income, area branding measures, advice, outreach support, and actual compensation payments may all play a part perhaps.

Species returning to our shores will create new talking points questions, emotions and reactions. No doubt art and literature will help us with this cultural challenge, and indeed playwright Samantha Ellis has already made a start. She has invited ideas for her forthcoming play 'The Stare', on wolves returning to Scotland, and is already getting plenty of advice through her web link at the Ashden Directory: see :
http://www.ashdendirectory.org.uk/featuresView.asp?pageIdentifier=2006109_74465579&view=

As I look down from my top-floor flat 10 minutes from the centre of Edinburgh on the foxes nestling on the winter warmth of my compost heap, which of us is the 're-introduction'?

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The Carrifran Wildwood project

ECOS 25 (3/4) 11-19 (2004)

The Carrifran Wildwood project has happened through local people wanting to improve their landscape. The way it is being delivered may be as significant as the achievements on the ground, if it convinces people of the value of supporting grass-roots ecological restoration.

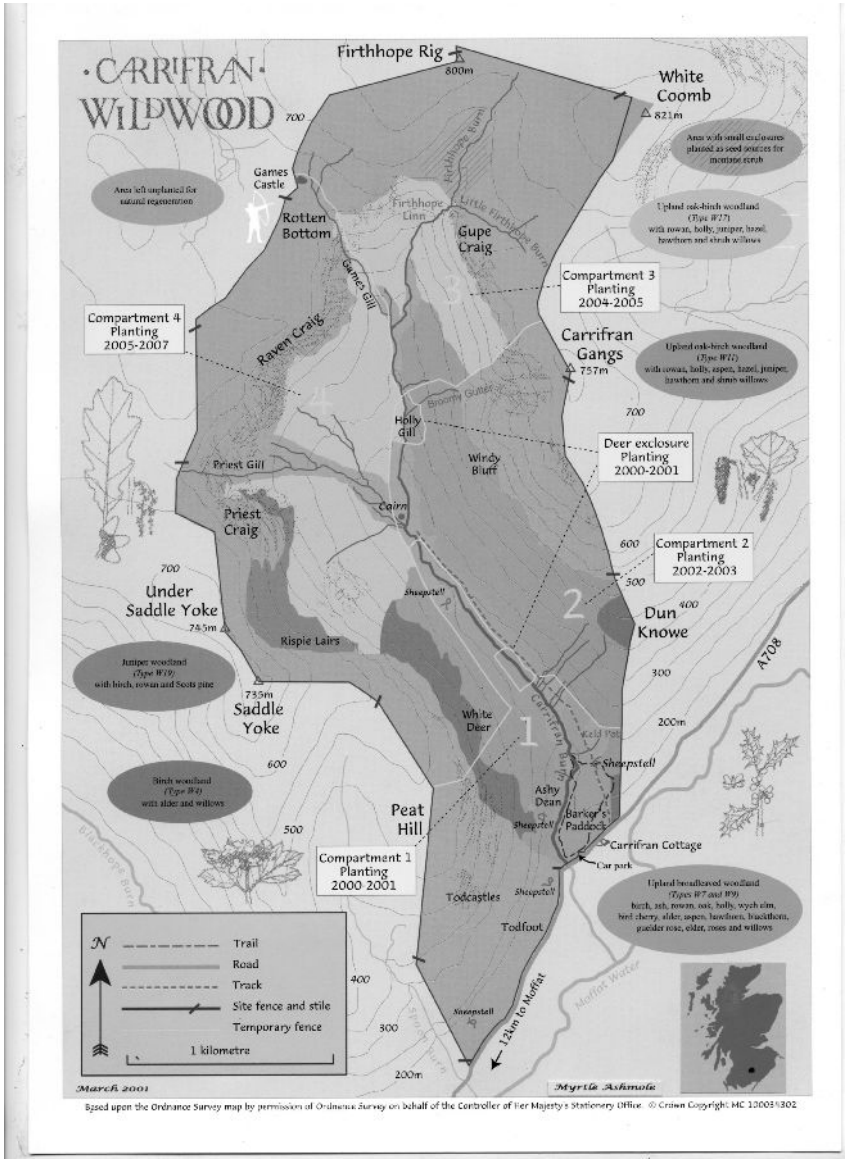
PHILIP ASHMOLE & HUGH CHALMERS

The Carrifran Wildwood project is establishing a mosaic of near-natural woodland and heathland vegetation up to 800 m altitude in a whole catchment in the Southern Uplands of Scotland. The initiative came from a local environmental group, and land purchase and much of the restoration work is funded by money donated by the public, with over 800 major stakeholders. Planting is by contractors and volunteers, managed by professional staff and a grass-roots steering group

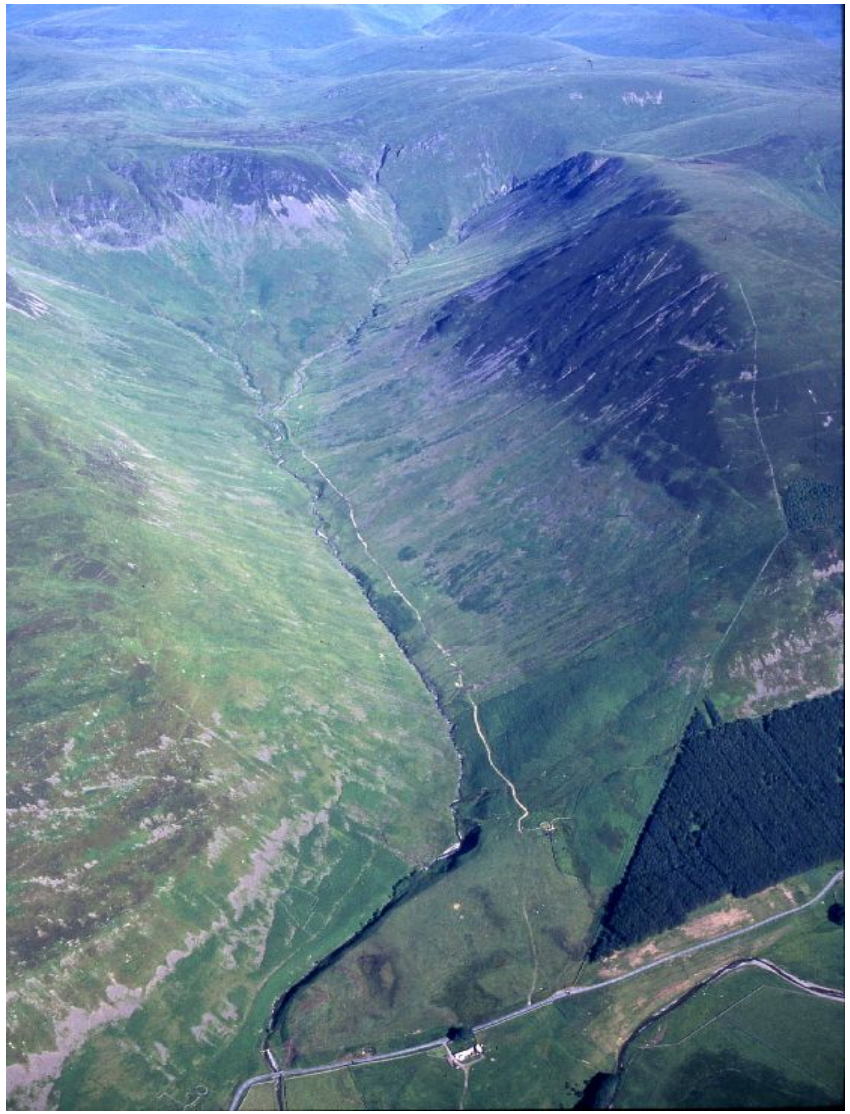
Getting lost in the woods…

The Tweedsmuir and Moffat Hills in the Southern Uplands of Scotland are perhaps more thoroughly bereft of their natural vegetation than any other part of Britain. The upland habitats now comprise wide expanses of overgrazed sheepwalk, interspersed with hard-edged blocks of Sitka spruce and patchwork areas of heather moorland frequently burnt for management of grouse. Only tiny relict groups of broadleaf trees in steep cleuchs (gullies) provide a glimpse of the native forest that clothed the hills 6,000 years ago.

In some areas woodland contraction may have a partly climatic cause: blanket peat and the associated heather moorland vegetation spread widely in Scotland several millennia ago.[1] In many parts of the Southern Uplands, however, the main cause of forest loss was grazing by domestic stock, together with burning and felling.[2] Sheep were a mainstay of the monastic economy from early medieval times[3] and the denudation occurred so long ago that there is no folk memory of natural forests on the hills.



Planting Schematic for Carrifran Wildwood



Carrifran - at the outset

In the early 1990s a group of friends in the Peebles area, saddened at the loss of so much beauty and diversity in the landscape, conceived the bold idea of acquiring an entire valley and transforming it to a relatively natural forest ecosystem. The vision was ambitious and clear, and is embodied in the Mission Statement:

> "The Wildwood project aims to re-create, in the Southern Uplands of Scotland, an extensive tract of mainly forested wilderness with most of the rich diversity of native species present in the area before human activities became dominant. The woodland will not be exploited commercially and the impact of humans will be carefully managed. Access will be open to all, and it is hoped that the Wildwood will be used throughout the next millennium as an inspiration and an educational resource."

The statement reflects the original determination to create a whole range of habitats, from tall forest in a valley bottom to treeline woods and montane scrub near the highest summits, in a valley of at least 1,000 acres. The result would be a relatively natural entity in the landscape where there would be a chance - in years to come - of losing oneself in the woods.

In the context of the challenging debate on rewilding in *ECOS* 25 (1), the vision of the Wildwood project may seem naïve and simplistic. It reflects, however, both understanding of the complexity of the historical and ecological arguments, and impatience with any tendency to substitute endless discussion about issues on which there will always be divergent opinions, for action on the ground. The members of the Wildwood Group were happy to let others continue the argument while they tried to make something happen. They found sufficient justification for their initiative in the contrast between the wholly artificial habitats that now dominate the local countryside and the richer diversity of vegetation structure in past millennia demonstrated by paleoecological evidence from many sites, including Carrifran.[4, 5]

The group is convinced that the lives of local people and visitors will be enhanced by the re-creation of some areas in which agriculture, plantation forestry and intensive game management take a back seat while ecological processes get a chance to flourish. We regret that at the scale of our current project, there will not be room for many species of large herbivores and their co-evolved predators. James Fenton[6], however, can be confident that despite our efforts, there will still be plenty of the sheep-shorn upland habitats that he claims lie within the range of natural vegetation.

Conception rather than conservation

In contrast to a conservation scheme, the Wildwood project was conceived in abstract and thus had to start by finding a suitable site. Initially, the chance of a small community-based group being able to buy a whole valley seemed remote. The development of the Millennium Forest for Scotland Trust (MFST) funded by the National Lottery gave the group courage to embark on an active search, although in the end none of the money for land purchase came from this source.

A decade on, it is clear that the successful creation of the project stemmed from the grass-roots strength of the Wildwood Group. The origins of the group lay in Peeblesshire Environment Concern (PEC), which was dedicated to raising awareness of global and local green issues. PEC had organised the *Restoring Borders Woodland* conference in 1993 [3], and two years later the Wildwood Group was formed, with around 35 "members" whose diverse talents provided a vibrant mix of idealism, scientific knowledge and practical expertise. Its informal style, flexible structure and consensus approach to decision-making have been key features of the project.

Land and labour - marshalling the resources

It was in negotiations for Carrifran that the calibre and commitment of the group first had an obvious effect. The fact that well respected individuals (for instance in law, land agency and business consultancy) were working for free undoubtedly helped the shift from an opening asking price of £1m for 1,600 acres of hill land to a more realistic figure of £330,000.

However, a third of a million pounds still represented a tough challenge, and the embryonic fund-raising subgroup made a key decision: to ask private individuals to "adopt" nominal half hectares or hectares in the valley by giving £250 or £500 or more (though of course smaller sums were welcomed). The project website www.carrifran.org.uk, designed by a member of the group, played a key role in fundraising from the start. Seven years on, more than 600 Founders (who helped to buy the valley) have been joined by nearly 200 Stewards (who support its restoration) and a large number of regular and one-off contributors. It is clear that the Wildwood project strikes a deep chord in many people, and the existence of this wide network of substantial stakeholders, in Britain and around the world, is one of the remarkable features of the initiative.

The total sum raised from individuals is now over £450,000 (including Gift Aid) and around £150,000 has come from charitable trusts (including a striking commitment by the David Stevenson Trust to pay for all the trees). Crucial support in fundraising came from the John Muir Trust, who viewed the project as complementary to their protection of wild land in Scotland by means of purchase. The upshot was that on 1 January 2000 - after two years of fundraising - Carrifran was purchased and 100 people came to plant the first trees.

Since millennium day it has been possible to access some public funds and increasing professional input has been required for efficient management of a large project. There was a danger that volunteers who had initiated the scheme might feel sidelined. However, this has been largely averted, and those involved have set a high value on the stimulating and forbearing cooperation between the members of the Wildwood Group and the staff of Borders Forest Trust (BFT), the charity that its members helped to establish in winter 1995/96.

The Wildwood Group is now defined as comprising all current members of BFT who are active supporters of the Wildwood project. It functions as a devolved entity within BFT, which has legal responsibility for Carrifran and handles contracts and accounts. Day-to-day management is by the Project Officer advised by a Site Operations Team that also includes the BFT Director and the volunteer Co-ordinator of the Wildwood Project. Policy decisions, however, are made by the Wildwood Steering Group, a self-perpetuating body meeting every two months. It is chaired by turns and comprises about 10 volunteer members, together with the Project Officer and BFT Director; additional BFT staff members and visitors frequently attend. Informal subgroups with wider membership are responsible for ecological planning, fundraising and seed collection. *Wildwood News* is published annually to keep supporters in touch, and BFT members also receive more frequent news in the Trust's newsletters.

Planning and planting

In planning the restoration of Carrifran, strong links with academics and professional foresters have always been fostered, and efforts have been made to learn from experience elsewhere. A senior Forestry Commission staff member was invited to talk to the group about new native woodlands long before the site was found, and study visits have been made to Creag Meagaidh, Ben Lawers, Rum, Mull, the Cairngorms, Deeside, Glen Finglas and elsewhere. In late 1997 the group organised, jointly with Edinburgh University, a conference at the Royal Botanic Garden Edinburgh: *Native woodland establishment in southern Scotland - principles and practice*[5]. This both raised the credibility of the project in the eyes of the professionals whose support was essential, and provided benefits of experience from around Britain on establishment of broadleaf woodland. The latter fed directly into the communal process of developing the Environmental Statement to support the application for Woodland Grant Scheme (WGS) funding.[7] Drafting took place mainly in

six long evening meetings in a Peebles pub during 1998, in which the number of participants varied between 12 and 25.

The Wildwood ethos

The wide diversity within the group was evident in these sessions, each of which focused on a different aspect of the project: from detailed discussion of what trees and shrubs were appropriate for establishment at Carrifran, to silvicultural techniques, interpretation, research, herbivore control, and the line to be taken on access. However, a clear thread running through all meetings of the Wildwood Group has been a determination to maximise the role of natural processes, to minimise the use of physical and chemical intervention, and to make the Wildwood feel wild. The overriding aim is to create a functioning ecosystem that will evolve through the centuries and where human influence will decrease gradually as nature takes over.

Within two weeks of gaining access to the site, the WGS contract was signed and a Project Officer funded by Scottish Natural Heritage was in post. Some 30,000 trees were planted in Spring 2000 and by the end of summer the 11 km perimeter stock fence and 3 km of electric fence had been built with funding from MFST. The main planting was planned to take place over eight years, and by arrangement with the previous owner the withdrawal of sheep grazing has been phased. This helped to reduce the purchase price and avoids excessive growth of the sward in areas awaiting planting. It necessitated several internal fences that are dismantled as sheep are withdrawn. Two small compartments centred on tiny groups of surviving trees were deer-fenced, to encourage regeneration and to provide direct evidence about the ongoing effects of deer-browsing on the rest of the site; they will eventually be removed.

Seed collection by group members started in 1996 from local ancient woodland sites. Many trees have been propagated in back gardens, but the bulk are cell-grown from our seed by commercial nurseries. Around a tenth of the trees have been planted by volunteers, but the rest by contractors who had to be taught about sensitive planting in (more or less) random patterns. Tree and shrub species include downy birch, rowan, sessile oak, holly, ash, wych elm, aspen, alder, Scots pine, bird cherry, hazel, hawthorn, blackthorn, juniper, guelder rose and many species of willows. The lower part of the valley should eventually become upland broadleaved and oak-birch woodlands with strong representation of hazel (National Vegetation Classification types W7, W9, W11 and W17), with small areas of birch woodland (W4) as shown in Figure 1 (MAP). At higher levels there will be juniper woodland (W19) with birch, rowan and some pine; above this there will be scrub of juniper and specialist willows, with montane heath near the exposed summits.

Fire, feral goats, and other challenges

This account may make the project sound straightforward. Along the way, however, many tough decisions have been taken, often after tortuous discussion. From the start, the group was determined to maintain control and avoid compromising the principles of the project, even when large-scale funding was at stake. But the authorities do make some reasonable stipulations. Scottish Natural Heritage (SNH) were wonderfully supportive of the plan to alter the entire ecology of a large section of a Site of Special Scientific Interest (now candidate Special Area of Conservation), but botanically rich flushes and areas with rare montane plants have to be treated with discretion. Dumfries & Galloway Council insisted on avoidance of planting around archaeological features, and their comments on landscape issues led to withdrawal of the area near the main road from the WGS contract. The Forestry Commission allowed 20% of open space within our grant-aided woodland, but specified a density of 1,600 trees per hectare in the planted areas and a maximum of 10% of woody shrubs (this limit is now 20% in new native woodlands).

There have been several significant setbacks. First, the feral goats in the valley have been removed to adjacent areas and further afield, but only after prolonged and difficult discussions with some local people. Second, Foot & Mouth Disease hit when we had taken delivery of 30,000 trees for planting in early 2001. These trees had to be retained unplanted through the summer, resulting in significant mortality and large numbers of sickly trees, some of which have still not fully recovered. In spring 2003 a farmer carrying out muirburn on adjacent land lost control of his fire, which spread over the Carrifran boundary and killed 10,000 recently planted trees.

By planting nearly half a million trees we can give Carrifran a vigorous shove towards the goal of a re-created natural ecosystem, but often that goal seems very distant. We find ourselves opposing natural processes as we try to cope with rampant growth of grass and bracken and with voracious deer, voles and hares (not to mention straying sheep and goats). We eventually decided on an initial herbicide treatment around each tree, even though this went against the organic gardening background of key members of the group. An early decision to use vole guards on all trees has saved us many sleepless nights, but we have recently had to intensify control of roe deer and some culling may continue to be necessary so long as their natural predators are absent from the Moffat Hills.

Letting nature take over…

We are continually learning more about our site, trying to relax and modify the pattern of planting when sickly trees tell us that they have been planted in the wrong place, or that we must have patience while they adjust to difficult conditions. In the long run, we want to

ensure that natural variations in soil, exposure and drainage are fully reflected in the pattern of the developing habitats, rather than intervening to try to minimise the variation and impose uniformity on a complex system. Similarly, during beating up we sometimes augment tree species that are clearly well adapted to the site and which may have been under-represented in local relict woodlands as a result of modification by human activities long ago.

After five years of ownership by BFT, Carrifran is looking pretty good. The burnt trees have been replaced, internal fences are being removed, three quarters of the trees have been planted and a young woodland is clearly established in the lower part of the valley. Inevitably, there are continuing preoccupations with funding, since the available grant aid (from the FC, SNH and other sources) does not fully cover the cost of planting on such difficult ground, and we also have to make provision for future costs, especially the eventual renewal of the perimeter fence. Donations from the public have so far enabled us to maintain the schedule of planting envisaged at the start. If this inflow of funds can be maintained, the main planting should be complete in two more seasons, along with replacement of missing trees in areas already planted. Then the focus will shift to the more gradual establishment of treeline woodland and montane scrub around the lower fringes of the high surrounding plateaux. Then, in a few years, we can begin to let nature take over most of the management of Carrifran.

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Ecological restoration without all the pieces: early news from Carrifran

ECOS 28 (3/4) 89-95 (2007)

Conservation groups are addressing the crucial need to manage deer numbers on nature conservation sites – this article discusses the challenge at Carrifran Wildwood when trying to restore natural habitats.

HUGH CHALMERS

Aldo Leopold wrote that "to keep every cog and wheel is the first precaution of intelligent tinkering".[1] The ecology of Britain has long since been dismantled and we have broken that first rule by discarding some essential elements. David Blake's article[2] in the last *ECOS* touched on the critical need to have control of deer numbers when managing nature reserves, but the challenge is greater when trying to restore natural habitats. The cost of doing so is considerable and difficult to estimate, and is the kind of semi-natural woodland habitat we get when we try to mimic predation what we want? The experiment is under way. At Carrifran we are creating a kind of natural woodland by planting trees and mimicking lynx predation (by stalking) and other natural processes until such time as we can arrange to have the real thing.

Planning and planting

At Carrifran Wildwood in the Southern Uplands of Scotland, the Wildwood Group of Borders Forest Trust (BFT) is attempting to restore the natural vegetation cover and associated fauna to an entire upland catchment with an area of 660 hectares and reaching a height of 821m a.s.l.[3] The major commitment of time, energy and money over the last 8 years has been to plant 400,000 native trees of local origin. The valley has been sheepwalk for hundreds of years, and as there were only a few small remnants of woodland and a limited range of species, the decision was made to apply to the Forestry Commission for a planting grant under the Woodland Grant Scheme.

In order to qualify for this grant aid an Environmental Statement was required – a major undertaking for a recently formed group of volunteers. In order to garner the current expertise in native woodland restoration, BFT and the University of Edinburgh organised a one day discussion meeting in late 1997 (see below)[4], and the resulting report formed the basis for a two year communal discussion on how such a valley as Carrifran could be restored to native woodland. After a lot of hard work and deliberation an Environmental

Statement was produced resulting in a smooth application process to the FC Woodland Grant Scheme and approval for our activities from Scottish Natural Heritage (the whole site is a Site of Special Scientific Interest and a Special Area of Conservation, notified for its geomorphological interest and arctic-alpine plants).

Regenerating birch and new plantings - after nine years. (Peter Taylor)

Deer dynamics

During a two year discussion process by an enthusiastic 'Wildwood Ecological Planning Group', there was a feeling that perhaps the biggest threat was from the lack of natural roe deer predators, as emphasised by the Deer Commission Scotland (DCS). In fact, in the ES the following was stated: "*Finally, a cautionary note is necessary. There are few convincing examples of woodland deer being controlled by shooting over periods greater than three or four years, and the ability to maintain populations at the required levels in perpetuity has not been demonstrated. Only in the very long term will it be possible to demonstrate that at Carrifran, deer numbers are being kept low enough for a self-sustaining woodland to be maintained indefinitely*".[5]

So far so good, and with this warning ringing in his ears, the Wildwood Project Officer (funded by Scottish Natural Heritage) organised contractors to fence out domestic stock, set up an adequate deer culling operation and to plant trees, with lots of volunteer backup on the ground and from the Wildwood Steering Group. In the Spring of 2000, an area of 24 hectares was fenced off with temporary electric stock fence, and 12ha of trees planted. The plan was for the previous owner to progressively withdraw his livestock by October 2004 in 4 stages, with Borders Forest Trust constructing lengthy (and porous) internal electric fences, as well as a substantial boundary fence of 11km to keep out sheep and feral goats. A professional deer stalker was employed to visit Carrifran once per fortnight and this was deemed adequate at the time to deal with incursions from neighbouring woodlands.

The advent of Foot and Mouth Disease and consequent access restrictions from January to June 2001 gave us a foretaste of what was to come as we were not allowed to cull deer. It soon became apparent that the ungrazed and untainted (by sheep) rough pasture was very attractive to roe deer, who were also partial to young tree leaves and liked to mark territories by fraying any trees which reached above 40cm in height. At one point six roe deer were seen regularly in the 12ha of new planting, though 3 were dispatched as soon as we were allowed on site.

By June 2004, we had planted around 100ha of trees, protected only by 20cm tall vole guards, and had been carrying out regular monitoring of tree survival, to make sure that we would make the FC Woodland Grant Scheme target of having at least 1,100 trees/ha established within 5 years. The definition of established has since been defined officially by FC as "*trees must be present; to the stocking levels specified; healthy; and in a condition capable of continued growth given no further weeding and subject to normal ongoing maintenance operations such as protection from inappropriate grazing by wild or domestic animals"*.[6] Our surveys in June 2004 were showing some worrying statistics. Over 45% 'severely browsed' with some losses also due to bracken smothering, and survival rates in some areas of less than 500 trees per hectare. We considered all the possibilities; poor planting stock, poor weed control, lack of nutrients, browsing from brown hare, stray sheep and goats. We do have areas fenced against deer but not against hares, and high survival in these pointed the finger at deer (saplings cut by hare are easy to distinguish from deer browsing) and this showed us that browsing from something large was the problem. A site visit from a very helpful Deer Commission for Scotland advisor laid the situation on the line: increase deer culling or face the loss of the trees.

Deer culling – the determining factors

The frequency of visits from the stalker at that time was governed partly by the cost (£80 per visit, or around £2,000 per year) and by the policy of the professional stalker, who had also been involved in the initial DCS discussions. Around 10 deer per year were shot during

this period. Deer were not shot out of season, and the 'stand-buck theory' was being used. This is the idea that if you retain a roe buck in a 'stand' of trees or territory, he will exclude other males. So, in practice, we had a very selective deer culling policy in place, which allowed deer to do a lot of damage to small, vulnerable trees, (though of course there was the confusion over the effect of the other browsers – the marauding sheep and goats). In addition, the professional stalker was keen to shoot the valley exclusively as having other people stalking deer would make it more difficult for him to cull deer. On reflection, we had a sound deer control policy in theory, but this differed from what happened on the ground. On other BFT woodland restoration sites, there is a similar reluctance by gamekeepers to control deer effectively, perhaps because of the time and effort it takes to do so. The effort required to control each deer depends on the density of deer present and the type of woodland cover present. At Carrifran there is a low density of deer, and an open landscape which is makes it difficult to stalk roe deer.

It was obvious that something would have to change, and that the cost of deer control would increase substantially, though by how much it was impossible to tell. This was quite an uncomfortable period in the management of the project, the ultimate cost of not controlling deer properly would be the failure of the project, and paying back the FC grant with interest – a figure over £100,000 in 2004 (over £300,000 now after further planting) and one which could not be contemplated. By September 2004, after some awkward decisions, the original deer culling policy was in place with a different professional stalker visiting once per week, with the visit being a good 8 hours, reaching way off the beaten track, and discarding the stand buck theory. The Project Officer, a novice stalker, also visited once per week, and he recruited qualified and experienced volunteers who would also assist in deer culling. The cost of deer control increased to £4,500 per year, with no contribution from the Forestry Commission or government bodies, simply a challenge to the fundraising efforts of the Wildwood Group. A night shooting licence from the DCS was also granted over certain winter months, with DCS Best Practice Guidance adhered to.

Since September 2004, the deer control effort has increased approximately four-fold, with around a doubling of costs - the latter helped by stalking volunteers. Deer shot have increased from an average 10 per year between 2000 and 2004, up to an average 19 per year from 2005 to 2007. The actual cost of adequate deer control at Carrifran at present is around £200 per deer. Most importantly, tree survival monitoring has shown that our trees are growing well, with less that 10% browsed per year, though we don't mind bushy trees. We were also pleased that in June 2007 the FC Woodland Officer classed as 'established' the 50 hectares planted in the 2001 to 2002 planting season which were in poor condition due to browsing in June 2004. Perhaps there was some leniency here, but I am convinced that the change of policy will now allow all 280 hectares to become established. When all the planted trees are classed as 'established', hopefully by 2013, the deer control policy can be reviewed, and in the meantime fundraising can ensure the contractual obligations are met.

Facing the financial costs

Perhaps it would have been possible to restore the lost woodland of Carrifran over a longer time scale, by relying more on natural regeneration of trees and planting small areas of 'seed' trees. Even then, predation on deer would be required to allow trees to grow and to allow subsequent generations of trees to form natural woodland. One of our objectives at Carrifran is to demonstrate to a wider audience the difficulties in restoring woodland to the uplands in the present time. We have already had to find funds for a perimeter fence to keep out domestic stock and feral goats (£90,000) and we will probably need to find £5,000 per year for the next 10 years to replace a missing part of our ecosystem.

The sort of costs outlined above are worrying for individuals and organisations which aim to plant or restore native woodlands. An alternative to deer control may be the use of deer fences though these can have adverse impacts on landscape and wildlife while their effectiveness is of limited duration. Deer fences are also very costly as seen with the Millennium Forest for Scotland initiative where deer fencing was necessary with 26 woodland restoration projects at a cost of £1.82m between 1997 and 2000.[7] Despite their impacts, deer are welcome at Carrifran as part of a natural ecosystem, where at one time deer evolved along with large predators. But with a vital component of that ecosystem missing, our current management approach has to be more interventionist (as well as more costly) than we would have wished.

Aside from the challenge of excessive browsing of native tree saplings at Carrifran, we had to relocate around 50 feral goats which were present in the valley. 21 went to heathland grazing projects in Windsor and Kent in October 2001, and the remainder to the farm next door, in October 2004. There was local opposition to these plans, but Scottish Natural Heritage, with the cooperation of all landowners in the area finally produced a 'Moffat Hills Feral Goat Management Plan' in 2005. Feral goats will continue to thrive within the Moffat Hills SSSI, but not in Carrifran.

Coping with climate change

In 1999, when the restoration plan for Carrifran was finalised, the matter of climate change did not seem so pressing. The main tree and shrub plantings reach to 500m, and in the event of a gradual warming of the climate, there is room for trees to expand to higher, cooler areas. If all vegetation zones move higher, then there would perhaps be some losses of the mossy habitats at 800m. Other issues, such as atmospheric nitrogen deposition, may also threaten these habitats. Tree species at Carrifran follow guidance from the pollen record, but certain species, such as small leaved lime, which seems to have a natural distribution as far north as Carlisle, could be considered for planting. The tolerance to warming of our existing species mix may be sufficient to accommodate small changes in average temperatures in the

medium term. With 2,000mm per annum of rain on White Coomb, we are reliant on damp conditions. If climate change means much less rain, then it is difficult to know how we would cope. However, other more obvious changes are happening which may threaten native woodland establishment, such as the spread of Muntjac deer. Sika deer are close too, and we have recently seen our first rabbit…

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Rewilding in the north-central Highlands – an update

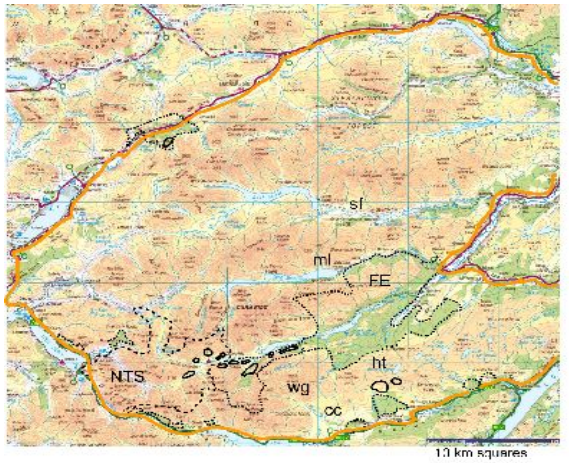
ECOS 25 (3/4) 4-10 (2004)

Freeing up the ecological processes within a renewed Caledonian forest is a 250 year project. This article describes progress with the first phase.

ALAN WATSON FEATHERSTONE

Native forest recovery – the vision

It is over seven years since I wrote in *ECOS* about the work of Trees for Life for the 'Wild Heart of the Highlands' (*ECOS* 18 (2) 48-61). Our vision is to return a large area in the north-central Highlands west of Inverness to a more wild and self-willed condition, complete with natural forests, large mammals and their predators.[1] In my eyes this has always been a vision which would unfold and fully develop over a period of 250 years – the time it will take a young Scots pine of today to reach maturity – so we are still very much in the first phase of implementing it. However, a review of the progress provides an opportunity to re-evaluate the project's goals, in the light of experience to date.



Solid line: TfL exclosures for planting or regeneration
Broken lines: Forest Enterprise and National Trust boundaries. Orange line indicates extent of potential core area proposed by Trees for Life.

PUBLIC LAND

FE Forest Enterprise

NTS National Trust Scotland

PRIVATE ESTATES
with planting agreements

sf Strathfarrer

ml Mullardoch

cc Ceannacroc

ht Hilton

dg Dundreggan

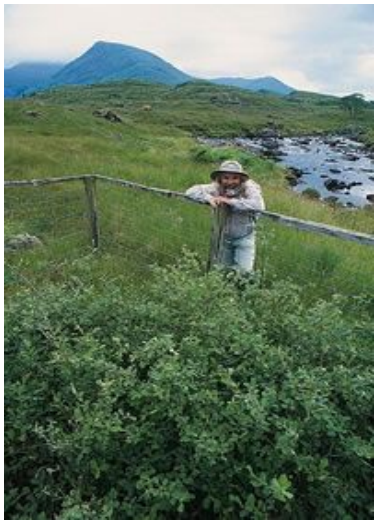
wg Wester Guisachan

The map illustrates the locations where we work – a target area of about 918 square miles (2,377 square kilometres), where we aim to return native forest to 600 - 700 square miles. We selected this area because it contains a number of good fragments of the Caledonian Forest, because there is very little economic activity taking place there, and, in terms of landscape, it includes mountains, rivers and lochs, all of which provide a sense of relative wildness. The area also embodies a quality of remoteness, and has minimal human infrastructure (roads, houses etc.) in it. Taken together, these elements form the basis for what is possibly the best opportunity in the UK to assist the recovery of self-willed, healthy ecosystems on a significant scale.

The first phase of restoration

Trees for Life tries to kick-start the natural recovery of native forest to suitable sites, so our first efforts were concentrated mainly in Glen Affric, as it contains the largest remnant of native pinewoods in the area (this is also the largest extent of least-disturbed forest in Scotland). In 1989 we began a series of projects enclosing areas of naturally-regenerating tree seedlings with deer fences, to protect them from overgrazing by deer and sheep. We also plant trees in appropriate sites where regeneration is unlikely to occur because of the lack of a seed source. Planting is done in ways which mimic natural regeneration as closely as possible, utilising irregular and clumped spatial distribution of the trees, and matching the species to soil types and site hydrological conditions.

Upper Glen Affric grazed out by deer (Peter Taylor)



Willow enclosure, left, and remnant pine, right.(AlanFeatherstone)

The aim of this is to establish a new generation of native trees growing healthily in key sites throughout our target area. These can then form the nuclei for subsequent further natural regeneration of native forest, once the grazing pressure of both wild and domesticated herbivores has been reduced to a level commensurate with the recovery of the vegetation. From our initial focus on Glen Affric we have now spread out to include other parts of our target area, and have carried out significant forest restoration work at sites in Glen Moriston, at the RSPB's Corrimony Nature Reserve, at Achnashellach and in Grudie Oakwood, amongst others. To date we have planted almost half a million native trees, and have protected over 150,000 naturally occurring tree seedlings.

Some of the trees we've protected or planted are now over 4 metres tall, and are producing seeds each year, thereby adding to the process of forest regeneration. In addition, these young trees are already providing a habitat for insects and other invertebrates such as spiders. Those, in turn, are food for birds, so even after just 15 years (a short period in the life of a tree) some of the fundamental strands in the web of the forest ecosystem have become re-established. The young trees are also providing a restored habitat for shade-loving forest species such as blaeberry (*Vaccinium myrtillus*), while in the first area which we protected the pinewood orchid species, creeping lady's tresses (*Goodyera repens*), has become much more abundant since the area was fenced in 1990.

These early results confirm the experience of similar schemes elsewhere in the Highlands, that the removal of excessive grazing pressure enables the regeneration of both trees and other vegetation - the critical first step towards the recovery of healthy ecosystems. Just how dramatic this recovery can be was graphically illustrated this year when I visited an area on West Affric, the headwaters region of the Affric River, which is owned by the National Trust for Scotland. There are very few trees left on this 4,000 hectare estate, which now consists mostly of open grassland and heath and is heavily grazed by red deer. In 1997 we had installed several small areas of stock fencing alongside the river, to protect some heavily-overgrazed eared willow seedlings as part of a project to restore the riparian vegetation zone. When I checked these exclosures in May 2004, I was astonished to discover bluebells flowering in one of them, under the partial shade of an eared willow bush which was now about a metre in height. The bluebells provided a remarkable contrast with the close-cropped, depleted landscape outside the fence and are probably the first of their species to flower on West Affric for decades, or possibly even centuries.

A key element of our work is the reconnection of some of the isolated fragments of native forest in our target area. At present, these remnants are islands of woodland surrounded by treeless areas and as a result they suffer from some of the classic problems associated with fragmentation [2], such as loss of species like wood ants. The importance of reversing this process has been recognised by Scottish Natural Heritage [3] amongst others, and the new Scottish Forestry Grants Scheme (SFGS) is designed in part to address this issue. Because of the nature of the topography in our target area, the forested parts have always been somewhat isolated by the high ground between the glens, but there are a number of locations where the hills separating adjacent glens are lower than the natural tree line (600 metres). For a number of years we've been working to restore a forest linkage in one of the best of these sites, between Glen Affric and Glen Moriston. Named after one of the streams flowing south into Glen Moriston, the Allt na Muic Forest Corridor project consists of a series of fenced exclosures between the two glens for forest regeneration, and on the higher ground, the restoration of montane scrub.

For ecosystem recovery to be achieved outside of fenced exclosures the critical issue in our target area is a substantial reduction in the grazing pressure from red deer, and to date there has been less progress on this front. As Trees for Life does not own any land itself, we have no direct control over the numbers of grazing animals. Thus, we have to rely on sympathetic landowners and the relevant agencies to bring about a reduction of red deer numbers. While some landowners such as Forest Enterprise have been implementing considerably increased culls on their land, the overall deer population has not significantly changed, and there is virtually no tree regeneration outside the fences.

However, there are some encouraging signs that this situation is about to change. The Deer Commission for Scotland has been given more power to address the problem of overpopulation, and can step in to achieve cull targets in cases where landowners consistently fail to do so themselves. Together with changes in the Deer Management Sub-group for the Affric area, this should ensure that the deer numbers do come down in the years ahead.

Regenerating alder along streamside, with regenerated birch on hillside exclosure, 2009 (Peter Taylor)

Heavily grazed rowan (Alan Featherstone)

Athnamulloch, 1991, left and 2002, below (Alan Featherstone)

Deepening the restoration process

In recent years our restoration work in Glen Affric has entered a new phase. Initially we concentrated on expanding the area of native pinewoods, both through fencing for natural regeneration and by planting trees, especially Scots pines. With a new generation of young trees now growing successfully, we've turned our attention to a deepening of the restoration process, to encompass other species and parts of the forest ecosystem. For example, research has shown that broadleaved trees are generally underrepresented in most pinewood remnants, because of being preferentially eaten by deer in the past. Thus, we have a project

to restore more broadleaved trees, particularly the scarcer species such as hazel, oak, holly and aspen.

Of these, the aspen project is most developed, and it consists of three main parts - surveying and mapping of existing aspen stands, measures to regenerate aspen and create new aspen stands, and research into the ecology of aspen and its associated species. To date we have identified and surveyed 345 aspen sites throughout our target area, and we've propagated over 10,000 aspens from root cuttings in our specially-designed aspen propagation unit. These have been planted out both to increase the clonal diversity of this dioecious species in its existing stands, and to establish new stands in suitable sites.

Aspen is an important tree for a wide range of organisms, including rare species of moths, lichens and saproxylic flies [4], and we are tailoring our project in part to provide for the habitat requirements for these species. Aspen is also a preferred winter food for the European beaver (*Castor fiber*). In light of the proposed reintroduction of beavers to Scotland, we are working to regenerate and expand the aspen stands around Loch Beinn a'Mheadhoin in Glen Affric, which is a possible future site for beavers. Research we've had carried out on aspen includes work on the clonal diversity of aspen stands [5] and documentation of the galls associated with aspen [6], while an upcoming 3 year project is planned to study the mycorrhizal fungi associated with aspen.

Other elements of our current work include projects to regenerate and restore the tree-line montane scrub community (we've already carried out the most extensive mapping programme in Scotland for dwarf birch, a key component of montane scrub); a woodland ground flora project which involves surveying the forest for key flowering plant species and action to restore those where they are missing; and the riparian forest project, to restore the stream and loch-side zones, where the deciduous trees provide nutrients for the aquatic food web through their fallen leaves.

Another project will involve the translocation of wood ants (*Formica lugubris*) within Glen Affric from an area where they are abundant to an isolated stand of mature pinewood which the ants cannot colonise by themselves because it's too far from any existing ant nests. The intention with this is to use the translocation as an opportunity to develop a protocol for such work, which can be a guide for other similar projects. Many new native pinewoods have been established recently in the Highlands, and these are often isolated from existing ancient forest remnants, so that natural colonisation of those by wood ants is unlikely to occur – hence translocations may become more common in future.

Other work which we're currently involved with includes a project to inventory the biological diversity in Glen Affric. Almost 15,000 hectares of land managed there by Forest Enterprise were declared Scotland's newest National Nature Reserve in 2002, in recognition of its biological, scenic and conservation importance. However, although some groups of organisms such as dragonflies are well-studied in the glen, there had until recently been no comprehensive studies carried out on the species occurring there. The consequence of that can be seen in the table, which provides a comparison between our knowledge of biological diversity in Glen Affric and that in Abernethy, another large remnant of the Caledonian Forest, which is owned by the RSPB.

Numbers of species recorded in pinewood areas

	Affric	**Abernethy**
Fungi	225	699
Lichens	178	300
Mosses & liverworts (Bryophytes)	55	293
Flies (*Diptera*)	36	260
Spiders (Arachnids)	76	128
Beetles (*Coleoptera*)	155	904
Moths & butterflies (*Lepidoptera*)	261	264

The differences in numbers between Affric and Abernethy for most groups of organisms do not mean that Affric has a significantly lower level of biological diversity than Abernethy – instead they are a reflection of the fact that much less survey and inventory work has been done in Affric. We've now initiated a series of studies to identify what species are present in Affric; the first of these, in 2003, was for moths, while a similar project for beetles is being carried out in 2004 and 2005.

Underlying principles

Our work is guided by a set of principles of ecological restoration which we've developed, based on the premise that 'Nature knows best'.[1] Our objectives are focussed on getting all the parts of the ecosystem back in place, beginning with the establishment of a new generation of young trees, then ensuring that they and all other vegetation communities can grow successfully without being overgrazed, and ultimately going on to the return of the missing large mammals, including the top predators.

As our project has developed over the years, a critical insight has been the recognition of the importance of restoring ecological processes, such as the balance between herbivory and regeneration, predation, occasional large-scale disturbance and the like. It is the loss of these which has kept the land in its present degraded condition, and it is only with all of them back in place that there will be self-sustaining healthy ecosystems in the Highlands, rather than ones which require ongoing human management. Our goal is not to create some sort of 'planned' new Caledonian Forest, but rather to enable the return of a large contiguous area of land to a self-willed condition – once we've got all the elements of the

ecosystem back in place again, we'll let Nature take over fully and will not do any further management, such as tree planting, fencing and the like.
The need for mammal reintroductions

The most challenging and perhaps controversial part of this is the return of the missing mammal species, especially predators such as the wolf, and we are under no illusions about the difficulty of advancing this agenda. The failure so far to implement the proposed reintroduction of European beavers to Knapdale in Argyll provides an indication of the obstacles which have to be overcome in this regard.

Trees for Life continues to be a strong advocate for the return of beavers, as a first step in the recovery of our missing mammal species, and we are currently working in partnership with some local people on a project with wild boar. Initiated by a resident of the village of Tomich, just outside Glen Affric, this three year project will study the effects of wild boar, kept in fenced exclosures in the forest, in assisting tree regeneration through their disturbance of the soil, and their role in controlling bracken. The project will also evaluate the economic return from the sale of wild boar meat to ascertain whether this is compatible with the ecological benefits of wild boar, and thereby providing a potential sustainable livelihood for local people.

In the longer term though, it is the predators which will be most important to return to the Highlands. Research in the USA in particular is increasingly documenting the essential, irreplaceable role which top carnivores play in regulating the healthy functioning of ecosystems, and it has been shown that their absence "appears to lead inexorably to ecosystem simplification accompanied by a rush of extinctions".[7] In our Highland context, the key carnivore is the wolf, although the lynx and brown bear would also have been important in the past.

The role of the wolf would not just be limited to controlling deer numbers by killing individuals (usually the weak, sick, old or very young), but perhaps more importantly, its disturbance effect in moving the deer around would facilitate the recovery and regeneration of trees and other vegetation. This has already been documented in Yellowstone National Park, where wolves were reintroduced in 1995.[8] Given the impossibility of returning wolves to the Highlands in the immediate future, we suggest that large dogs could be used as surrogate disturbance agents. Landowners or land managers could train dogs to chase deer (but not harm them) out of sensitive areas, such as native forest remnants and riparian zones to aid their regeneration.

Cultural prejudices

Interest in the possibility of returning wolves to the Highlands continues to be high, judging by the number of research students who contact us and by regular articles in the mainstream press. However, given the vocal opposition to the wolf from groups such as farmers, some conservationists now consider the lynx to be the predator which could realistically be reintroduced in the near future. Unhindered by the prejudices, media stereotyping and myths which surround the wolf, lynx have already been successfully reintroduced to Switzerland and the Vosges Mountains in France. People coexist with predators such as the wolf and lynx in many other countries in Western Europe, from Spain and Italy to Germany and Sweden, so surely it is time to recognise that it would also be possible to achieve this in the Highlands of Scotland, where the human population density is much lower than most of those other carnivore-inhabited countries. Wilderness advocates, I believe, must do a better job of emphasising the importance of carnivores, and should also initiate a programme of education and information about them, as part of the preparation for their eventual return to the Highlands.

Conclusion

Although it is far too early to evaluate the success of our efforts, the growth of new trees and the consequent benefits for other species are positive signs that it will be possible to restore the forest on a larger scale. Whether the other elements of our vision, such as the return of a large area of land to 'self-willed' status complete with reinstated large mammals and top carnivores, come to fruition, will most likely be decided decades from now. The task for the immediate future is to lay the groundwork for that, to build an irrefutable case for why it should happen, and, by so doing, to play a role in healing the relationship between humanity and the rest of Nature.

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Scotland's core wild land – the potential of Mar Lodge

ECOS 25 (3/4) 20-23 (2004)
Clear management aims and working to long timescales are helping wild land on the Mar Lodge Estate to reach its potential.

PETER HOLDEN & ALISTER CLUNAS

Mar Lodge and its dowry

At 29,340ha, Mar Lodge Estate is the largest single landholding of the National Trust for Scotland. Situated at the heart of the recently designated Cairngorms National Park, some of Britain's finest mountain scenery is encompassed within its boundary. The Estate was purchased in 1995 with funding from the Easter Charitable Trust and the Heritage Lottery Fund (HLF). The HLF gave a generous endowment of £8.5m to fund the property in future years - a far sighted action to be encouraged should HLF assist in the purchase of other properties which are not able to be self funding. Since its acquisition in 1995, the Trust has undertaken an active programme of work following the production of detailed management plans, which are a condition of the Heritage Lottery Funding and are approved by Scottish Natural Heritage. The first management plan covered 1996-2000 and the current plan covering 2002 –2006 is to be reviewed in 2005.

The Trust's aims for the estate are to achieve a successful integration of conservation of the natural heritage, public access and enjoyment, and traditional sporting activity; and to share with others an appreciation of the issues involved, as a demonstration of integrated land management in the Scottish Highlands.

Wild land – keeping the resource

Since its creation in the 1930s, the NTS has promoted the cause of wild land conservation in Scotland, recognising its value both as a distinctive part of the nation's heritage and identity, and for the opportunities it provides for outdoor recreation. Much of the experience gained at Mar Lodge Estate has influenced the Trust's *Wild Land Policy* issued in 2002. The Trust's working definition is: "Wild land in Scotland is relatively remote and inaccessible not noticeably affected by contemporary human activity, and offers high-quality opportunities to escape from the pressures of everyday living and to find physical and spiritual refreshment."

At Mar Lodge, the principle of management is to avoid any reduction in wild land quality, and where possible to enhance these qualities or extend the area that exhibits them. Natural processes are the favoured means of bringing about a return to a wilder environment, so that the rewilding process takes place on a habitat and landscape scale, which avoids being drawn into 'gardening' for individual species and their requirements. Key species are identified in the management plan (examples include Golden Eagle, Capercaillie, Black Grouse, and the Narrow Headed Wood Ant) and where present, these tend to benefit through habitat improvement. However, a level of intervention may sometimes be required. Most notably, the Trust has been steadily reducing the red deer population to a target of 1650 by the year 2005. The target population of 700 stags for the estate has been achieved and in the regeneration zone, numbers are almost at the target population of 350 deer. The main problem remaining is high hind numbers in the moorland zone.

Woodland management and regeneration

There are 2103 hectares of woodland on the estate consisting of a mixture of core native pinewoods, birchwoods, 19th Century plantings, 1970s plantations and New Native Woodlands dating from the early 1990s, Table 1 summarises the woodland types found:

Table 1 Woodland types found on the estate

Woodland Type	Area in Hectares
Core Native Pinewoods	
Glen Derry	246
Glen Lui	118
Glen Quoich	425
Total	789
Allanaquoich Birchwoods	15
C19 plantations (Scots Pine, European Larch and Norway Spruce)	195
1970s plantations (Scots Pine, Sitka Spruce and Lodgepole Pine)	685
New Native Pinewoods (Scots Pine, Birch and Rowan)	85
Area enclosed for regeneration (pre NTS)	334
Total area of woodland	2103

Potential area for regeneration	
<600 metres	3603
>600 metres (montane scrub)	3847

Three core areas of mature, native Caledonian pinewood presently cover a total of 789 hectares.

Most existing plantations have had some form of management, which includes removal of deer fences, creating glades, and re-spacing. A total of 37 kilometres of deer fence has been removed and a further 4.5 kilometres of fence has been marked to reduce the hazard of collisions by woodland grouse. Glen Quoich now has no deer fencing within the glen.

Management goals, for regeneration and for moorland

For management purpose, the estate is divided into two zones – the regeneration zone covering the Glen Quoich, Glen Lui and Glen Derry, and the moorland zone. In the regeneration zone seedling regeneration is slowly taking place, with almost all seedlings below vegetation height except in those areas inaccessible to grazing. This will eventually greatly extend the existing areas of native Caledonian pine and birch. By not relying on fencing, it is hoped to achieve naturally regenerated woodland, of mixed age and species on a landscape scale, the boundaries of which are not dictated or sharply defined. The reduction in grazing has led to a measurable increase in the amount and quality of montane scrub, a community extensive in Scandinavia, but rarely seen in the Scottish uplands. Dwarf birch *(Betula nana),* willows, and juniper are the major beneficiaries.

Treading lightly…

Perhaps the greatest success has been the Trust's work on the restoration of bulldozed hill tracks. Twenty-five kilometres of track have been restored, either by complete reinstatement of the ground or reduced to a narrow pedestrian footpath width. Much of the early work, carried out to an altitude of over 1,000 metres on Beinn a'Bhuird was pioneering. Individual turves of native vegetation, lifted from the spoil heaps, have been painstakingly handcrafted back into the re-profiled ground surface. Early trials were akin to landscape gardening on a montane scale, and following these early successes, machines became part of the reconstruction technique, a 14 tonne JCB being deployed in the less sensitive, heather dominated swards below altitudes of 850 metres. Confidence in the restoration design has enabled us, through continued SNH and EU funding, to extend the work with JCB to lower altitude tracks in the Cairngorm glens. The predominately grassy vegetation here transplants even more readily as large turves than the deeper rooted heather swards. In the context of rewilding, track restoration has achieved two main objectives: First, the removal of obvious landscape scars in an otherwise 'near-natural' environment; and second, through the cessation of vehicle movements, a significant expansion of a remote area, free from mechanical intrusion.

As an additional consequence of the revegetation methods used (no seeds or fertilisers have been used in any path or track work at Mar Lodge), we have applied these techniques to our high level and remote footpath construction and repair. The Trust's upland path repair programme is designed to combat erosion within a wild land perspective, rather than to facilitate access per se, so that pre-emptive and light touch techniques have been developed in the highest and remote sites. There is a subtlety of construction and route definition, and it demonstrates an empathy with our wildest and most beautiful mountain landscapes, with a much reduced visual impact.

Outwith Scandinavia and Eastern Europe there are few large areas of wild land in Europe. Hence Scotland's wild land is valued both at home and by visitors from the UK and abroad, both as a distinctive part of Scotland's heritage and identity, and for the outstanding opportunity for outdoor recreation and wildlife tourism.

Recognition for core values

For rewilding projects on this scale, where habitat change or enhancement is seen as a desired outcome, a long-term commitment is required. Too often, such a visionary approach may take second place to short-term economic expediency, or simply a desire to 'see things happen' immediately. By owning land in perpetuity, and by setting clear management aims, the National Trust for Scotland is in a strong position to promote rewilding in the uplands, and commit to that. In order for Mar Lodge Estate to reach its potential in terms of of habitat conservation as well as wild land within the Cairngorms National Park it is essential that the park is zoned to give special protection to the mountain core. The enabling legislation for the creation of National Parks in Scotland emphasised the need to cater for and be sensitive to the special qualities of each Park. The special qualities of the Cairngorms National Park are its wild land and montane areas. Such an approach provides a compelling case not only for zoning the park but for a 'core' zone matching the IUCN Category II, i.e. a National Park meeting international criteria. It would be the first National Park in the UK to have such recognition and would reflect on an international scale our responsibility to the Cairngorms.

WALES

Wilder slopes of Snowdon

ECOS 25 (3/4) 39-41 (2004)
Reducing stocking densities and regenerating woodland at Hafod y Llan farm is already rejuvenating habitats and creating a wilder landscape character on the fringes of Snowdon.

RICHARD NEALE

"Gelyn mwyaf dafad yw dafad arall" meaning "a sheep's worst enemy is another sheep" is often quoted by farmers to refer to the strong competition that exists between individuals within a flock. Even the most dyed-in-the-wool commercial sheep farmer will recognise that the prospect of stock reduction for nature conservation has a silver lining: fewer sheep means less competition, which means healthier, fatter stock. This is one of the lessons that are now being learnt – and taught - at Hafod y Llan farm, the National Trust's conservation farming venture on the slopes of Snowdon.

'Save Snowdon'

The 2000 'Save Snowdon' appeal captured the hearts of people world wide. The appeal's president, Anthony Hopkins dipped into his own pocket to the tune of £1m. The high profile nature of the appeal stirred up a debate about how best to care for beautiful places in our countryside. Time and again those of us who were fronting the appeal struggled with the question, what *difference* can the National Trust's protection actually make? So, now that the dust has settled and we have started to get to grips with managing the estate, we would like to think that the difference is starting to show.

The history of Hafod y Llan farm – and thousands of upland farms like it – over the last half-century or so is a familiar story. As stock numbers steadily increased, the biodiversity was insidiously eroded to the point that much of the farm hardly merited the status of National Nature Reserve. Mires and wet heaths that used to support breeding curlews and lapwings turned into expanses of unpalatable purple moor grass.Dry heath, once the domain of red grouse and merlin retreated to a few inaccessible cliffs, leaving a sea of mat grass in its wake. Furthermore, the distinctive Western Atlantic oak woods and upland ash woods that clothe the lower slopes were grazed at levels that excluded any chance of them regenerating.

So, having acquired the estate in November 1998, it was clear to the Trust and the Countryside Council for Wales that here was an opportunity to reverse this decline and to restore the habitats over a large block of the Snowdon NNR. Rather than let the farm on a tenancy in the usual way, the Trust managed the farm itself and employed a farm manager to oversee a grazing regime based on habitat restoration.

The grazing and monitoring regime

For the first two years, under farm manger John Till's management, we tackled the backlog of work on boundaries, buildings and infrastructure to get the farm back into shape. As this was in progress, we drew up a grazing and monitoring regime that now forms the basis of a management agreement with the CCW, which will fund a project to restore the habitats of this 1,112ha block of the Eryri Special Area for Conservation.

The regime itself identifies 14 management compartments at Hafod y Llan and 7 at Gelli Iago, the other farm that was acquired with Snowdon. In each compartment, the area of forage was measured accurately and a stocking figure was allocated according to the desired vision of 'favourable condition' (See Table 1). The statements of 'favourable condition' were agreed and monitoring of general condition in permanent quadrats was set up.

When the prescriptions from all of the compartments were added up, a global stocking figure for the farm was achieved. This resulted in sheep numbers being cut by half from about 3,000 ewes to about 1,500, and 65 head of hardy Welsh Black cattle being reintroduced. Additional land in Llŷn has been taken on to over-winter the sheep and finish the lambs for market. In addition, the farm is in organic conversion and has been entered into the RSPCA Freedom Foods scheme.

Woodland expansion and rewilding

One of our more radical plans is to rewild a 93ha hanging valley known as Cwm Merch. This entails restoring about 1 km of drystone walls and providing sensitively sited fences to allow heath and upland scrub to develop on a large block of open upland, by grazing it seasonally with a few Welsh Black cattle. Monitoring will show if this approach is the best way to restore the wildlife of similar areas that have been heavily sheep-grazed for generations.

Welsh Black cattle replacing sheep to improve the sward (Joe Cornish)

Another element is the expansion and restoration of the farm's woodlands by 50%. This will be achieved by stock exclusion in a few areas, but more experimentally by a pasture woodland regime involving light grazing by sheep, and occasionally cattle, in most woodland areas. The aim is to create a chain of diverse woods with open glades and scrub as well as tall trees. This part of the project has used the Forestry Commission's Woodland Grant Scheme and Partnership Funding grants.

Fitter herds, fitter habitats…

The reduction in sheep numbers have now been completed and we are building up a pedigree herd of Welsh Black cattle. It is too early to gauge whether we have got the initial regime right, but the agreement with CCW will allow for fine-tuning as a result of our monitoring. Already, there are very encouraging signs: heath is recovering sooner than expected in many areas and there is healthy tree regeneration appearing where woodland expansion is the aim.

The other result is that the stock reductions allowed John to select the strongest ewes and rams to breed from and the reduced competition between them has resulted in healthier, fatter lambs – with fewer enemies.

Part of the Hafod y Llan estate (Joe Cornish)

HAFOD Y LLAN ESTATE: FACTS AND FIGURES:

- 4,118 acres (1,666 hectares) of mountain land rising to the summit of Yr Wyddfa, Snowdon.
- 3 Farms currently managed by the National Trust as one unit
- 5 lakes.
- 250 acres (100 hectares) of oak and ash woodland
- Watkin path up Snowdon and other low-level walks
- Part of the Snowdon National Nature Reserve
- 2 outdoor pursuits centres
- 4 cottages, 2 chalets and 4 bunkhouses
- Premises for tree-surgery contractor
- Nantgwyant Village Hall
- Important flocks of Welsh Mountain ewes
- Summit of Cnicht and footpath to Croesor

Table 1 Example of a compartment grazing regime

Compartment Name: Bylchau Terfyn
Area 71 ha

Current Condition

Whole area dominated by Molinia; apparently a legacy of frequent burning and constant moderate sheep grazing. Some fragments of oak woodland and bracken in east of compartment.

Favourable Condition

Predominantly wet heath with areas of dry heath on rocky areas. Some bracken. A few scattered hawthorns and rowans becoming established in sheltered areas and sparse regeneration of oak adjacent to existing woodland pockets.

Initial Grazing Regime

Graze with 10 suckler cow equivalents from May to July to graze Molinia and otherwise 40 ewe equivalents (30 ewes + 10 ewe lambs) 16 GLUs. No supplementary feeding.

Other management needs

No burning. Compartment needs stockproofing from Dan Wal, Parc Hafod y Llan and Craig Llyn

Manage as separate Craig y Llyn flock (using Craig y Llyn earmark)

{**ed. note:** Richard Neale has updated us:

'The developments are that Arwyn Owen has taken over from John Till as our farm manager and, with the help of our Ranger, Dave Smith,has successfully completed a capital works programme to enable the package of diverse conservation grazing prescriptions to be followed. Our Wildlife officer's monitoring is showing that thanks to a balance of low density grazing by cattle and sheep, most compartments are classed as 'unfavourable recovering', as opposed to 'unfavourable stable' as they were when we took the farm on. Engagement is becoming ever more important to the farm, with many study visits from groups of all ages. We are currently working on a plan of installing hydro turbines to produce renewable energy for the farm'}

HOLLAND

Connectivity of nature in the Dutch landscape

ECOS 27 (3/4) 61-64 (2006)

The Dutch have a saying that "God made the earth, but the Dutch made Holland". Today the saying applies equally well to Dutch nature areas as to land reclaimed from the sea for over 800 years.

STEVE CARVER

This article explores the role of nature within the Dutch landscape and looks at recent developments in enhancing natural areas and connectivity across Holland and beyond.

At only 41,526 square kilometres in area (of which only 33,883 square kilometres is dry land) and with a population of nearly 16.5 million people, the Netherlands is the most densely populated of the principal European countries, with around 395 persons per square kilometre. This creates a need for a highly planned and managed landscape. As a result, few of us would normally associate Holland with wild nature, yet between the fields, houses and factories lies a remarkably dense network of National Parks, nature reserves and wildlife corridors. Many of these have always existed in one form or another, but have recently received protected area status. The Drentsche Aa, for example, was only designated as a National Park in 2002. Indeed, the Dutch nature 'planners' are currently engaged in a bold programme of nature creation, the flagship of which is the Oostvaardersplassen in Flevoland. Here, an area of polder of around 5600 hectares, reclaimed from the Ijsselmeer in 1968, was originally earmarked for agricultural land, housing and an industrial estate. It was later deemed surplus to requirements and has been developed into a natural wetland landscape of open water, reed beds and grasslands populated by a diverse range of bird life including spoonbills, cormorants, purple heron and Savi's warbler. To maintain a healthy ecosystem-mosaic, the reserve managers introduced a population of large herbivores in 1984, including Konik ponies, Heck cattle and Red deer. These are unmanaged and, with the exception of certain animal welfare practices, are essentially wild, self-sustaining populations. There are other such areas within the Biesbosch National Park, and along the Waal, Maas, and Lower Rhine rivers where previously agricultural land is being returned to a natural state by a combination of hands-off management, promotion of natural processes and introduced grazers.

Konik horses at Oostwaadersplassen (Hans Kampf)

Corridors, bridges and ecoducts…

The stated intent of the Dutch nature planners within the Ministry of Agriculture, Nature and Food Quality (LNV) is to create a highly connected network throughout the country and even joins up with similar networks in neighbouring Belgium and Germany. This is the Ecologische Hoofdstructuur (EHS or National Ecological Network), and is itself intended to link to the wider Pan European Ecological Network (PEEN) via core ecological areas, ecological development areas, preservation areas, and buffer zones with strategic ecological connections. The EHS takes its lead from Article 10 of the EU Habitats Directive which states:

> "Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies and, in particular, with a view to improving the ecological coherence of the Natura 2000 network, to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species."

Natura 2000 is the European network of protected nature areas and includes the intention to improve spatial connectivity between the protected areas for the sustainable protection of biodiversity. Connectivity is therefore a key concept of European nature conservation programmes. It is important in allowing for the movement of flora and fauna both as part of species re-introductions (whether planned or spontaneous) and in response to potential latitudinal and altitudinal migrations that might arise out of predicted climate change. Without such a system of connected natural areas and wildlife corridors some species might become isolated and locally extinct as habitats are modified. Because the original Natura 2000 network in the Netherlands contains insufficient connectivity, and the Dutch nature areas are fragmented and often widely separated, the LNV has proposed to link these areas via a series of bridges and corridors (Figure 1).

This is described in the paper on 'Ecological Networks: Experiences in the Netherlands… a joint responsibility for connectivity'.[1] This commitment extends to relocating agricultural production (including whole farms) and bridging physical barriers such as motorways with eco-bridges and eco-ducts (Figure 2).

The factors to connect …

Many of these Dutch projects are based on the need not just for nature, but also for wash lands for flood protection and storage. Since the near-disastrous floods and mass-evacuations of 1995, the Dutch government has been seeking ways of making the low-lying flood plains and polders that make up a large part of the country more resilient to the effects of flooding and climate change. Reverting large areas of the flood plains which adjoin the major rivers and their distributaries in the Rhine delta area is one way of achieving this goal. Together with a highly informed and 'green' population these plans and the associated resources have met with only limited resistance from some local interests, since they are widely seen as being in the best national interest.

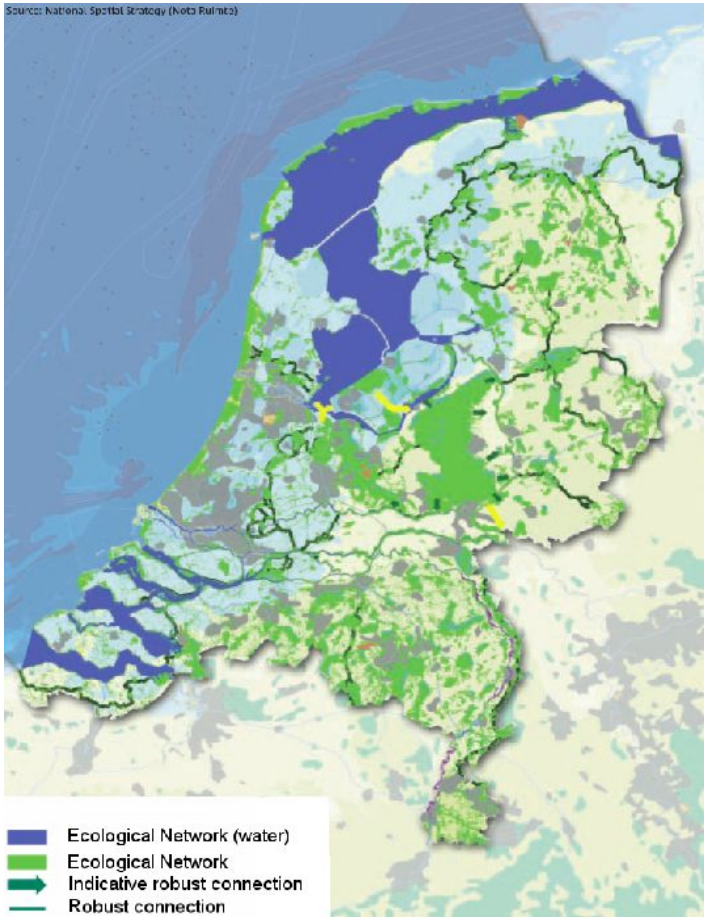

Figure 1. Ecological network proposals in Holland

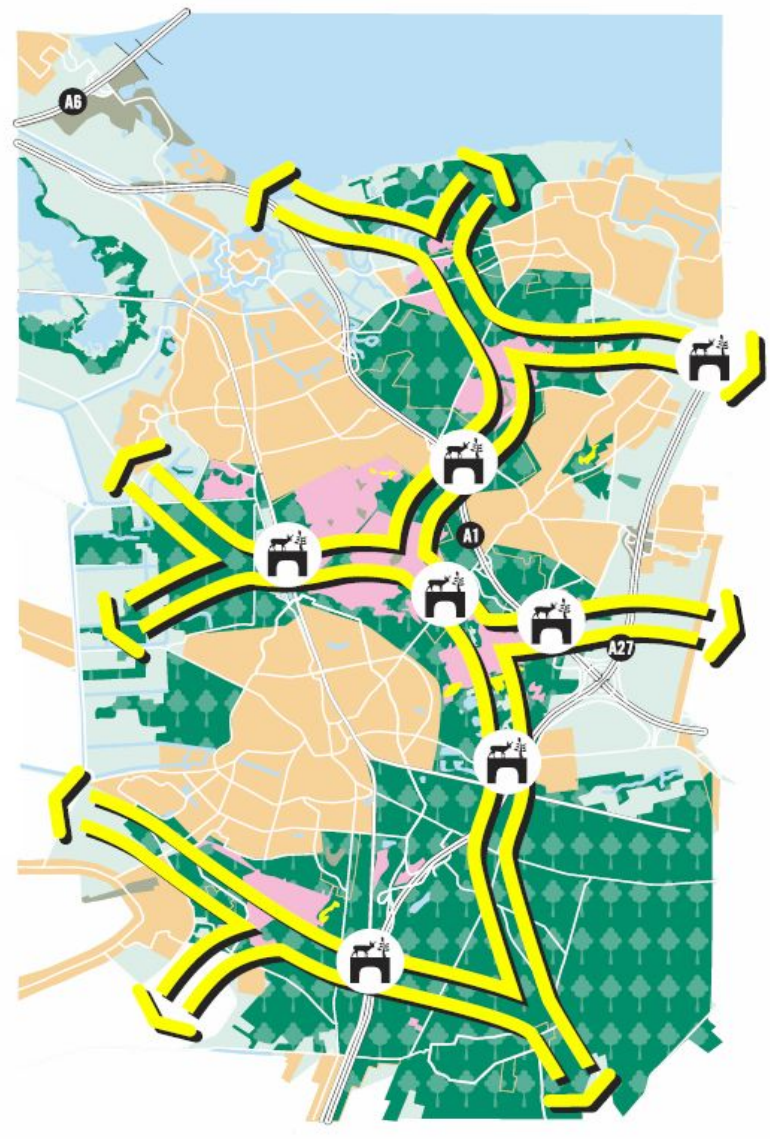

Figure 2. Eco-bridge proposals to counter habitat fragmentation

There are perhaps lessons here for our own implementation of the Nature 2000 network and linking up of existing designated areas within the UK. Efforts should be made towards mapping the potential linkages between our natural areas, improving those that already exist (whether notionally or on paper) and identifying gaps and opportunities for bridging these. Many of the UK's protected areas show remarkably good connectivity, whereas others do not, such as the 'Black Hole' of the Midlands area. A wider overview of the functionality of the UK's natural areas, their connectivity and resilience is needed. This needs to be done at multiple scales from national, through regional to local in order to develop both a broad brush and detailed understanding of the potential to link our nature areas into a network. Of course, good work is being done in this field, but a comprehensive overview and national strategy is perhaps still lacking. A multiple benefits model will help 'sell' this approach to both the general public and decision-making bodies, as well as making it worthy of public funds. The former Countryside Agency's 'Countryside In and Around Towns' initiative (2005) is perhaps a useful starting point in that it provides a framework for looking at green infrastructure for nature and people with a particular focus on functional green spaces at the urban-rural interface.[2] Connectivity is again seen as pivotal in planning a better linkage between these green spaces. One means of achieving this would be the bold use of existing physical networks in the form of floodplain corridors and river restoration schemes to link existing green infrastructure. Figure 3 shows existing Natura 2000 sites and other designations for part of the Greater Ouse catchment centred on the Humber. The flood plain areas show how the existing nature areas could be connected using flood plain nature corridors, given appropriate political will. With the Dutch experience in mind, this might just be the vehicle for promoting Natura 2000 connectivity across the UK over the next 20 years.

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2. Countryside Agency (2005) The Countryside In and Around Towns: a vision for connecting town and country in the pursuit of sustainable development. http://www.countryside.gov.uk/Images/CAT_tcm2-22089.pdf

New nature in Holland – attitudes and achievements

ECOS 27 (3/4) 65-69
The Dutch are investing in new spaces for nature and in connecting them up. Understanding what motivates this approach in Holland might help us make the case here in Britain.

ALISON PARFITT

Two maps …

I have two maps on my wall. One is the Character Map of England – Landscape, Wildlife, Natural and Cultural features. It is beautifully coloured, outlining the 159 different Character areas with towns and transport routes to show where you are. This map summarises a vast amount of knowledge about the diversity and character of our landscapes; and should be one of the main building blocks for the new agency Natural England.

Beside this map is one I brought back from the Netherlands. It is a more sketchy, lively bird's eye view of the Veluweroute, part of the Dutch ecological networks (EHS)[1] connecting 'nature' land and waterways across the Netherlands and into neighbouring countries. Drawings of numerous animals and bits of vegetation indicate the species (some are re-introductions) that the networks will support. Then walkers, canoeists and winter skaters illustrate how the human species benefit too. Here is creation and recreation. This map has a different feel - does it indicate a more dynamic aspiration for future land-use planning?

I went to the southern Netherlands with a lot of binocular-toting wildlife enthusiasts and it was wonderfully easy to be completely in the moment seeing beaver, spoonbills, beautiful gutsy Konik horses, Heck cattle and many other charismatic creatures in 'new' habitats.

Heck bull with red deer in the background (Hans Kampf)

First: What has changed the attitudes of a whole nation, to embrace this new nature?

Second: How are people persuaded to choose nature and wildlife above all else at a local level?

Here are thoughts on these two questions…

A solitary mustard

It was a Dutch ecologist who reminded me that in living memory, just over 50 years ago after WWII, there were people starving in the Netherlands. It is easy to imagine how that prompted a national commitment to feed the nation at home and the success of intensive agricultural production becoming a source of pride. This is now the most densely populated country in Europe and talking about land use to a Dutch friend prompted her to ask if I had seen any farm cows? "No, don't think I have", I replied. "Because they are all inside these days, it is more economic…" she said. On the last day of our visit, one of the group commented on not having seen wild flowers outside 'nature areas'. Another replied that he had seen one volunteer mustard on a road side.

The EHS will connect up Natura 2000 sites and deliver the EU HabitatsDirective[2] . It is seen mainly as a response to climate change threats and associated flood water management.[3] But perhaps even more significantly, when thinking about people's attitudes, the EHS is seen as a way to meet the increased Dutch demand for countryside. This springs from choices about use of free time, increasing prosperity, urbanisation and an ageing population. The Dutch want to have accessible nature closer to their doorsteps, without barriers or borders. They desire nature, which they can enjoy, walk in and cycle through. Is this why the EHS has struck a chord with local authorities and private enterprise as well as with nature organisations, and at a national policy level?

Pony burgers and seeing storks

The Geldersee Poort is the area between and around the cities of Arnhem, Nijmegen and Emmerich where the great River Rhine branches into the Lower Rhine and Waal. Here regular flooding, controlled by systems of summer and winter dykes, hampered the latest intensive agricultural advances so the lands known as the river forelands have been seen to be 'economically handicapped'. In 1992 WWF Netherlands launched *Living Rivers*. This scheme introduced clay extraction as a new economic driver which could:

- (partly) substitute the declining role of agriculture
- contribute to the ecological restoration of the riparian landscape
- contribute to improved and sustainable flood prevention.

New partnerships between land owners, the clay and sand extractors and brick makers and nature organisations have profited and grown. Surface clay deposits are removed and then nature reclaims the place. At the same time Stichting Ark[4], an NGO partnering WWF Netherlands, delivers a field education programme for primary schools and promotes the opportunities for the local population and for tourists who are discovering this new nature area. As an example they run the Wilderness Café where you can buy local produce and eat the meat from animals in herds of natural grazers. It really is an experience of sampling pony burgers, eating the view and seeing storks.[5]

A new type of flood

All this makes great sense and feels like a win-win. It is even more inspiring when we remember that it is the Dutch who centuries ago taught much of the world about draining wetlands, managing water and stemming the tides. Several times when arriving at a site, amongst the first things we were told is how far below sea level we were. But several people spoke about the great floods of '93 and '95. The power of these floods to overcome all controls came as a shock to a nation of people used to the idea that you move stock from one field to another by boat and live between land and water in harmonious ways. Somehow this shock was converted into realisation that it was time for established practices and cultures of water management to change. Even in this country of tightly managed land, with not a space wasted, the rivers must be given more land to swell and recede. Flood plains will flood. So documents talk of budgets for river flood defence delivering the EHS as well.

Prof Bob Johansen of the Institute for the Future IFTF, talking about another map, the IFTF Map of the Decade which outlines future trends that will shape our world, says that "it takes about 30 years for a major shift to become an 'overnight success'. The shift in the attitudes of consumers towards sustainability being a prime example."[6] Perhaps some attitudes might be changing faster than that in the Netherlands.

Nature plus

When in nature areas in Holland I was very aware of the rest of the world at the same time. Enormous barges go about their international business on the rivers; giant pylons and wind turbines are obvious and effects of trains and traffic are often close. I saw my first beaver on the other side of the waterway from the hostel I was staying in. It all feels very local, with little feeling of being remote or 'in the wild'. Perhaps more like living different layers of life simultaneously, just like the EHS eco-bridges which carry the green of the landscape and animals of the nature places over multi-lane motorways and railway. But even with this clever layering, some choices have to be made.

The Dutch 'Serengeti' at Oostwaadersplassen (Hans Kampf)

Disappearing act

West of Arnhem and also on the Lower Rhine is the town of Renkum. Here the small Renkum stream flows beside the town, from the Veluwe to the north into the Rhine. On the western edge of the town, straddling the stream was a large industrial site of several hectares. Now it is not there.[7] The complete site was removed, not bridged over, in order to reinstate the valley of the Renkum stream as a green corridor connecting the Veluwe heathland with the Rhine valley. I expect that compensation funds were central to this disappearing act, as they have been elsewhere in acquiring strategic tracts of land for parts of the ecological network. Having a compensation fund to draw upon puts you in a helpful bargaining position, and in this instance a figure of Euro36 million was mentioned.

Fast changes

At a national level there seems to be much support for more nature and the ecological network approach, but how does this work at the intimate local government level, especially when the local economy is involved and jobs disappear? The Dutch have a commitment to complete their ambitious and robust ecological network by 2018. We could learn a lot from knowing how they are making this happen and how and why attitudes are changing.

References and notes

[1] Due to the large changes in land use since the beginning of the 20th century the countryside in the Netherlands has deteriorated a great deal. The area of nature in the countryside has halved from around 900,000 ha in 1900 to 450,000 ha in 1990. The EHS is an extensive national network of nature reserves linked by robust ecological wildlife corridors, covering 750,000 hectares. The Dutch are committed to have all this in place by 2018. Over 250,000 hectares will be developed from scratch to create the EHS. Around 150,000 hectares of agricultural land will be transformed into nature reserve. The 'new nature' is in part entrusted to nature conservation organisations. Increasingly often however, the land stays in private hands. In this case the owner receives a subsidy for private nature development.

[2] Working Paper Ecological Networks: Experiences in the Netherland by Monique Hoostmans & Hans Kampf pub Ministry of Agriculture, Nature & Food Quality Dec 04; Papers at European Nature Conference 2005 hosted by the Dutch in Apeldoorn and the resulting Apeldoorn Appeal http://www.natureconference.org/default.asp?id=173

[3]http://www.snm.nl/pdf/0100_climate_change_and_the_effects_on_nature_september_2005.pdf

[4] http://www.stichtingark.nl/

[5] http://assets.panda.org/downloads/policyguidegeldersepoortdef.pdf

[6] quoted in elements, journals of the Environment Council Issue 30 05/2006 Reviewing the Future

[7] Before and after photographs on page 16. Working Paper Ecological Networks: Experiences in the Netherlands by Monique Hoostmans & Hans Kampf pub Ministry of Agriculture, Nature & Food Quality Dec 04