

Photo Bill Cowie.
Read about Isle of Rona venison on page 13



Tom Turnbull, Chairman
Association of Deer Management Groups

Managing Expectations for our Uplands

What should the uplands of Scotland look like in the future?

Expectations about the future look and management of Scotland's landscape weave through a range of environmental, agricultural and land-reform policies being implemented by the Scottish Government.

Time will tell if these complex policies required to deliver their desired targets for social, economic and environmental benefits as well as climate mitigation can be achieved. Meanwhile, the reduction of our red deer herd continues.

As a backdrop there's the perhaps simplistic and poorly evidenced assumption that fewer deer will result automatically in more trees and an environment better equipped to combat climate change. But is this true – and at what expense?

Red deer have long been a part of the cultural history of our upland hills and glens. They are vital to many remote rural communities providing a valuable opportunity for young people to live and work locally. Deer

management is challenging, carried out often in winter weather and over difficult terrain, yet most employed in it care passionately about the deer.

How our landscape is managed is also viewed as a key driver in combating species loss and climate change. Much has been documented about the detrimental ecological impacts of deer on biodiversity and carbon-rich habitats like peatlands and woodlands, which places deer managers in a unique but challenging position to help.

Hard work is underway to restore peatlands and establish trees whilst reducing deer numbers, although recognition for these efforts is hard to come by – commitment that has seen deer numbers as verified by Government data drop over the last 25 years in the Highlands.

But reality is nuanced. Nature's response to fewer deer may prove disappointing to those expecting to see Scotland's glens suddenly flourishing in dense, native woodland.

Chairman's editorial

Continued...

For those delivering Scottish Government targets past experience shows that simply reducing herbivore numbers, including sheep, to very low levels (or excluding them from an area) cannot guarantee woodland regeneration. Without a seed source trees will struggle to regenerate and, even if they do, progress may be slow.

For our wetter, nutrient-poor west coast ecosystems some expect heather and blaeberry to recover and woodland to appear when herbivore numbers are reduced significantly. However, results are often disappointing with large areas overrun with dominant, unproductive *Molinia* grassland with which other species cannot compete. This, coupled with reductions in a deer population that some have

managed for generations, can be hard to swallow.

ADMG, whilst challenging the generalization that fewer deer automatically means more trees everywhere, would welcome a wider conversation about what happens when herbivore numbers are reduced but habitat fails to respond as expected, and our approach needs to be targeted and adaptive.

With woodland planting and agri-environmental schemes in development, and the experience of current and past schemes and incentives difficult to assess, government also needs flexibility in its approach to biodiversity and climate gains. We must understand where swift progress can be made, or marginal gains enhanced and

where we may have to intervene with other management tools such as cattle-grazing.

Some habitats will respond slowly, or in unexpected ways and the harsh environment in which the deer live, and deer managers work, could take many years to respond to change. ADMG fully supports the need for biodiversity improvement and addressing the climate crisis but expectations must be managed.

We should talk now, before disappointment over results at the highest level means that deer continue to be vilified when they have little or no bearing on nature's response. We must also take the deer managers – the very people expected to deliver these targets – with us.

There is no 'one size fits all' heather management method for protecting carbon-rich peatlands

Information provided by the University of York

A major study has provided answers to the ways in which heather-dominated peatland can be managed, with a number of methods to choose from to help tackle the impacts of climate change and biodiversity losses.

Researchers at the University of York have completed 10 years of a 20-year study that compares the impacts of different management options on key aspects for mitigating climate change, increasing water storage and quality, as well as supporting biodiversity.

Reporting at the 10-year mark, they found that heather burning, mowing or leaving it unmanaged should all be available tools that upland land

managers can use, with the method being determined by the condition of that particular piece of land and particular aspects – there was no 'one size fits all' approach.

Carbon storage

Healthy peatland gathers and stores atmospheric carbon, as well as retains water, providing much of our drinking water and reducing the risks of flooding in certain areas, and provides a home for many different species, including birds, butterflies, and bees.

Heather growing on peat soil can quickly become dominant and out-of-control if the vegetation is not managed, but methods of

management have been an area of debate for many years – some landowners preferring to use fire as a method to maintain healthy growth, others using mowing, and some prefer the land left unmanaged.

Burning and mowing

The study showed that the burning and mowing of small patches of heather supported increased vegetation diversity, with increased levels of sphagnum moss, which are especially supportive of peat formation, compared to uncut plots. The study also predicted a greater number of some ground-nesting birds on burnt and mown plots, as the taller, uncut, heathers limited appropriate nesting sites.

Burning, in particular, was good for nutrient content for grazing animals but also for carbon uptake, likely due to the fertilisation that ash provides. Mowing, in particular, benefitted peat wetness to a small extent but the additional benefit only lasted a few years after mowing.

Long-term impact

Associate Professor Andreas Heinemeyer, from the Stockholm Environment Institute at the University of York, who led the work, said: *"Peatland management is extremely complex and also highly emotive. Despite their importance, it was increasingly clear there was a major lack of knowledge over the long-term impact of heather-dominated peatland management in the UK uplands."*

"After ten years our ongoing study on peatland management is finally providing some of the answers on how heather burning compares to mowing or uncut approaches. Concerns around burning, for example, are often focused around the large emissions from fire, but we found that whilst carbon loss from the burnt areas is higher in the short-term than from mowing, it then falls as vegetation regrows and takes up a lot more carbon."

"From mowing you lose a lot of carbon in the long-term as the brash decomposes, which confirms previous modelling studies. There is a growing body of evidence that burning management approaches can play a more important role in carbon sequestration than previously thought."

"After about six years the predicted carbon balance for the burnt plots showed a carbon sink and over the 10 years it absorbed more than twice the carbon compared to mown areas."

"If we compare this to unmanaged heather areas, we find that although they soak up most carbon over the course of our study, over time as the heather ages, it becomes less efficient in taking up carbon and



Healthy peatland gathers and stores atmospheric carbon.

Photo: University of York

these areas also get drier, allowing microbes to decompose the peat. As a result, uncut areas absorb less than half the levels compared to at the start of our project."

Wildfire

The study also looked at the increasing threat of wildfire in the UK and its consideration on management techniques. Although there are some initial benefits to allowing heathers to grow unmanaged, it dries out the peat and comes with the very real risk of them catching fire due to the warmer and drier summers. These unpredicted and therefore unmanaged wildfire events can result in threats to wildlife and huge carbon losses when the fire burns into the peat.

Dr Heinemeyer said: *"Ultimately what this means is that there is no one management system that all landowners should use, but we now know that there is a choice and evidence to support those choices, which has been lacking previously."*

"A landowner, for example, may chose to leave areas of heathers unmanaged on very wet ground and where heathers are still at the right height to support wildlife, as well as the right age to support enough carbon capture, but this can change quickly, given the unpredictability of our current climate."

"Other tools, therefore, such as burning and mowing could also be used in suitable locations and at appropriate times in the heather's lifecycle, with landowners considering the likely impacts and benefits depending on site conditions."

The report to the project, initially designed in response to a Natural England and DEFRA request for research is available here: eprints.whiterose.ac.uk/194976/

More information on the project is available here: peatland-es-uk.york.ac.uk/home



Images

1. Ungrazed plot at Glen Finglas 17 years after the fences went up.

2. The ungrazed plot at Glen Finglas nearest existing woodland 16 years after fencing.

3. Fence line between one of the ungrazed plots (left) and one of the heavily grazed plots (right) at Glen Finglas 17 years after fencing.



Robin Pakeman is an ecologist at the James Hutton Institute.

Curlews or black grouse?

The Scottish Governments has committed to reaching net-zero by 2045. It has also committed to halting the decline in biodiversity by 2030 and in reversing it by 2045. Whilst these are government policies enshrined in law and set out in strategies, the majority of land in Scotland is privately owned and it is these landowners who will have to deliver to reach these targets.

In the context of upland deer management two words are key to this: peat and trees. Firstly, peat as it is less contentious. Most people will have seen the statistic that peatlands cover 3 % of the world's land but hold 30 % of its soil carbon. As Scotland is relatively cold and wet, it has large areas of peat and other organic soils so looking after it helps both Scotland's net zero goals and the world's.

As peat bogs are mostly carbon, they formed through being overall carbon sinks. However, degraded and drained bogs become emitters of carbon, sources rather than sinks. Whether a bog is a source or a sink depends mainly on water table depth. If the water table depth is less than 20 cm, then it is likely to be a sink¹ and carbon losses accelerate as water tables drop below this.

For a land manager wanting to do something about their estate level carbon budget, then the most obvious step to take is to restore their degraded peatlands and Peatland Action is geared up to support these restoration activities. Our estimates of the benefits of doing this are improving all the time as technology is developed and deployed across Scotland. However, from my point

of view as a scientist, there are still a couple of questions to address to support peatland restoration: (1) how much do grazing animals, particularly deer, compromise restoration efforts and what can be done about this? and (2) when to stop muirburn if the area has previously been burnt as the vegetation change may be slow and fuel loads may significantly build up.

Trees are somewhat more contentious. Trees take up carbon and woodland has the potential to be a long-term carbon sink. The woodland expansion target of reaching 21 % of Scotland by 2032 means a lot of planting must take place each year; 18,000 hectares per year by 2024/25, though only a proportion of this is not plantation woodland. Natural regeneration can also complement planting under the right conditions.

One of the aims of the draft Scottish Biodiversity Strategy is for native woodlands to expand by reducing the impacts of deer. However, this may not work in all areas. Tree regeneration relies on three steps – dispersal, establishment, and escape from browsing. For the first, tree

regeneration will not happen without a seed source nearby and for the second a seed needs the correct conditions to germinate and grow. Few species will establish in deep vegetation litter, and many require bare soil generated by disturbance. Only the third process, escaping from predation and getting the canopy above browse height depends upon the density of deer. One illustration of this is from our Glen Finglas experiment, where we have had six exclosures for 20-years². Only the one near a good seed source has seen trees and shrubs get away, whilst in others the only thing to have happened is for the moorland vegetation to get taller and the litter thicker. The resources for culling and fences need to be targeted to maximise their benefits and we need to develop the methods to predict where culling will work or where different approaches are needed. Clearly, they can work – just think about the exclosures at Ben Lawers or the tree regeneration in Glen Feshie – but will these approaches work everywhere?

The uplands are seen as the natural place to put new woodlands as they are not seen as productive. However, recent research has shown that the carbon benefits of planting new woodlands are concentrated in the lowlands (on the more mineral soils) and that planting on carbon rich soils can lead to net carbon losses^{3,4}. It has been recognised that planting on deep peat is catastrophic, but recent research has also shown that planting birch and pine trees into dry heath had no net carbon benefit and even a decline in ecosystem carbon 12 years after planting birch. The easily decomposed birch litter compounded with drying increases carbon turnover in the heathland soils so that soil

carbon stocks decline quickly⁵. Open questions are (1) where, in terms of soil organic matter, is the boundary between trees being positive for ecosystem carbon and where they are negative, and (2) how long it takes for a woodland to become a carbon sink.

Also, of interest to the debate is that herbivores appear to have a role in protecting ecosystem carbon stocks. Large herbivores, like deer, can have a positive role for ecosystem carbon through reducing fire risk and severity, increasing albedo (reflecting heat away from the ground) and through shifting carbon pools into more persistent soil carbon rather than vegetation carbon⁶. How strong these effects are in the Scottish situation is another open question.

Increasing woodland area necessarily means reducing the area of open habitats, which means winners and losers for each decision. This has been a focus of the Glen Finglas experiment as we have examined how different species do under the different grazing regimes. For instance, beetle diversity and abundance are highest in the heavily grazed plots whereas moth diversity and abundance are highest in the ungrazed⁷. With respect to the birds, the original focus of the experiment, the meadow pipits do best in the heavily grazed treatment, but they are replaced by a wider diversity of birds where scrub regeneration is taking place⁸. This is where the title of the article comes from – having curlews on open ground or black grouse in regenerating woodland is a choice, but it is a trade-off that is often unacknowledged. Curlews have much lower breeding success near

woodland⁹. Both species are not doing well and need conservation efforts.

Even in this short article the complexity of the trade-offs with respect to regenerating upland woodland are apparent. The difficulties of decision making are hampered by uncertainty of success, the complexities of planning to minimise trade-offs and the chances of unintended consequences. The importance of land use decision making for future benefits is the subject of a new report from the Royal Society¹⁰. In this they make five recommendations that are all relevant to upland Scotland.

In summary:

1. Decision-making needs to consider multiple market and non-market land-based outputs,
2. Research and innovation are needed to improve the sustainability of all land-based outputs,
3. New infrastructure will be needed to provide skills, training and advice for land managers,
4. A high-quality common evidence base needs developing to underpin land use decisions,
5. A spatially explicit national land use framework is needed to ensure coherence across different areas of policy and between national and local scales.

The people making complex decisions on land use that affect us all need support. As an ecologist I have only focussed here on ecological processes, imagine the extra complexity of bringing in economic and social considerations as well.

1. Evans, C.D et al. 2021. *Overriding water table control on managed peatland greenhouse gas emissions*. *Nature*, 593, 548–552.

2. James Hutton Institute (undated). *Studies of grazing impacts on biodiversity at Glen Finglas*.

3. Matthews, K.B. et al. 2020. *Not seeing the carbon for the trees? Why area-based targets for establishing new woodlands can limit or underplay their climate change mitigation benefits*. *Land Use Policy*, 97, 104690.

4. James Hutton Institute (undated) *Woodland Expansion Tool*.

5. Friggens, N.L. et al. 2020. *Tree planting in organic soils does not result in net carbon sequestration on decadal timescales*. *Global Change Biology*, 26, 5178–5188.

6. Malhi, Y. et al. 2022. *The role of large wild animals in climate change mitigation and adaptation*. *Current Biology*, 32, R181–R196.

7. Pakeman, R.J. (undated) *Glen Finglas – A synthesis for stakeholders*.

8. Malm, L.E. et al. 2020. *Livestock grazing impacts components of the breeding productivity of a common upland insectivorous passerine: Results from a long-term experiment*. *Journal of Applied Ecology*, 57, 1514–1523.

9. Franks, S.E. et al. 2017. *Environmental correlates of breeding abundance and population change of Eurasian Curlew *Numenius arquata* in Britain*. *Bird Study*, 64, 393–409.

10. Royal Society (2023) *Multifunctional landscapes. Informing a long-term vision for managing the UK's land*.



Katie Harrower Partner, BH Wildlife Consultancy

Thermal drone technology aiding deer management

Drone technology is advancing at an incredible rate and in recent years it has proved to be an excellent way to census deer quickly and in a cost-effective manner.

Since 2020, BH Wildlife Consultancy has been developing a technique and methodology that draws on our wildlife experience and merges it with the latest drone technology to provide a new service offering land managers a snapshot of the number of deer on their land.

By using a high specification thermal imaging camera mounted on a modern drone platform, it is now possible to locate, identify and photograph each deer group across a variety of habitats. The thermal camera is able to pick up a heat source over 1.5 km away in open ground and allows you to get a close view of the deer without having to encroach on their space. In most cases, deer are not even aware that they are being recorded, so it's possible to observe their natural behaviour.

The zoom daylight camera provides high-definition images which make it possible to identify the species and even sex and age class of each deer group, if this additional information is desired. This information helps deer and land managers make informed decisions about how to aid the objectives of that estate.

One of the main advantages with drone technology is that results are quick to obtain, with a base number achieved in real time. Closer analysis and quality assurance of the data collected takes only a couple of days after the survey. This then allows deer management plans to be changed quickly to get the best outcome for the current population.

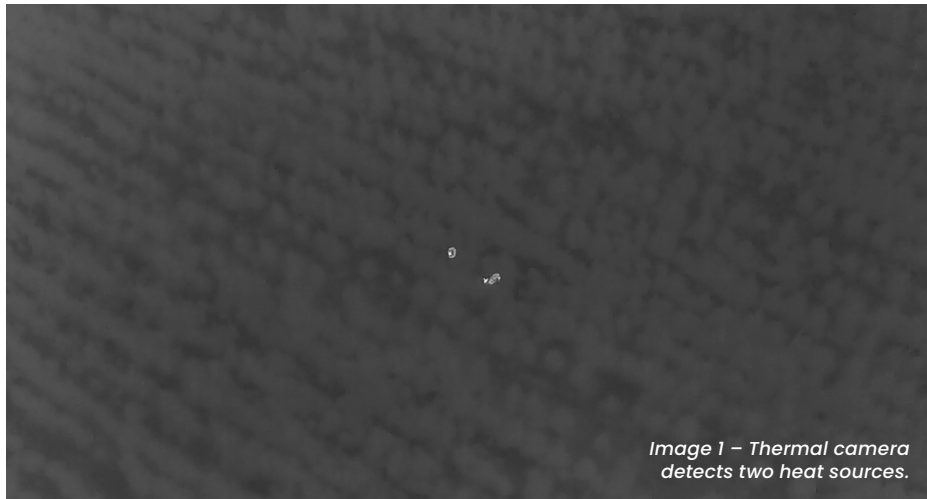


Image 1 – Thermal camera detects two heat sources.

While conducting surveys, we encourage clients to attend and observe the survey so they can see the deer as they are located. Attendance of people involved with the management of the land or deer population can be important if there is dispute on the number of deer in an area between two parties.

Currently, BH Wildlife Consultancy's primary methodology is to do a 'minimum count'. The survey area is covered in as short a time window as possible and in a systematic way to eliminate the likelihood of double counting. If there are any indications that deer have been detected already, it won't be recorded and imagery is reviewed at the end of each job ensuring the final survey number is always the minimum number of deer counted. There are, however, limitations to drone technology with weather conditions being a major factor. Heavy rain and strong winds make flying challenging, although the latest drone platforms are fully waterproof with impressive wind resistance ratings.

Thick fog can also be an issue for detection and obtaining images of the deer; as can hot weather as it heats up the landscape and makes thermal

detection less effective. Similarly, seasonal cover such as leaves on broadleaf trees and bracken also impact the images and detection. For this reason we mainly conduct surveys from late autumn through to early spring. Post thicket and mature un-thinned stands of conifer pose detection challenges, on these sites the timing of the survey is important to capture the deer once they have left these refuges, this may mean the survey takes place at night. We are continuously developing our mapping systems and working with a number of academics and statisticians to develop our methodologies.

Deer are photographed by the drone when they are located, and the images are high definition, date and time stamped and geo referenced. This allows further analysis if needed so that the data is quality-assured. The following series of images were taken at exactly the same time and show the capabilities of the drone's thermal and wide-angle and zoom camera. It demonstrates its ability to locate two Sika hinds in pre-thicket spruce, which could never be seen from ground level.

Further information can be found at: www.bhwildlifeconsultancy.com



Image 2 – wide angle shows the actual view of the landscape.



Image 3 – zoom camera can identify that the heat source was two sika hinds.

All photography by BH Wildlife Consultancy

New technology to aid deer counting

Innovative new technologies are being trialled that could help revolutionise the way deer numbers are tracked across Scotland.

NatureScot is working with Glasgow-based tech company EOLAS Insight to test the use of satellites, aerial imagery and artificial intelligence (AI) to accurately count deer.

Knowing how many deer use an area can determine how to manage populations for conservation or sporting purposes.

With many deer counts currently carried out manually by helicopter,

new technologies offer alternative solutions that could provide swift, accurate data across large areas whilst reducing the associated carbon footprint and cost.

Phase 1, supported by the Scottish Government's CivTech programme, used satellite imagery combined with newly developed AI image recognition software to identify deer, a technology now being used by EOLAS Insight to help count African elephants from space.

NatureScot is again partnering with EOLAS Insight to launch phase 2, which further explores the use of aerial imagery with images from a lightweight manned aircraft, with high-resolution camera being run through AI recognition software to automatically count deer numbers. Lightweight manned aircraft are significantly greener than helicopters and cover larger areas.

This approach could overcome some of the challenges of satellite use in Scotland, including weather and cloud cover and a higher camera resolution could allow deer to be classified as stags, hinds and calves and could be useful in assessing habitat type and condition.

Deer People Fund

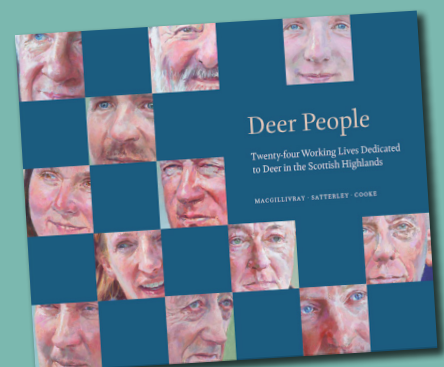
Thanks to generous sponsorship from Black Mount and Kingie Estates, the sale proceeds from the recent Deer People book have resulted in a £19,000 fund for educational and training purposes.

As a first project ADMG has set up a scheme to create 3-month overseas placements for young professionals with a hunting and conservation operation in Namibia and are working on a second in

Wyoming in the US. The fund will cover reasonable travel costs and the provider will provide bed and board throughout the placement.

Further details and application forms are available from ADMG.

Contact:
clare.irving@bidwells.co.uk





Julie Stoneman Chair of Finding the Common Ground Steering Group

Finding the Common Ground on Sustainable Deer Management

'Finding the Common Ground' is a joint project between the Association of Deer Management Groups (ADMG) and Scottish Environment LINK. It intends to develop better relations across the deer sector in upland Scotland to find shared solutions that will support the implementation of the Scottish Government's action in the light of their response to the Deer Working Group recommendations.

For decades, relationships between some of the groups involved in upland deer management have been characterised by low trust and conflict. If we are to genuinely navigate the changing priorities for upland deer management, we urgently need to understand, and then address, the barriers to workable relationships.

After about a year of preparation and consultation, the project kicked off at the end of August 2022, with a residential workshop for around 40 stakeholders representing different perspectives across the deer management sector – including private landowners and managers, deer stalkers, the Scottish Government and statutory agencies, public landowners, environmental NGOs, the agricultural sector, foresters and community trusts. The group was facilitated by Centre for Good Relations, an independent not-for-profit company whose core work is "civic mediation", involving facilitation and dialogue to work through issues of contention and dispute, and addressing social conflicts and tensions.

Over the two days the group picked apart some of the main issues that were blocking constructive dialogue between stakeholders, particularly around leadership and communication, addressing the impacts for people working on the ground, accountable dialogue and science and information. These issues are now being tackled through a mixture of background conversations and workshops designed by the stakeholders themselves, bringing in others as needed. The project is funded for one year, but its impacts are hoped to be felt for many years to come.

Tom Turnbull, Chair of ADMG said, *"At a time where land management objectives are rapidly changing ADMG welcomes the opportunity to work closely with deer managers from a wide variety of backgrounds to help deliver deer management on a landscape scale across our membership. The Finding the Common Ground Project has been a step in the right direction, and we hope it will help to facilitate collaborative deer management in the Highlands."*

Alan McDonnell from ScotLINK's Deer Working Group said,

"The deer debate in Scotland has been stuck in conflict for too long, and we can no longer afford to allow mistrust to undermine our response to the nature and climate crises. Achieving the spirit of collaboration so badly needed in deer management will be challenging, but the progress made so

far is encouraging and we're looking forward to seeing where this can lead."

This project is separate from, but is intended to complement, the processes that the Scottish Government is leading to implement the Deer Working Group recommendations. It should be seen as an enabling process to help identify and implement workable solutions on the ground and address the greater need for collaboration that the Scottish Government has acknowledged will be needed.

With thanks to NatureScot, Woodland Trust, Cairngorms National Park Authority, Loch Lomond and the Trossachs National Park Authority, Association of Deer Management Groups, Scottish Environment LINK and Future Woodlands Scotland for their generous funding for this project.

More information

Finding the Common Ground Project Brief
<https://bit.ly/3XM718D>

Latest update on the process
<https://bit.ly/3T4Jmzf>

Contact

Julie Stoneman, Chair of Finding the Common Ground Steering Group

julie.stoneman@plantlife.org.uk

Peatland ACTION marks first decade with new guide

Scotland's pioneering Peatland ACTION programme has published a vital new source of information and guidance on peatland restoration as it marks its first decade.



Peatland restoration in action at Auchlyne Estate, Loch Lomond & Trossachs National Park

The best practice guide to peatland restoration techniques has been compiled by NatureScot, Scotland's nature agency, and is built on the shared experiences of the Peatland ACTION programme since its inception in 2012.

As well as providing an overview of future restoration requirements in Scotland, it serves as a guide to the types of work that have already been undertaken over the past decade.

The guide – a technical compendium – includes novel techniques developed by the Peatland ACTION partnership, such as wave damming and zipping and new generation forest-to-bog restoration options. It includes information on the requirements for peatland restoration in Scotland and the potential means to achieve success and paves the way towards a UK-wide set of principles.

NatureScot's Peatland ACTION Programme Manager, Peter Hutchinson said:

"Since 2012, Peatland ACTION has set over 35,000 ha of degraded peatland on the road to recovery realising huge benefits for climate change and biodiversity, and supporting good, green jobs.

"Establishing a best practice guide for how to restore Scotland's peatlands is a welcome achievement as we mark Peatland ACTION's first decade. It demonstrates that our sights are set firmly on the future as we support the sector with the clarity of professional guidance it requires to ensure its contribution to mitigating the climate and nature crises."

Peatlands are one of Scotland's largest degraded ecosystems. When peatlands are degraded the benefits that they bring as a carbon store are lost – contributing to climate change rather than mitigating it.

NatureScot remains the lead delivery partner responsible for meeting Scotland's peatland restoration targets (along with Forestry and Land Scotland, Cairngorm National Park Authority, Loch Lomond & Trossachs National Park and Scottish Water). It is training new contractors and designers to expand the workforce and to support Scotland's nature restoration ambitions.

It is developing pre-apprenticeship schemes and supported the country's already over-subscribed first academic course in peatland restoration with Scotland's Rural College.

The new Peatland ACTION guidance is available at

www.nature.scot/doc/peatland-action-technical-compendium



Glen Nevis. Photo Iain King



Iain Thornber

Eye to the Hills

There can be few other outdoor activities in the Highlands which have generated so many books, photographs and newspaper articles as deer stalking.

To some it conjures up the unnecessary killing of an animal for pleasure, but the reality is very different. To professional stalkers born and brought up in the glens, it is a way of life whether you agree or disagree with shooting and eating them. The nobility of the stag, the romance of the hill and its hidden mysteries, the long days amongst nature, the ever-changing light and beauty of the landscape, the fascination and experience of being close to wild animals when they are unaware of being watched; all form a strong, invisible thread linking man to his ancient past. It is full of tradition, steeped in history and lore and dates back to the hunter-

gatherer era. But, like it or not, 'the old order changeth' and no matter how good it may seem at the time, nothing stays the same for ever!

The Scottish government has decreed that the wild red deer population is too high and maintain the industry surrounding it is failing dismally to deliver its climate change ambitions: consequently, land managers have been told to expect huge changes over the next few years. Quick to take up the challenge was the John Muir Trust – the leading wild land conservation charity in the UK dedicated to the protection and restoration of wild places.

Founded in 1983, the Trust takes its inspiration from John Muir, the Scots-born founder of the modern conservation movement. Like Muir, the Trust believes in protecting wild places for their own sake as well as the

benefits they bring. The JMT currently operates in Scotland, England and Wales and is guardian of some of the UK's finest wild places including 4,300 acres within the Ben Nevis and Glencoe National Scenic Area. Ben Nevis is the UK's highest mountain and consequently attracts more than 100,000 walkers and climbers from around the world every year.

One of the long-term aims of the JMT is to reduce deer numbers to enable the native woodlands to expand and fulfil their natural potential benefitting the many plants, insects, and Scots Pine communities without restricting access with unsightly high wire fences that can endanger golden eagles and other bird species. Like many other rural practices deer management incurs an environmental cost. Vehicle trips to the hill, recovery of carcasses, ammunition (including moving away from lead which is poisonous to raptors) fencing, larding, storage, refrigeration, electricity, waste disposal, packaging and transport to market – all help to raise Green House Gas emissions (GHGs) which is now of serious concern worldwide.

Due to the popularity of Ben Nevis the deer have moved into the more

peaceful hinterland which has proved challenging to the JMT management team tasked with bringing numbers down to an acceptable level. Glen Nevis, (Gaelic: Nibheis meaning the evil place on account of its dangerous terrain) is bordered to the south by the Mamore range, and to the north by Ben Nevis, Càrn Mor Dearg, Aonach Mòr, and Aonach Beag. It is also home to Steall falls the third highest waterfall in Scotland. Below is a deep and impressive gorge. According to W H Murray, writer and Everest climber, the Nevis Gorge is one of the finest of its kind whose rugged walls sprouting native pine, oak, birch and rowan give it a Himalayan character not to be seen elsewhere in Great Britain. It was thanks to Murray and broadcaster Tom Weir (whose seated bronze statue can be found in Fort William at the end of the West Highland Way) that the gorge was saved when there was a plan backed by Inverness and Fort William Council to build a massive concrete dam across it in 1960 for a hydro-electric scheme which would have flooded much of the upper glen.

Soon after leaving the end of the public road a narrow path, built in 1900, leads to Steall where there used to be two shepherds' cottages. It has been improved periodically to ease access and to reduce the damaging effects of soil erosion caused by many walkers, but it remains challenging and potentially fatal as a sign in the carpark warns. The way soon becomes rough and at one point has been cut out of the rock before ascending a boulder strewn section as it reaches the head of the gorge. In other words, it forms a natural barricade to the upper glen and is not a place to be trifled with other than by seasoned hill walkers having a head for heights and appropriate footwear.

It is this barrier which makes it nigh impossible for the deer stalkers to work as efficiently as they might. Under normal circumstances carcasses would be extracted by pony or all-terrain vehicles (ATVs) such as low-ground pressure machines called Argocats, but not here.



Iain King carrying a deer carcass up the Steall Gorge path, Glen Nevis.

Photo: Iain King

To overcome this and to help reduce GHGs, dedicated stalker Iain King, who has lived in Lochaber for over twenty years, and works with the local JMT management team, has come up with a solution by carrying whole animals weighing up to 185 lbs on his back along this perilous 1,000-yard track – truly a herculean task after a hard day on the hill. The alternative is hill-butchering which means the venison cannot be sold but is cooled and then carried out in rucksacks and used by the stalkers and their friends and family.

Shaun Monk, a professional NZ hunter writes, *'Most of us do our deer hunting the hard way here. Just getting yourself into this rugged terrain is enough of a challenge, let alone carrying a carcass back home. Now there are a handful of people who call me out for being wasteful to leave parts of a deer on a remote hillside. Many will resort to back- packing out just the high-quality meat portion of the animal and this still yields them some really good venison.'*

I've also carried numerous whole carcasses out of the bush and when I say numerous, I mean over 150 tonnes worth but it's a bitter

reflection to realise that 60 tonnes of that was the stuff that I just threw away, skin and bone'.

Nothing is wasted by the stalkers in Glen Nevis. Any minor unwanted animal parts which would normally go to landfill, are left on the mountains as supplementary food for golden eagles and other birds.

The JMT encourages greater community involvement and through this they have over a number of years involved competent local people. Iain King, who was born and raised in the Highlands, spends most of his free time in the glen recording shifting deer populations and other wildlife activities, and also keeps a close eye out for anyone who may have lost their way in the remote high passes. All of which makes him ideally qualified as he goes quietly and conscientiously about his business.

'It's simply not enough to just show up and do your work. Superior performance is not, never has been, nor will it ever be, the by-product of ordinary efforts.'
(Gary Ryan)

iain.thornber@btinternet.com

Focus on Venison

Small Producer Processors

One of the ways that the pressure can be taken off the major processors in the face of an increasing cull and a scenario where available raw material is well in excess of capacity is for producers to consider establishing their own small or micro processing units, processing their own product for sale locally or further afield, branded with an interesting backstory, reduced food miles and providing opportunities for local employment.

NatureScot in its presentation to the Deer Management Round Table in December 2022 suggested that future shortfall in capacity may be as great as the throughput of Scotland's largest venison processor.

The Scottish Venison Association and SAOS in a joint project have secured funding from the Scotland Food

and Drink Partnership Covid-19 recovery programme to support three small processor pilot projects in Morayshire, North Argyll and Dumfries and Galloway. As these projects progress their experiences will be used to inform the sector through a knowledge transfer programme. Separately, with Scottish Craft Butchers and Craft Skills Scotland a venison butchery one day skills course for stalkers and butchers, and which has been tested at Jahama Highland Estates, will be rolled out in 2023.

The concept is of course not new. On the following pages are case studies from four enterprises that have been through the process and which contain a wealth of helpful information for others who may be considering this route for their venison.



*Tree Planter Burger.
Photo: Kristy Brown*

Knoydart venison

Kristy Brown Knoydart Wild Venison

The Knoydart Foundation (KF) is a community landowner with responsibility for the management of about 6,800 ha of the Knoydart Peninsula. Since the land purchase in 1999, deer management has focused on reducing open range habitat impacts whilst maintaining a viable stalking business to fund operations.

In partnership with the Knoydart Forest Trust, remnant native woodlands have been regenerated and new woodlands established, by excluding deer from fenced areas. Now, the Black Hills Regeneration Project funded by NatureScot's Nature Restoration Fund, is moving environmental recovery efforts up a gear, by linking existing

deer fences to enable significant deer density reductions over about 3,000 hectares of KF and privately owned land. This will increase the annual cull of red deer from about 200 to 300 for two years.

Knoydart Trading Ltd (KT) is a subsidiary of KF which operates the business interests and is responsible for the sale of venison. Traditionally whole carcasses have been shipped to Mallaig for collection by a game dealer but in 2012 improvements were made to the Victorian deer larder to create a basic butchery space. With a part time butcher appointed a small proportion of the cull was then able to be broken down for local sale, although facilities were not up to standard for full processing. The high cost of shipping to Mallaig meant that our

long-term aspiration was to butcher all carcasses produced and expand into value added products. For this we needed to make improvements to our existing historic larder, install a septic tank and increase space, which required finance.

With the onset of the first Covid-19 lockdown, the collapse of the national venison market and low prices being paid by game dealers this meant that it was often actually costing us money to sell carcasses whole. It became crucial that we re-instate the butchery and develop a viable processing business.

Armed with volunteer effort and a more detailed business plan, in December 2020 KT obtained a 35% grant from Highlands and Islands Enterprise. A prefab butchery unit was purchased, installed and by December 2021 we were up and running. Our core team is comprised of four locals, who work part time around their other commitments, equating to at least 1 FTE job. Butchery happens during the cull, but we also process trim into our value-added products throughout the year. During the summer when demand for products is high, we can take on additional staff who have often come to Knoydart for other seasonal jobs.



*Knoydart venison
- inside the butchery unit.
Photo: Kristy Brown*

We have managed to process 60% of the cull this last season, but we are still limited by staffing, freezer storage space and market development. This year we have been fortunate to work with Ardgay Game who have taken excess carcasses and are very encouraging of venison producers. We sell direct to consumers through the KT owned community shop and also through a few retail outlets within the Small Isles and Mallaig.

It is hoped that sales will increase again this year when the community owned Old Forge pub starts catering again, following a full re-fit early this year. We are soon about to launch mail order which will increase turnover of product, available storage space and take us into

profit. The logistics of setting this service up from a geographically remote area in an efficient and environmentally friendly way have been challenging.

The brand 'Knoydart Wild Venison' is now part of KT and will not just benefit community finances but will generate job opportunities, contribute to the sustainability of land management operations, and ensure we can continue to provide a low-cost, zero food miles, quality food for local residents and visitors.

www.shopknoydart.online
(launching soon)

www.knoydart.org

www.knoydartforesttrust.org

Instagram: **[knoydart.wild.venison](https://www.instagram.com/knoydart.wild.venison)**

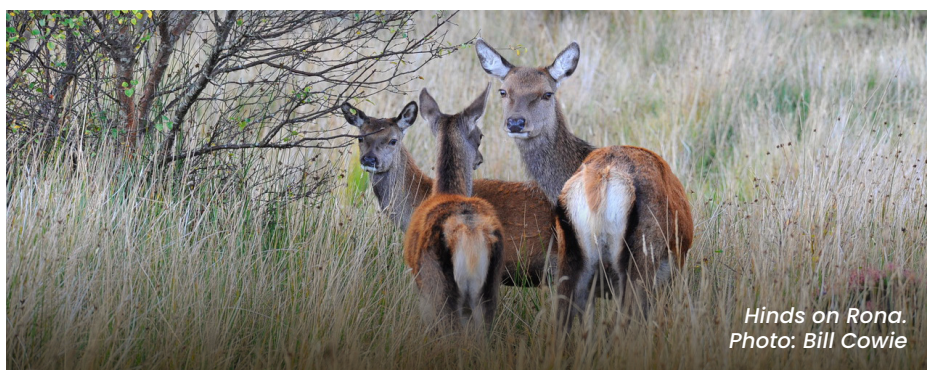
Rona venison

Bill Cowie

In 2003 the decision to introduce red deer to the Isle of Rona was highly controversial: we had an ongoing Scottish Forestry Grant Scheme - why would we want to introduce deer onto a 2,400 acre island with the perfect environment for regeneration, where no herbivores were present and the regeneration of the trees was seen as paramount?

However, we felt that the deer, given time, would increase biodiversity and habitats, acting as natural foresters to open up paths throughout the island improving access, and eventually provide an income from stalking and venison with sustainable culling. In effect, regeneration would be managed by the deer, and their presence enhance the Island.

Admittedly there were hurdles to overcome; in the early years of small culls it was unviable to send away one or two carcasses by boat to the game dealer. However, estimating a potential future cull figure of 20 to 40 deer annually, we decided to deal in game ourselves, building a larder



*Hinds on Rona.
Photo: Bill Cowie*

and acquiring a license - the initial market being guests in the island's holiday cottages.

From these early days, we have increased venison sales to our full capacity. Word has spread amongst our summer visitors that quality venison is available from the island and many make special trips here just to purchase supplies of it. We have also built a small and loyal market for Rona venison locally, including several thousand venison burgers to the local chip shop since 2020 despite the pandemic.

Many stalkers will not be interested in spending days in the larder butchering endless carcasses but for some it is satisfying to offer your own prepared venison to the market. Once a modern larder is in place the costs are minimal, the

opportunity to increase employment through butchering and selling on the finished product are attractive to certain estates - especially those with a high cull figure and a proven local market. If demand outstrips supply then there is the potential for neighbouring estates' deer to be processed in a joint venture too.

We butcher our venison to a very high standard with inevitable trimmings and when the local vet was looking for venison to feed to a canine patient, this opened up a further avenue for healthy pet food which we now produce for a network of owners, and hence achieve almost zero waste from the carcass.

Traditionally, apart from a summer stag or two, or winter yeld hinds butchered for the 'Big House' and Estate workers, most culled deer



*Rona venison, packed and ready for the boat.
Photo: Bill Cowie*

carcasses from the Highland Estate would be uplifted by the game dealer, giving a much-needed boost to

income. Many in the Highlands rarely consider buying venison, often having had bad experiences with badly-handled meat from unreliable sources. Alternatively getting it from the local poacher for next to or/nothing which is seldom the best handled venison.

But venison has become popular and estates should be well placed to supply the local market with a quality product, in season. It freezes well, it is healthy, and chemical free.

The Deer Working Group (DWG) Report and proposed seasonal/licence changes may be forced upon the deer world. It is clear that there has been no thought by the DWG or Scottish Government about out-of-season Scottish venison being offered as a quality product. The existing seasons

were put in place when the deer are best to eat and best to be culled. Let us keep it that way and make sure that estate venison is shot and sold in season and preferably local.

This year our cull figure was 35 red deer. Our turnover is expected to be four times higher than the game dealer's payment would be, whose rising overheads means that the price per kg is highly unlikely to rise above its current level for some time. It may be a good time to consider the next stage of deer management – the end product.

More information on Rona Venison from Bill Cowie

billcowie@isleofrona.com

Inchnadamph Estate venison

Craig Ross

Inchnadamph Estate is a beautiful, traditional stalking estate in Assynt, in the north-west Highlands, with an ancient herd of red deer that has been hefted on the place since time immemorial. In Gaelic, Inchnadamph means Meadow of the Stag and the local limestone rock makes for rich grazing that has always been a haven for livestock.

With my wife Susan and son, Connor, we are active members of the Inchnadamph community. I manage the deer with a view to maintaining a healthy and sustainable herd in balance with the habitat and ensuring a good quality of meat coming off the hill. The estate is Scotch Quality Wild Venison Assured, a high-level certification for deer management and meat processing standards.

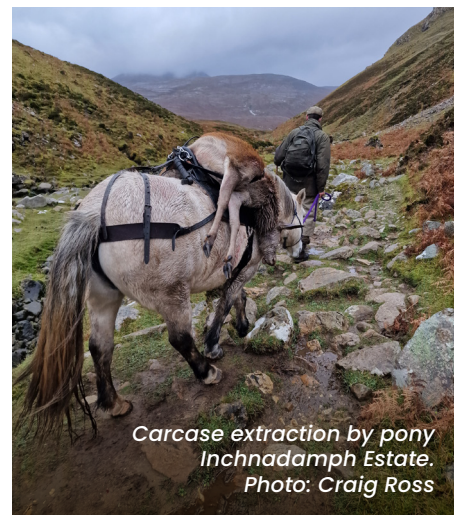
Sustainable management also recognises the importance of being connected with the Assynt community and the estate is proud to sell its venison locally. Carcasses are stored and processed in state-of-the-art refrigerated

facilities. A range of quality cuts are professionally butchered, prepared and packed onsite by me and my colleague Chris, from roasts, fillets, saddles, steaks and haunches, as well as stewing meat, burgers, Lorne sausage and lean mince. Minced off-cuts and bones have also proved very popular with dog owners.

When sold through supermarkets, venison is an expensive meat and availability is often patchy due to the complicated supply chain involving game dealers, third-party processors and often long distances from hill to store. Locally sourced and prepared venison sold direct from the estate is, however, much more accessible, represents better value-for-money and incurs minimal food miles.

Inchnadamph venison is sold mainly to local residents in Assynt but local hotels, cafes and pubs also number amongst its regular customers. Demand is now spreading with recent orders being placed from as far afield as Lochaber.

Customers appear overwhelmingly satisfied with the quality of Inchnadamph venison with regular repeat orders and positive feedback. Says one regular local resident: "I buy my venison from Inchnadamph



*Carcass extraction by pony
Inchnadamph Estate.
Photo: Craig Ross*

Estate as I know the deer have had a wild and wonderful life. The meat is high quality and straight from the hill to my plate, butchered by the stalkers themselves."

The Altnacealgach Inn has been a customer from the outset. According to landlord Craig Maycock: "the burgers from the estate are superb, top quality meat with a great balance of seasoning, incredibly popular with our guests who appreciate amazing local produce."

For further information on the delicious range of Inchnadamph Estate venison products, contact Craig on **craigross72@yahoo.co.uk**

Forest to Fork on the Black Isle

The only SQWV assured producer and processor in Scotland

Nick Richards



Photo: Nick Richards

For the recreational stalker, any spare venison can be a well-received gift or a form of currency. However, there may come a point when you end up with a surplus and these carcasses either have to go to the game dealer or you take the plunge and set up as a processor. For me, the tipping point came when a pile of venison on the kitchen table got mixed up with my daughters' jigsaw. The missing piece was found inside a pack of haunch steaks. Something had to change.

In the Wild Game Guide, the food hygiene regulations regard the hunting of wild game for human consumption as a primary production activity. This is significantly different to an Approved Game Handling Establishment (game dealer), which buys in wild game from multiple producers.

The Wild Game Guide describes the different types of primary producers and the requirements and restrictions which apply for each. In order to hunt

and process your own venison for sale, you will be required to operate under the category 'Direct supply of wild game meat by the primary producer to the final consumer or local retail establishment'.

As a primary producer, only those directly participating in the hunting activity may be involved in the processing; it is not simply a case of finding a butcher to process your venison. Also, the number of carcasses you can process, the geographical area within which you can operate and who you can sell to will be restricted.

Working closely with the Local Authority's Environmental Health Officer, setting up is relatively straight forward. You will need to register as a food business with your Local Authority and obtain your Venison Dealer's Licence. A Hazard Analysis and Critical Control Point (HACCP) plan is also required. This sounds daunting, but there is plenty of guidance available.

In 2013, I started building the larder around a 20' Maersk refrigerated shipping container – previously for transporting bananas, judging by the Fyffes stickers. I clad the inside in wet wall, the outside in Douglas fir and with help from my friends, gave it a tin roof. The basic larder unit has cost me c. £5,000 (and a lot of time), with a similar amount being spent on equipment.

I joined the Scottish Quality Wild Venison (SQWV) assurance scheme in 2017. I may still be the only business that is a member as both a producer and processor. This may in part be a reflection of the lack of small-scale primary producers, a fear of additional scrutiny or the cost of membership. If you maintain high hygiene and welfare standards and keep accurate records, the inspections should be straightforward.

It is important to consider your market. Sell burgers to a local pub or process a range of cuts to be sold at local markets? The latter is far

more time consuming but ultimately more rewarding. Branding is helpful to create an identity for your product on which you can build a reputation. A website and social media are also powerful tools for promotion. Letting people try a sample of the product often brings about a sale and can change minds on venison.

A clean shot carcase converts at approximately £10/kg larder weight. This is 4x the value of what we used to expect from the dealer and 10x the value of what we were getting when prices hit rock bottom during Covid. As the pandemic highlighted, there is too much reliance on the high-end markets. The industry needs to be more resilient and the more venison that can be sold at source, the less pressure on game dealers.

The positives of local venison processing – added value, low food miles, healthy and sustainable

product. The long hours in the larder are the biggest challenge for me. Going forward, I think there is an opportunity for ‘community collection centres’ which could provide a ‘pay as you go’ larder facility. This may also help address the new post-mortem inspection requirements by holding carcasses before they are delivered to the AGHE, at which point they need to be inspected within 24 hours. Where there is a demand for local venison, these facilities could be extended to include a processing unit. Pet food production too could help utilise some of the poorer quality carcasses. This could reduce reliance on exports, particularly during the rut.

This is the abbreviated version of a longer article by Nick Ross which contains a lot of useful information for the smaller producer. That article can be read here bit.ly/428eOB9.



The larder.
Photo: Nick Richards



Red venison steak.
Photo: Nick Richards

Forest to Fork, Crask Farmhouse,
Culbokie IV7 8JS
T: **07810 827230**
E: nick@foresttofork.co.uk
foresttofork.co.uk



Claire Simpson *Craft Skills Scotland*

One day butchery skills course test run at Jahama Highland Estate

Sarah Frew, Assessor and Internal Verifier from Crafts Skills Scotland was given a very warm welcome at a very cold Jahama Estate, Fort William in the middle of January.

The aim of the day was to show stalkers, keepers and staff from the estate how to break down red and sika deer. Sarah began the course by giving pointers and knowledge about freshness, temperatures and correct methods for cleaning and food safety. This was followed by a discussion about cross contamination risks and colour coding, an important part of the course if the cuts were to be sold.

Sarah selected a carcass and broke it down piece by piece so everyone

could follow each stage for their own carcass. They discussed yield, waste and recycling and were able to put it into practice since there are some parts of carcass that are not fit for human consumption so this was an important learning moment.

They then went on to discuss various options for value-added products, allergens and labelling and then selected value-added products to make. Products were then vacuum-packed and correctly labelled.

The day concluded with a multiple-choice exam covering what had been learned through the duration of the course and in background reading material, and much to everyone's relief all passed with flying colours!

Scottish Craft Butchers, Craft Skills Scotland and the Scottish Venison Association have adapted the NOS Wild Game Butchery course to be undertaken as a one-day module for both stalkers, estate staff and butchers interested in developing their skills in venison butchery and associated meat health and hygiene. It is anticipated that this course will be available at up to four venues across Scotland during 2023 (dates to soon be announced) or is available for individual estates, groups of estates or deer management groups to stage if interested.

Many thanks to Jahama Highland Estates for their valuable part, and their feedback in the preparation of this skills course.

More details to be announced soon in ADMG's E-Scope or contact Claire Simpson on **01738 637785** or email claire@craftskills.scot if of interest.

Newsletter produced by

The Association of Deer Management Groups, c/o Bidwells, Broxden House, Lamberkine Drive, Perth PH1 1RA
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