

A report on the future of the Manx uplands

Final Report



On behalf of

The Uplands Strategy Steering Group

by Professor J.H. McAdam

February 2014

Table of Contents

Remit & Purpose.....	3
The Upland Strategy Committee	4
Chairman’s comments and approach to compiling this report	6
Defining the Manx Uplands	10
Review of the various sectoral interests	11
Archaeology.....	11
Red Grouse and Shooting.....	12
Agriculture	15
Biodiversity	18
Birds dependent on the Uplands.....	21
Habitats.....	22
Forestry	23
Carbon Storage.....	28
Water quality.....	29
Access and Recreation	30
Promotion, Education and Marketing	32
Renewable Energy Generation	33
Wider Management of the Uplands	34
Summary of Recommendations.....	35
Chairmans Conclusion.....	38
Some relevant literature cited	39

Remit & Purpose

Reporting to the DEFA Minister, the Uplands Strategy Steering Group will have the responsibility for reviewing the Management of the Uplands 'Issues and Opportunities' document and any other relevant information felt necessary to develop the report.

On behalf of the Committee, the Chairman will prepare a report recommending a Vision for the uplands and a strategy for future management of the uplands including mechanisms for implementation.

Following approval of relevant aspects of the Strategy by the Minister, the group will identify methods of delivery, how these should be measured and within what timescales these results should be achieved.

The approval for funding and resource for delivery rests with the Minister.

Remit

- *Define the 'Uplands'*
- *Carbon/climate change*
- *Game management*
- *Historical/Archaeological*
- *Land management and land-use alternatives*
- *Livestock Production*
- *Socio-economic*
- *Water quality*
- *Wildlife/Biodiversity*
- *Effectiveness and impact of Government grants and subsidies*
- *Public access*
- *Forestry*
- *Renewable Energy Generation*

Authority and Accountability

The Committee will be chaired by a person independent of the Isle of Man Government and the Manx farming community and will be appointed by the DEFA Minister.

The Upland Strategy Committee

The following briefly describes the structure and functioning of the Steering Group throughout the process of developing and delivering this report.

Conduct of Business

Following appointment of the Chair, scoping documents, previous relevant reports and an "*Issues and Opportunities*" paper were supplied to the Chair by Dr Peter McEvoy (DEFA).

The Committee formally met on 3 occasions.

On a preliminary visit in May 2013, the Chair was thoroughly briefed in the field, met individuals of the key sectors at or in their area of responsibility and had a formal meeting with all members of the Committee where they were encouraged to restate or emphasise their positions in the *Issues and Opportunities* paper. It was agreed that the "*Issues and Opportunities*" paper be redrafted by DEFA in partnership with each representative sector on the Steering Group.

A second meeting was held in August 2013 to agree the revised "*Issues and Opportunities*" document and to discuss practical solutions for sustainable future management of the uplands.

Following this meeting and on the basis of further written submissions, the Chair prepared a draft report for further discussion. This attempted to address cross-cutting issues.

A final meeting was held in December 2013 to allow full discussion and substantial agreement on the report. All members had every opportunity to make submissions either in writing or verbally to the Chair to ensure as complete representation of views as possible. A final report was submitted to DEFA for transmission to the Minister in February 2014.

Steering Group Membership

	Name	Upland involvement	Affiliation
CHAIR	Prof Jim McAdam	Uplands agricultural expert	AFBINI
1	Ean Parsons	Upland Farmer	Flockmasters- Secretary
2	Danny Creer	Upland Farmer	DEFA tenant
3	Duncan Bridges	Habitats/Landowner	Manx Wildlife Trust
4	Anne-Marie McDevitt	Bird conservation	Manx Birdlife/RSPB
5	Belinda Leach	MNFU Farmer rep	MNFU
6	Alan Jackson	Game	Manx Game Preservation Society
7	Bruce Walker	Game	DEFA tenant and Manx Grouse Research Group
8	Andrew Sidebottom (& Jason Bolt)	Landlord & Forestry	DEFA
9	Andrew Johnson & Shaun Murphy	Archaeology/History and landlord	MNH
10	Karen Westcott & Gareth Patchett	Landlord	WaSA
11	Shaun Gelling	Ranger-management of the DEFA upland estate	DEFA
12	Julie Colquitt	Tourism	Tourism
13	Graeme Watson	Access	Representing GLUG
14	Ed Clague	Ag Policy- role later assumed by PMcEvoy	DEFA
13	Peter McEvoy <i>(Committee secretarial support)</i>	Wildlife/Agri-Env, Ag policy, peatlands & carbon	DEFA

A record of each meeting was taken by Frank Harrison (DEFA)

Chairman's comments and approach to compiling this report

1. This report will consider each of the sectoral interests of the Manx uplands separately and, where appropriate, comment on their current position, the issues involved as I see them and recommendations for the future within an integrated upland land-use strategy. Many of the issues involved are cross-cutting, and where at all possible, these will be referred to in each section. Main recommendations and suggestions for further action are made throughout and summarised at the end.

By and large I have steered clear of particular financial recommendations, the funding of any future strategy for the Manx uplands will largely need to be agreed and resourced by the Isle of Man Government. While I am happy to make recommendations as to how the actions recommended might be prioritised, it would not be possible, nor my place, to recommend levels of expenditure. It is hoped that the arguments outlined in this report will aid the Minister in his bid to secure funding to implement them. I am happy to provide further clarification or support for any of the recommendations should the Government wish. I have not thought it necessary to repeat all of the issues raised in the *Uplands Issue and Opportunities* document and the final version, written by the Steering Group and edited by Dr McEvoy, will be a valuable statement of position when read in conjunction with this report.

2. It is important to distinguish between knowledge we can derive or predict from other sources of research or examples from other similar regions and knowledge we do not have and have no way of predicting from other places. This is the first principle to be applied on prioritization of recommendations.

For example **we can estimate** from other sources what will happen to e.g. Carbon stored in the peat when certain activities are carried out, the effect of forestry on water quality, levels of stocking to avoid over/under grazing etc.

What **we do not know** and what is exclusive to the Isle of Man is for example:- what archaeological features exist; how many people use the uplands and how they interact; how a range of birds are affected by raptors and ravens in a relatively persecution-free environment. Promotional publicity and marketing will also be unique to the Isle of Man.

3. The Manx Uplands are unique in the British Isles in that the Isle of Man Government is the owner and landlord for the majority of the region and is therefore in a position to implement policy, which will deliver the optimum range of ecosystem services. This should

be seen as a significant advantage. Throughout the EU the process of legislation and land designation can be tortuous and protracted; particularly if a multi-functional land use approach is being taken. Hence the Isle of Man Government is in a unique position to deliver joined up policy which can meet the needs of as many stakeholders as possible and within a reasonable time frame.

4. Active, sustainable maintenance of vegetation cover is key to the whole process and farmers must be seen as the key to delivery of this objective. It should be borne in mind that while there are many sectoral groups which have an interest in the Manx uplands, only the hill farming sector derive a significant component of their livelihood from the area and Government should continue to recognise its responsibilities to maintain a viable, sustainable farming industry on the Manx hills.

5. Throughout this report I have tended to take the approach that the future of the Manx uplands inevitably will need to consider the changing needs and demands of the wide range of stakeholders as outlined in the 'Issues and Opportunities' paper so any land-use policy will be an integrated one. Currently in the UK, the 'ecosystem services' delivery approach is being taken to try and integrate the broad range of issues involved in sustainable land management. This can best be described as follows:-

Ecosystem Services Delivery from the Isle of Man Uplands

Summary of the approach

"An ecosystem is a functioning community of plants, animals and smaller organisms that live, feed, reproduce and interact in the same area or environment, together with their non-living environment".

What is an ecosystem service?

"An ecosystem service is a benefit people obtain from the environment. Ecosystem services are the transformation of natural assets (soil, plants and animals, air and water) into things that we value.

Ecosystem goods include food, construction materials, shelter for us and our livestock, tourism and recreation, and wild genes for improving domestic plants and animals (for example disease resistance)".

What is the ecosystem approach?

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It recognises that we humans, with our cultural diversity, are an integral component of ecosystems. The ecosystem approach is fundamental to many Multilateral Environmental Agreements to which the Island is aligned (e.g. Convention on Biological Diversity). This will assist in safeguarding the many goods and services we currently derive from the environment and ensuring that the cumulative effects of changes do not cause long lasting damage to ecosystems. Implicit within the approach is the recognition of the role traditional agriculture has played in creating the diversity of life and landscape that is valued so highly.

What Ecosystem Services do the Isle of Man uplands deliver?

Provisioning	Livestock	Animal products from sheep & cattle
	Forestry	Timber, woodchip
Regulating	Water Supply	Sufficient, clean water
	Water Purification	Upland fires can reduce water quality
		Carbon and climate change amelioration
Supporting	Biodiversity	Upland birds, habitats and plants
Cultural	Tourism	Visitors, Recreation, Scenery
	Sense of Place	Archaeology, Heritage, Landscape

For all of these, quantification of level of service, financial benefits and policies for delivery could be listed. Their cross-cutting nature is self-evident.

I feel this approach is highly relevant to the Isle of Man given the broad range of interests and yet the well-defined nature of the contribution of each sector to the overall sustainable function of the hills.

To this end, **it would be valuable if the Isle of Man Government undertook a National Ecosystem Assessment (NEA) along the same lines as that conducted for the UK.**

However, whether or not this is done, the recommendations for the Uplands contained in this report can proceed set against the need for an Island-wide ecosystem services assessment (it would be pointless to complete the exercise solely for the uplands).

6. This report should be seen alongside other highly relevant legislative and policy documents which the Isle of Man Government is responsible for. The current draft Biodiversity Strategy which is out for consultation is particularly relevant. It is interesting to note that an ecosystems services delivery approach is being taken within this document.

Defining the Manx Uplands

Although the Manx Uplands are an area defined using a range of conflicting traditional, geographical, vegetational and cultural boundaries, there is a need to have a definitive map of the area. As well as defining the physical area to be covered by this report, it is important that support can be targeted to specific objectives and the responsibilities of the key stakeholders are clearly known. Any funding package will depend on the precise knowledge of the boundaries involved.

Recommendation

The GIS mapping exercise currently underway should be completed to act as the definitive boundary.

Review of the various sectoral interests

The following sections make recommendations based on the representations of the various sectoral interests that participated in the Uplands Steering Group. For further background information it is recommended that the accompanying 'Issues and Opportunities' are referred to when reading this report.

Archaeology

The uplands are clearly an integral part of Manx heritage. People only appreciate their man-made heritage if they have access to it and knowledge of it. In the Isle of Man there is poor public perception or knowledge of the historical and cultural significance of the uplands. The preservation of, and access to the archaeological features found in the Manx uplands should be a key element of any upland strategy.

Appreciation, knowledge of and support for the cultural and heritage value of the uplands can only be delivered against the backdrop of a thorough knowledge of the resource. It will be a significant inherent weakness in the delivery of cultural ecosystem services that no comprehensive listing of the archaeological features of the Manx uplands exists. The educational value of such a resource database is self-evident. Much of the information needed can be derived from LIDAR (remote sensing using lasers) at an appropriate resolution and aerial photography. Such a survey would have potential value for other land use purposes integrated into a GIS.

Recommendation

It is recommended that a proper detailed archaeological survey of the Manx Uplands be carried out (based on a LIDAR survey) to identify and record archaeological remains in a format that it can be integrated into an overarching GIS database for the region.

There is also an excellent opportunity for further palaeo-environmental and archaeological research, particularly in relation to the juxtaposition of Manx culture between Ireland and Great Britain. Given this position it may be possible to source funding for this from outside the Isle of Man.

Red Grouse and Shooting

The Red Grouse is found only in the British Isles and is the iconic bird species of heather moorland. In the Isle of Man it is the only year round resident on the heather hills. The native Manx population, although numerous at the beginning of the 19th century, was extinct by the late 1830s for reasons which remain unclear. Reintroduced in 1880 and well distributed by 1905, a healthy population provided good walked-up shooting for the next seventy years.

A sudden decline in numbers in the late 1970s and early 80s mirrored a similar fall which occurred some years earlier in Ireland. In the Isle of Man the crash was probably caused by a combination of increased predation, loss of habitat to afforestation and agricultural improvement, and further exacerbated by a succession of weather-related poor breeding seasons.

Raptor predation increased significantly following the natural colonisation of the Island by Hen harriers in 1977 and the recovery of the Peregrine falcon population from organochlorine poisoning. Several thousand acres of heather moor were lost to a Government afforestation scheme which had the dual effect of excluding ground nesting birds from the immediate area and reducing range by fragmenting remaining habitat.

Research by Walker and Hughes showed that Manx Red Grouse clutch sizes, egg fertility and hatching success all compared favourably with elsewhere but a radio tracking programme begun in 1992 indicated that grouse broods were suffering late summer losses of up to 30% and an average of 50% of adult grouse alive at the end of the breeding season failed to survive to breed the following Spring. Walker and Hughes concluded that this was almost entirely due to predation by Harriers and Peregrines.

Since 1985, the Isle of Man Red Grouse population has fluctuated between a low of fewer than 35 breeding pairs and a high of 65 to 70 pairs.

More recently there has been less evidence of predation in the Southern hills where grouse numbers have more than doubled from an all-time low in 2007, but this pattern has not been repeated north of the Central valley where there are now fewer breeding pairs than three years ago. The Grouse shooting stakeholders conservatively estimate they need to at

least double these numbers to provide modest walked-up shooting and a future both for Red grouse and as a consequence, the long term management of the heather hill.

It therefore follows that it is important that the current management of heather burning/cutting and legal predator control, largely undertaken by the hill shooting tenants and DEFA, is at least continued if not increased. The biggest threat to this is the lack of a harvestable quantity of grouse leading to a diminution of interest among existing tenants and an inability to recruit new, younger tenants/helpers. Efforts to increase the grouse base population to a level where a small surplus can be taken most years would alleviate this problem because recruiting helpers and new tenants would be easier and training could be given by the current, experienced hill managers.

Buffer feeding, as practised elsewhere for harriers by providing day old chicks and rats is unlikely to succeed on the Island because of the raven population; and for peregrines, stocking doves on the hills, could be unsuitable because of the risk of artificially increasing the peregrine population.

If Red grouse were to be introduced from the UK, such an introduction would require careful monitoring if useful information were to be gained. There are relatively separate grouse populations, with the numbers currently increasing on the Southern hills whilst the Central and Northern hills are showing a decline; this situation gives the chance to introduce new blood into the Northern population whilst leaving the Southern hills as a control. Such an experimental introduction could shed light on possible restrictions to the expansion of the current grouse population, which may be:-

- i. Decline (or inability to increase) because of a restricted gene pool.
- ii. Inability to expand because of young cock grouse taking territories close to their male parent, ignoring large suitable areas where there are no birds at present.
- iii. Current population being below a viable threshold.
- iv. Over- predation by raptors.

If such an introduction were to take place with the support and understanding of other stakeholders then this monitoring could yield valuable information to all parties interested in the health of the Manx uplands. DEFA should also consider longer tenancies, or some form of extension, to protect expense and effort of tenant's work, especially if money and effort is

expended on importing birds. It should also be stated that the size of the grouse population is a general indicator of the health of the upland ecosystem as a whole.

There is a need to encourage more (particularly younger) people to take up shooting tenancies which in turn provides the valuable skills involved in upland heathland management. It would be highly desirable that a training package were targeted at rural young people, particularly those from the upland farming community. It is highly desirable that succession of shooting tenants is secured and the best way to achieve this is by increased grouse numbers.

Recommendations

To at least maintain the current level of upland management and strive to increase it by a controlled and monitored reintroduction of Red Grouse.

Some form of enhanced training support for skills associated with upland management for game birds and targeted towards young people.

Agriculture

Maintenance of the upland ecosystem on the Isle of Man is dependent on a viable farming economy based on sound principles of sustainable land management. From what I have seen of the uplands, and in comparison with some other regions of the British Isles, the vegetation in the Manx uplands is in a healthy condition, with no obvious evidence of over-grazing at present.

There appears to have been little change in this desirable position over the last 20 years as Harris, comparing hill sheep farming in the Isle of Man with Northern England, reports in 1995 his contention that "*Manx farmers pose no problem at all to our upland ecosystem...*"

A healthy farming industry is the backbone of any future uplands policy aimed at delivering across a range of ecosystem services. There are however some areas where minor concerns over localised overgrazing should be addressed. This is in stark contrast to what happened in many of the upland areas in the UK and Ireland where severe overgrazing occurred during a support regime largely based on headage payments. However there are also limited areas which do not appear to have been grazed for many years and this can be considered as poorer condition habitat failing to deliver on a range of environmental criteria when compared to moderately grazed areas.

Hill farming generally in the British Isles (and the EU as a whole) is not viable without state support. Such support is a recognition that farming in the hills delivers much more than agricultural produce but also a range of ecosystem services which need to be supported for the public good. Nowhere is this more obvious than in the Isle of Man and support for farming in the uplands must continue:

- (a) at a rate which makes farming viable and sustainable and
- (b) to ensure that farmers can deliver across an integrated land use policy.

A pre-requisite to any support should be delivery of a range of ecosystems services– clean water biodiversity, carbon storage, cultural and public heritage. Some form of agri-environment scheme (such as operates in the UK) is a viable model to follow. This should be a 2-tier system with base level requirements being maintenance of vegetation in good environmental condition, as adherence to certain compliance measures such as– sustainable stocking densities, pollution control, and land access. A fundamental baseline requirement,

not possible through the Countryside Care Scheme (as it cannot have headage related criteria), is that land must be stocked.

A baseline payment per acre should be set which reflects land type and current farm viability and which recognises that it is the relationship between grazing/shooting tenants and FALD commitment to carrying out heather cutting across all heather clad holdings that has led to the relatively healthy condition of the ecosystem. This is acknowledged, particularly as neither the shooting tenants nor FALD receive any financial incentive to carry out this widely beneficial work. Maintenance of a viable farming community must bear in mind the sustainability of that community and hence the encouragement of young people to continue on with the tradition of farming. This can be best achieved by ensuring adequate financial support and the adoption and implementation of modern techniques and technology to enable farming to advance as a progressive industry with a viable future to attract a younger generation. A key element of this will be the provision of support for agricultural education and in-service training. There are many well-documented examples of such generational ascendency giving an added dimension to rural stability and the Isle of Man is ideally placed to represent best practice example in this context. A further aim should be to have all farmers linked to DEFA so that communication and training can be delivered across the range of electronic social media.

It is recommended that within such an agri-environment scheme while the basal level delivers across the basic range of ecosystems services (water quality, biodiversity, meat and wool production, carbon retention, natural heritage, and wider community engagement through access), a *higher level* of support should be available to enhance the quality of delivery of such services. Some of the options to be supported under higher tier support might be:

1. Use of widely ranging and foraging breeds of sheep
2. Encouraging more suckler cows onto the hills (from the lowlands?)
3. Field boundary maintenance
4. Natural woodland planting on farms in selected areas
5. Recreational/access provision enhancement
6. Skills training for implementation

By good fortune and largely due to the personalities of the individuals involved, relations between those holding the farming and shooting tenancies have been good. It should be

recognised by Government that this is one of the reasons why the Manx uplands are largely in the favourable condition they are at present. Consideration should be given to including a 'habitat management option' within an upper agri-environment tier which is available to both shooting and farming tenants jointly. The level of this payment should be set to enable, say younger people to be trained and assist in upland vegetation management. Such an option would be of benefit to farmers, shooting tenants, wildlife organisations/supporters generally and could be seen as helping the Government deliver on its carbon sequestration obligations.

Recommendations

- 1. Active vegetation management (either by controlled burning or cutting where appropriate and maintenance of a sustainable grazing regime) should be an enforced condition of any farm tenancy. Long-ungrazed or abandoned areas should not be permitted – these represent a fire risk, a source of predation and a reduced opportunity to maximise ecosystem service delivery (particularly food, soil carbon and biodiversity) from the land.***
- 2. Levels of rental should be set at a reasonable level which will ensure that farming on the hills remains viable and, especially, that younger people are encouraged to seek a career in farming to continue its tradition and practice of good farming already in place and to bring an injection of new ideas and technologies to meet the challenges of the future such as climate change and wider ecosystem service delivery.***
- 3. Training and skills development are vital.***
- 4. Introduce a 2-tier Agri-environment scheme. Agri-Environment schemes should not be whole farm- as not all farms are wholly upland. This will need to be explored further.***

Biodiversity

Currently the Isle of Man is drawing up its first 'Biodiversity Strategy' and it is very important that any future strategy for the uplands aligns closely with this and parallels its delivery both spatially and temporally.

By supporting the Biodiversity Strategy in principle, Government will be demonstrating a commitment to supporting an upland strategy provided there is clear alignment between the strategies. The Minister stated in his launch of the consultation draft for the Biodiversity Strategy that "there is a growing appreciation of the important part [those individuals who manage the land] play with conservation of our biodiversity, we need to influence key stakeholders including farmers and land owners if we are to make a significant difference during the period of this plan". This recognises the clearly Government cannot deliver the Strategy alone.

The strategy has seven strategic objectives:

1. Biodiversity conservation.
2. For everyone to have access to reliable, up-to-date and adequate biodiversity information, essential to support Government's policies, businesses and private land and sea-user's decisions.
3. For everyone to understand what biodiversity is, why it is important to our quality of life and to use it more sustainably.
4. For Government to effectively protect and manage the most important sites for biodiversity, so that no resident or migratory wildlife is threatened by local activities. To minimise loss of habitats, significantly reduce habitat degradation and fragmentation and, where appropriate, restore species populations and habitats.
5. For Government to monitor, understand and substantially reduce the main pressures on biodiversity, particularly pollution and invasive non-native species, and take measures to meet the challenges of climate change.
6. For everyone to manage sustainably and for Government and partners to implement an effective Biodiversity Strategy and Delivery Plan.
7. For Government to lead by ensuring consideration of biodiversity in relevant areas of policy and decision-making, actively encouraging good practice and adopting further incentives for use of our land, freshwater and marine resources or have measures in place

to do so, including traditional practices where compatible with biodiversity objectives and taking account of the need to conserve ecosystem services.

The Strategy then goes on to cover the Isle of Man's local and wider global obligations, review the Island's biodiversity; outline opportunities and challenges; list aims and objectives and strategies actions and clearly taking the ecosystem services approach.

From a habitat and biodiversity perspective the hills and uplands are critically important. Amongst the internationally important species listed are Curlew and amongst the "other species and habitats of international importance" are upland heather moorland (as an EU priority habitat); Hen harriers; the Manx hills for Hen harriers. Lapwing are also listed as nationally important.

Under "threats": care over introduction of non-native species, pollution caused by leaching of nutrients from soils into watercourses and ploughing of peatland soils (release CO₂) and climate change are of specific relevance to the uplands. The consideration of genetic diversity e.g. of native livestock breeds and ecosystem resilience are also key issues addressed. Feral cats appear to pose a significant threat.

The strategy recognises that biodiversity plays an important role in reducing atmospheric CO₂ and that habitats such as peatlands need to be correctly managed.

Regarding the resources necessary for delivery of biodiversity conservation, these will require innovative ideas and incentives with creative use of public and private partnerships. Here, the upland strategy would aim to go a stage further and resource the delivery of a wider range of ecosystem services than biodiversity alone.

From the perspective of the uplands, Government should consider a funding package which could include the delivery of both the Biodiversity strategy and wider Uplands ecosystems services delivery strategy.

Both have similar objectives and such packaging might help lever a larger funding package for the uplands from central Government. This will also assist in the advancement of the UNESCO Biosphere proposals for the Island.

Birds dependent on the Uplands

The current position of birds is well documented in the Issues and Opportunities paper. Species of particular concern in terms of low or declining populations are Curlew, Red grouse, Meadow pipit and Lapwing.

The overall balance between the raptor population and other bird populations should be considered in detail. Both populations suffer from human disturbance and management to some extent and further interference to address any identified imbalance may be necessary.

The reasons for fluctuation in Hen harrier population are unclear and coupled with the need to address the reasons for lack of success of the red grouse population; there is an urgent need for research in this area (see shooting tenancies). The decline in Curlew in the Isle of Man mimics the situation elsewhere and no specific solution may be found for the Isle of Man population. However, predator control (a recommendation of this strategy), and gradual removal of upland forests and sustainable farming practices may all help. These species will all feature heavily on the proposed biodiversity strategy so should merit additional resources.

Recommendation

Further research is needed on the factors affecting upland raptor populations on the Islands, particularly in relation to habitat quality. This could be combined with the proposed research on Red grouse and Curlew.

Habitats

The upland habitats of the Isle of Man are source of income and a vital component of the Island's landscape and to the Government in delivering its various biodiversity and climate change commitments. As stated previously, upland habitats are maintained through appropriate actions by the farming and shooting tenants. These habitats are particularly important from a biodiversity, water quality and carbon storage perspective. Provided the tenancies are supported (as recommended in this report), the heathland bog and acid grasslands should be preserved. From a positive perspective the creation of heathland on forestry clearfell is a priority (and also a recommendation in the forestry section of this report).

Forestry

Forestry is an area of particular contention within the Manx uplands. Although there has been no planting since 1993, there is a legacy of about 6,000 acres of commercial conifers.

Although many interest groups— farmers, shooting tenants, many conservationists, archaeologists, and water authorities see forestry in a largely negative context, it must be borne in mind that the Isle of Man has a very low tree cover and that the creation and maintenance of a woodland habitat is desirable.

Hence, tree cover should be seen in a wider context and a significant evaluation made of future tree-planting strategy. There is a need to greatly increase the area of broadleaf woodland and there is significant opportunity to achieve some of this within the uplands.

By and large trees should not be planted on upland peat soils from a perspective of habitat degradation, overall carbon loss and the significant predator load they encourage. There are numerous steep sided valleys where deciduous native tree planting could occur. On the marginal uplands some plantation forestry using native hardwoods and in a mix with conifers might be possible. This would help put more age structure into the Islands forest resource.

As conifers on the uplands are clear-felled, each site should be considered on an individual basis as to its suitability for reversion to upland heath. Natural regeneration should be prevented and any unprofitable and poor-growing stands should be considered for pulverising on-site. In most cases this softwood has limited value other than to fuel a growing demand for woodchip.

The Department's in-house sawmill also converts softwood timber for estate materials (for internal use, retail and wholesale) and sawn timber that is not stress tested. This should be encouraged as it will help provide work for the sawmill which is a valuable national asset which has seen considerable Government investment in recent years and should be retained if possible.

If the Island is to look to reducing its overall carbon footprint, maintaining a degree of self-sufficiency and security of energy supply through management of the forestry estate will go a long way towards this, whilst also ensuring the future of a local forestry and sawmill

industry. In some cases (and the sawmill is probably a case in point) Government intervention to ensure financial viability can be argued on the above basis. The net carbon balance from growing trees and reducing timber imports (including the processing of home grown timber) makes it desirable to maintain a reasonable tree cover. It is hard to set a definitive figure for this but it should be seen as a whole-island target and not confined to the uplands.

Overall, the balance and demarcation of land used for forestry and agriculture (and the issues which impinge on them) across the Island should be discussed at an appropriate high level land-use policy level within Government.

More encouragement should be given to broadleaf planting on the lowlands supporting more imaginative options such as agroforestry, woodland blocks, coppicing and managing areas of scrub to woodland conversion. Some of these options might also apply in selected areas in the uplands.

By and large, current thinking is that conifer planting on upland peats is undesirable and that given sufficient effort and resource, reversion to heathland is possible. It is interesting to review the logical and persuasive arguments put forward by the Island's Chief Forestry Officer in 1995 (Pollard, 1995) as the basis for the Island's current forestry strategy.

The 1984 Forestry Act almost exclusively saw the function of state afforestation to *"...promote the interests of forestry, the development of afforestation and the production and supply of timber in the island"*

However, the 1994 Government "Annual Review of Policies and Programmes" contained the following policy statement:

"Any new planting will be undertaken with the benefit of appropriate advice to ensure a sympathetic approach to the landscape, having due regard to geographical features, wildlife conservation, safeguarding items of archaeological interest and to secure effective integration with agriculture".

And in 1995 the Department approved a Forestry Policy Statement which listed the principal policy objectives as:

1. To provide a sufficient supply of timber to meet the Island's likely requirements for agricultural and basic constructional grades of timber for the foreseeable future.
2. To enhance the economic value of the plantations to a level where their productivity is maximised within the silvicultural constraints of topography, soil and climate.
3. To improve the scenic value of the plantations where modern landscape design practice permits.

4. To expand steadily the tree cover to increase the many diverse benefits that forests provide.
5. To obtain the maximum sustained financial return by sound silvicultural practice.
6. To secure good land use by effective integration with agriculture.
7. To produce a sustained yield of timber to support a local wood using industry.
8. To safeguard areas of archaeological interest.
9. To conserve and enhance biodiversity.
10. To protect forest resources.
11. To conserve and enhance the physical environment.
12. To develop opportunities for recreational enjoyment.
13. To promote a greater public understanding of the forest industry.
14. To encourage the regeneration of existing privately-owned broadleaved woodland.
15. To encourage the planting of new areas of broadleaved trees and woodlands.
16. To control the felling of healthy trees where this would result in an unacceptable loss of amenity.

It appears that, in considering a balanced approach to afforestation, the Department was given the advice that some of the tenancies were so understocked that proposed transfer of land to forestry would have no effect on stocking rates and the proposed afforestation programme was the best thing to happen to the sheep industry. The approach taken then did not take account of issues such as the likely value of the archaeological record, the recognised value of stream-side and other riparian plantings in moorland water retention and lowland flood control, the need to rethink security of energy supply and carbon sequestration as well as changing access and recreational pressures. I am aware these arguments have been reviewed in the intervening period and while the above list of policy objectives do allow for a restructuring of forest policy it might be prudent to revise the overall policy objectives considering the wider benefits tree cover can bring in terms of ecosystem services delivery. The recommendations of the 2005 report "Divisional review of Forestry, Amenity and Lands division" need to be revisited, considered and integrated into the upland strategy.

Here again, Government, as the major landowner, is in a strong position to amend its own policy and direct effort at a change in direction in forestry strategy particularly in light of the impact of *P. ramorum* on timber stocks. I think it may also be prudent to clarify the sort of sites that will be beneficial if allowed to revert to heath e.g. a 10 acre clearfell separated from the next area of open moorland by standing timber would be of little benefit to the surrounding moor and its biodiversity.

Recommendations

An island-wide over-arching land use strategy (drawn up by all the main vested interests) should exploit the opportunity to expand the tree area in the lowlands or marginal uplands with more imaginative tree cover options.

Any further coniferous planting in the uplands should be approached on a balanced ecosystems services basis. Plantations which will clearly never come into profit should be cleared where possible and regeneration prevented with an aim of increasing the area of upland heath and retaining the flood-controlling capacity of riparian plantings.

Diseased timber waste should be appropriately used-ideally clearly separated into usable plank wood with all infected or at-risk brash going to incineration.

Considerable care will be needed in the current *P. ramorum* larch felling operation to prevent degradation of water quality and loss of archaeological features already disturbed by afforestation. No further planting of ash or larch should be considered in light of existing tree disease risk, and a constant vigil on tree health should be kept.

This sanitation felling of larch should lead to a removal of a sizable proportion of the upland afforested estate and as other successful plantations reach maturity their subsequent replanting should be closely evaluated on an ecosystems services delivery basis. This will likely result in some being harvested with a view to conversion to heathland. This will not be an easy operation, but its success has already been demonstrated in the Central hills.

Clear-felling on upland peats is proceeding rapidly across the British Isles and the Government should keep itself abreast of the latest research, and practice. It should also be borne in mind that, while current climate change predictions mitigate strongly against tree planting on peat on exposed hills and uplands, the value of riparian planting in upland water retention and lowland flood control is being more widely recognised. Hence the merit in adopting an ecosystem services delivery approach to the future of afforestation on the Isle of Man.

If current policy is to replant all larch felled for *P. ramorum* with Sitka spruce, this should be reviewed in light of the comments above. In the next round of options under its Rural Development Programme, the Northern Ireland Government plans to include agroforestry and short-rotation coppice options to encourage the integration of agricultural and tree planting operations on farmland with significant environmental benefits. The management prescriptions for these options are being drawn up at present and, when available, the adoption of such options in the lowlands, marginal land and uplands of the Isle of Man should be considered. The author will be happy to advise on this at a later date.

Carbon Storage

Most of the carbon stored in soils in the Isle of Man is in the uplands. It is Government policy to ensure that stocks of carbon are sustained and, if possible increased. Maintaining a stable heath and upland grassland community is the main way soil carbon will be conserved. It has been shown that ungrazed heath which grows tall and rank has a lower root turnover rate (contributing less to soil carbon sequestering) less growing biomass, increased fire risk (and major CO₂ loss) and less biodiversity than sustainably grazed heath.

Removal of some of the upland forest estate either as clearfell of mature trees or pulverising of failed stands will inevitably cause a significant release of CO₂. This should, however be relatively transient if proper heathland regeneration is pursued and in the long run will have a highly positive impact on the carbon balance. The reduced fire risk of properly managed heathland will further increase ecosystem resilience on the hills.

Soil erosion is a further source of carbon loss. Keeping grazing at a sufficient level to retain a stable vegetation cover, actively controlling heather burning, drain -blocking, appropriate and strict control of access and recreational activity on vulnerable soils should be implemented. I understand that Government is currently working on a climate change/carbon reduction bill which should address the value of carbon sequestration on hill land.

Recommendation

Remediation of peatland by a range of measures (e.g. revegetation, grip filling, ditch bank re-sculpturing) could be seen as a mitigation /sequestration measure which could be paid for on the basis of Carbon capture. A small-scale demonstration project in this area should be considered as a first step.

Water quality

The maintenance of a clean and plentiful water supply for the island is inextricably linked with many of the issues arising from other sectoral interests. By and large the most important is the maintenance of a healthy vegetation cover with as little soil disturbance from whatever source as possible.

The cross-cutting nature of the water quality issue is best summarised as follows:

“Raw water quality in the Isle of Man is considered to be consistent, in part due to the current management practices in the upland catchment. However, management of the entire catchment is not within the powers of the Water Authority and a reliance on neighbouring landowners, farming tenants and other upland users is required to maintain this situation”.

Access and Recreation

The Isle of Man uplands essentially belong to all of the population of the Island as well as presenting a considerable tourist attraction. As Government owns most of the uplands it has a significant responsibility to manage and control access.

People appreciate their asset most when they have a full knowledge and understanding of it and access to it. Hence information, education and access go hand in hand. If access is set in the context of ecosystem services delivery it might help the Government achieve a balance in its policy on access.

When land is being managed for multiple uses from a single land base, access cannot be considered as a go-anywhere free for all. The 'rights' of these whose function it is to produce food, derive income, grow timber, produce clean water, and of the national need and responsibility to protect habitats and species have to equally be considered alongside access issues on the uplands and some considerable thought has gone into proposing the various strengths and opportunities in the Uplands Issues and Opportunities paper.

In practical terms, perhaps Government effort could be directed towards construction of e.g. a series of permissive tracks joining suitable vantage points in the uplands which would, if possible link key archaeological and heritage and natural features. Such tracks are proving popular in other parts of the British Isles and are highly successful in managing public/farmer/conservation interests and interactions. These permissive routes largely accommodate walkers, horse riders and cyclists.

I am not sufficiently familiar with the motorcycle culture on the Isle of Man to make any suggestions as to how off-piste motorcycling can be controlled and managed but suffice to say that uncontrolled motorcycle off-roading is detrimental to all of the ecosystem services this strategy seeks to deliver from its hills and uplands. Of particular concern is the damage to nesting birds, sheep at lambing and soil erosion in vulnerable areas particularly on unmetalled upland tracks.

Lack of signage, interpretation, information material and clear access policies are contributing to the problem and could be relatively easily addressed. There is a strong argument for a revised, fully integrated signage provision in the uplands which would reflect the many and varied interests this report has highlighted.

As full recreational potential is dependant to some extent on shooting and grazing tenancy agreements, some organisation or mechanism to facilitate active dialogue between recreation and tourism providers and the tenants should be put in place. In terms of management of the activity, a co-ordinated voluntary wardening scheme operated by interested parties would be worth considering.

In the absence of reliable statistics on people interactions with the uplands at whatever scale and intensity it is very difficult for Government to have an informed policy on access. The previous public consultation exercise undertaken by the Water and Sewerage Authority highlighted the recreational importance and potential of reservoirs. However in view of the wider ecosystem services approach being taken by the Uplands Steering Group, a properly undertaken survey should be taken to highlight impinging issues such as public safety, water and reservoir security, impact on biodiversity and soil erosion, public liability and cost resource implications. Education should play a pivotal role in any access or recreational activity.

Recommendations

A comprehensive survey of numbers of people using the uplands, the reasons for use and assessable impacts.

Set up an organisation or mechanism to facilitate active dialogue between water, recreation and tourism providers and the shooting and farming tenants.

Improve signage provision across the uplands generally and review the need for a fully integrated signage programme which would reflect the multi-functionality and integrity of the uplands as a unique entity. This would make the general public clearly aware of where recreational activities are permitted. This should be included on all tourism information. Incorporate into local Educational programmes

Promotion, Education and Marketing

There is an urgent need to promote the Manx uplands as a separate and distinct entity within the Isle of Man's tourism portfolio to highlight their uniqueness and what they have to offer from what I imagine are a different type of tourist than the usual (coastal and motorcycle related). This will require an education exercise both internally and externally and a two-tiered marketing approach.

The Isle of Man uplands are unique in so many ways and in this integrated land use strategy we have the opportunity to set an example which could attract significant international attention. This could be highly marketable. The sooner such a process comes the better as it would significantly aid the Agriculture Minister in his bid for internal funds to deliver the integrated uplands strategy. The use of STEP students for specific promotion/survey-based projects should be explored. Indeed there are numerous areas identified within this report where individual projects could be tailored to meet student skills bases.

Recommendation

Set in place a distinct PR/Education/Marketing strategy for the Manx Uplands.

Renewable Energy Generation

The options for renewable energy generation on the Island are: onshore wind turbines, offshore wind turbines, tidal flow, hydro-turbine generation, energy cropping (biomass) and solar.

It is generally felt that for security and diversity of supply and to minimise environmental impact, some combination of these is ideal. The uplands will undoubtedly play a key role in the Island's renewable energy generation strategy as it has the potential to deliver to a greater extent on two of these options-onshore wind turbines and hydro (and to a lesser extent on solar and energy crops). The findings of the AEA report "Renewable energy sustainability study-impacts and opportunities for the Isle of Man" need to be considered.

Recommendation

Carry out a full analysis of the likely environmental, economic and other impacts of any of the potential renewable options identified by the AEA report deemed suitable for the uplands, these renewable generation options being set within the wider context of this strategy for the Manx uplands.

Wider Management of the Uplands

Depending on the outcome of the current exercise, serious consideration will have to be given by DEFA as to how it will continue to manage the hills and uplands in the future. A steering group (with cross-sectoral representation) should be set up to monitor delivery of the recommendations in this report and a dedicated Upland Management Team should be set up within DEFA. This could oversee a partnership which would provide a basis for cooperative action between grazing and shooting tenants, among other functions.

Summary of Recommendations

Note these recommendations are NOT in any priority order or arranged by ease of implementation. Priorities should be set when the report has been further considered by the Minister.

1. The GIS mapping exercise currently underway should be completed to act as the definitive boundary of the area currently being considered as 'upland'.
2. To at least maintain the current level of upland management and strive to increase it by a controlled and monitored reintroduction of Red Grouse.
3. A proper detailed archaeological survey of the Manx Uplands is carried out to identify and record archaeological remains in a format that it can be integrated into an overarching GIS database for the region. The use of LIDAR should be investigated.
4. Levels of agricultural land rental should be set at a reasonable level which will ensure that farming on the hills remains viable and, especially, that younger people are encouraged to seek a career in farming to continue its tradition and practice of good farming already in place. Training and skills development are vital.
5. A comprehensive survey of numbers of people using the uplands, the reasons for use and assessable impacts.
6. Set in place a PR/Education/Marketing strategy for the Manx Uplands
7. An island-wide land use strategy should be developed, particularly to enable forestry strategy to exploit the opportunity to expand the tree area in the lowlands or marginal uplands with more imaginative tree cover options.
8. Any further coniferous planting in the uplands should be approached on a balanced ecosystems services basis. Plantations which will clearly never come into profit should be

cleared where possible and regeneration prevented with an aim of increasing the area of upland heath and retaining the flood-controlling capacity of riparian plantings.

9. Active vegetation management (either by controlled burning and/or maintenance of a sustainable grazing regime) should be an enforced condition of any farm tenancy.

10. Carry out a pilot project on remediation of peatland by a range of measures (e.g. revegetation, grip filling, ditch bank re-sculpturing) as a mitigation /sequestration measure which could be paid for on the basis of 'Carbon capture'.

11. Introduce a 2-tier Agri-environment scheme. Agri-Environment schemes should not be whole farm- as very few farms are wholly upland. This will need to be explored further.

12. Improve signage provision across the uplands generally and review the need for a fully integrated signage programme which would reflect the multi-functionality and integrity of the uplands as a unique entity. This would make the general public clearly aware of where recreational activities are permitted. This should be included on all tourism information. Incorporate into local Educational programmes.

13. Some form of enhanced training support for skills associated with upland management for game birds and targeted towards young people.

14. Set up an organisation or mechanism to facilitate active dialogue between water, recreation and tourism providers and the shooting and farming tenants.

15. From the perspective of the uplands, Government should consider a funding package which could include the delivery of both the Biodiversity strategy and wider Uplands ecosystems services delivery strategy.

16. Carry out a full analysis of the likely environmental, economic and other impacts of any of the potential renewable options identified by the AEA report deemed suitable for the uplands, these renewable generation options being set within the wider context of this strategy for the Manx uplands.

17. Undertake a National Ecosystem Assessment (NEA) along the same lines as that conducted for the rest of the UK

18. Propose a series of projects for final-year STEP projects to be undertaken on the Isle of Man uplands.

19. A steering group (with cross-sectoral representation) should be set up to monitor delivery of the recommendations in this report and a dedicated Upland Management Team should be set up within DEFA to ensure delivery.

Chairmans Conclusion

To positively conclude this report, it is interesting to note that, in 1994 John Phillips, Director of the Heather Trust stated that "*The moorlands of the Isle of Man are in quite a fair state generally and are being subjected locally to an excellent management regime that could-with advantage-be much more widely copied*". Almost 20 years on, I would be happy to state that little has changed in this respect.

As Chair of this group and deliverer of the report, I gratefully acknowledge the willing participation of all those involved in formulating an Uplands Strategy and particularly to Dr Peter McEvoy and Shaun Gelling for support across a wide range of areas.

Jim McAdam

February 2014

Some relevant literature cited

From my experience in Northern Ireland and the Falkland Islands, where the small size of the countries of necessity means that only a limited amount of research can be undertaken locally, it is vitally important to keep fully abreast with research and practice in similar, related areas and then, where possible, apply them to the local area. Although it may seem obvious it is all too easy to get completely immersed on local issues and omit to spend sufficient time keeping abreast with relevant research in equivalent areas. I would greatly encourage Government and NGOs to ensure that their officers and staff are given sufficient time and support to be fully abreast with what is going on elsewhere, particularly in the British Isles. All of the issues facing the Isle of Man uplands are live issues elsewhere in these islands and much can be learnt from how they are being dealt with in other places.

Some appropriate references consulted in the preparation of this report are listed below but this is in no way a full bibliography. I can supply copies (pdf or hardcopy) if anyone is interested.-

Amar, Arjun, Davies J, Meek, E, Williams J, Knight A and Redpath S. 2011. Long-term impact of changes in sheep densities on breeding output of the hen harrier. *Journal of Applied Ecology* 48, 220-227

Bullock, Craig H, Collier, Marcus and Convery F. 2012. Peatlands; their economic value and priorities for their future management – the example of Ireland Land Use Policy xxx (2012).

Christie S.J. 2011. UK National Ecosystem Assessment – Northern Ireland Summary. Northern Ireland Environment Link.

Glaves, D.J., Morecraft, M., Fitzgibbon, C., Lepitt, P., Owen, M. & Phillips, S. 2013 Natural England Review of Upland Ecosystems 2012 – The effects of managed burning on upland peatland biodiversity, carbon and water. Natural England Evidence Review No 004.

Manx Nature Conservation Trust (1997) Proceedings of the Manx Hill Land Seminar, 1995. Contains papers by Pollard and Harris referred to in this report.

Smith P, *et al*/ 2013. The UK National Ecosystem Assessment. The role of ecosystems and their management in regulating climate soil and air quality. *Journal of Applied Ecology* 50, 812-829.

Thompson, PS, Amar Arjun, Hoccom, DG Knott J and Wilson JD 2009. Resolving the conflict between driven – grouse shooting and conservation of hen harriers. *Journal of applied Ecology* 46, 950-954.