

# Peat in horticulture and conservation: the UK response to a changing world

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## SUMMARY

Peat bogs are increasingly recognised as valuable habitats for wildlife and important stores of carbon. Yet the UK horticultural industry relies heavily on peat sourced from bogs in the UK and Republic of Ireland. Environmentalists, government and horticultural businesses in the UK now recognise the environmental consequences of using peat in horticulture, and the industry is turning increasingly to sustainable raw materials. In this paper, the strengths and weaknesses of campaigning since 1990 to implement this change are analysed, with the intention of providing useful information for other countries facing similar challenges. The campaign encountered deeply-ingrained practices so that the shift in behaviour has been slow and, although now widespread, still meets resistance in some quarters. The UK Government introduced targets for peat replacement which have helped stimulate the industry to develop suitable alternatives. The major gardening retailers have included peat replacement targets in their environmental codes of practice, and these are being met through incremental peat dilution with alternative materials such as green compost and processed timber by-products. Legislative requirements for European biodiversity conservation have led the UK government to terminate peat extraction on significant areas of former commercial extraction. The importance of peatlands for carbon sequestration and the major issue of climate change are increasingly focusing attention on peatland conservation, pointing towards the need for a more consistent approach to the use of peat across the European Community.

**KEY WORDS:** growing media, peat reduction, alternative materials, environmental awareness.

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## INTRODUCTION

Although the UK has significant peat resources, the Government is encouraging the horticultural industry to use an increasing proportion of alternatives, working towards the almost total replacement of peat. The reasons lie in the need to conserve habitats and species associated with peatlands and the increasingly recognised quest for environmental sustainability, while maintaining a competitive UK horticultural industry and concomitant employment.

The shift was initiated and championed by voluntary nature conservation groups, conscious of the damage done to supposedly protected peatlands by commercial peat extraction, which was destroying rare habitats and cultural heritage, affecting water management, and potentially contributing to climate change.

Initially polarised views at the outset of the Peat

Campaign, launched in 1990, gradually softened as awareness of the nature and complexity of the issues grew amongst the different interested parties. Peat reduction in the UK is now being led by a dynamic group representing all interests, who share the common goal of meeting challenging government targets for peat replacement.

## THE REASONS FOR CHANGE

### Historical use of peat

The first commercially available standardised growing media in the UK were developed by Lawrence and Newell in the 1930s (Bunt 1988). These 'John Innes' mixes were made from blends of 'loam' (composted grass turves), peat and sand. However, quality loam was difficult to source and the heavy mixes made transport and handling expensive for a developing horticultural industry.

Replacing the loam with peat in the 1970s solved both of these problems (Bragg 1998a). As the popularity of gardening and garden centres grew, there was a huge increase in the use of growing media due to the increased production of containerised plants.

### The UK peat resource

Lindsay & Immirzi (1996) identified 1.65 million ha of peat soils (mostly >1 m deep) in Great Britain, of which 70,000 ha are lowland raised bogs, upon which the commercial interest for horticultural peat is focused. The UK Biodiversity Action Plan (1999) defines lowland raised bogs as those that develop primarily, but not exclusively, in lowland areas (e.g. at the heads of estuaries, on river floodplains and in topographic depressions). In such locations, poor drainage may result in waterlogged anaerobic conditions leading to the accumulation of peat. Continued accrual of peat elevates the bog surface to form a gently curving dome which is 'raised' above the regional groundwater level. Raised bogs are ombrotrophic, which means that they depend entirely upon rainfall for their water and nutrients. Williams (2006) further defines 'active lowland raised bogs' as those that continue to form peat, and 'degraded lowland raised bogs' are those that are, at least temporarily, not forming peat but are still capable of natural regeneration. Of the original 70,000 ha lowland raised bog resource, only around 9,000 ha remain as either near natural (3,836 ha) or primary degraded bog (5,032 ha) and less than 4,000 ha currently have consent for extraction. The Northern Ireland Habitat Action Plan (2003) for lowland raised bog records 2,000 ha as intact, with 1,600 ha in near-natural state and 400 ha degraded, from an original resource of just over 25,000 ha. The Republic of Ireland, the UK's prime source of horticultural peat, has seen similar losses, from 308,742 ha to 25,189 ha retaining conservation value (Foss *et al.* 2005).

### Conservation status of peatlands

The UK biodiversity conservation resource is protected by both national and European Community (EC) legislation. Important habitat sites are designated as Sites of Special Scientific Interest (SSSI) and (in Northern Ireland) Areas of Special Scientific Interest (ASSI), or as Natura 2000 sites (European Commission 1992) designated as Special Areas of Conservation (SAC). Lindsay & Immirzi (1996) calculated that about 10% of the lowland raised bogs in Great Britain were designated as SSSI while in Northern Ireland 10% were designated as ASSI (Northern Ireland Habitat Action Plan 2003).

The quality of lowland raised bogs in the UK is generally poor and the protected site list includes a high proportion of sites that are partly or totally damaged. Indeed, the EC Habitats Directive (European Commission 1992) recognises this situation across Europe, through the inclusion of the habitat category 'degraded raised bogs still capable of natural regeneration'. Lowland raised bog is the only habitat for which the Directive recognises a degraded type, the intention for this habitat being to identify and protect sites for restoration to quality habitat in addition to maintaining good quality sites. As with SSSI designation, some key UK peat extraction sites have been proposed as SACs, and in many cases accepted, because of the 'degraded raised bogs' classification. This has led to termination of peat extraction and commencement of peatland restoration on several large bogs. Table 1 sums the areas of all confirmed active and degraded lowland raised bog SACs for each of the four countries of the UK. It shows that, although the proportion of degraded bog exceeds the guideline minimum (28%), active raised bog remains insufficient (45%) to meet the Natura 2000 30-year target.

Table 1. Total areas of UK active and degraded lowland raised bog designated as SAC under the EC Habitats Directive.

Area* <sup>1</sup> ha within SACs:	active	degraded
England	3203	4361
Wales	926	264
Scotland	2260	1893
Northern Ireland	1434	431
UK SAC total (sum of above)	7823	6949
industry resource totals* <sup>2</sup>	17500	24500
separate % representation	44.7	28.4
combined % representation* <sup>3</sup>	35.2	

\*<sup>1</sup> SAC area summed from individual site areas available from JNCC (2008); \*<sup>2</sup> industry resource totals taken from William Sinclair Horticulture's formal objection submission to the proposal to designate Bolton Fell Moss as a SAC; \*<sup>3</sup> the intention of Natura 2000 is for degraded bogs to become active bogs within 30 years.

Peat extraction has occurred on designated sites because most planning permissions for this activity were granted under Town & Country Planning legislation dating from the late 1940s, when the

biological value and rarity of peat bogs was not recognised. Where planning permission pre-dates nature conservation designation, the local authority is required to compensate the developer for any resulting restrictions to extraction rights, such as the requirement to restore damaged habitat. The compensation is beyond the financial means of local authorities, although it is in the national interest.

### **Methods of extraction and the associated conflict with conservation**

All extraction methods involve clearance of the surface vegetation and site drainage. Irrespective of the method employed, the site drainage and subsequent surface layer removal cause irreversible damage to the ecosystem. However, the transition from hand cutting of peat blocks, through mechanised block cutting, to milling and sod cutting (Limbert 2002, Berry *et al.* 1996) imposed requirements for progressively deeper and more systematic drainage. The scarcely drained topography of the wet or damp rectangular patches left by hand cutting offers rather more potential for peatland biodiversity and restoration than the large expanses of peat milling fields, which have much deeper drainage and much flatter, bare surfaces, gently profiled from the centre towards the perimeter drains. Milled surfaces are more difficult to restore than block-cut ones and their slopes may affect the ease of restoration to bog (Roworth & Limbert 2003).

In the late 1980s, concerns about the use of peat in horticulture arose from growing awareness of the damage that mechanised extraction was causing to both wildlife habitats and archaeological artefacts preserved within the peat of supposedly protected SSSI sites. Peat extraction also destroys the delicately balanced hydrology of the bog, and this can impose severe constraints on the short-term effectiveness of restoration, depending on the working methods and restoration conditions. More recently, there has been growing interest in the carbon stored in peat soils and its potential contribution to climate change.

### **Peat bog restoration**

Restoration has become the expected outcome after the cessation of peat extraction, as expressed in the UK's Lowland Raised Bog Habitat Action Plan (1999). However, restoration to raised bog cannot be taken for granted as it was not a pre-requisite of the original planning permission in many cases.

Restoration of worked peatland cannot recreate the original peat bog. The primary aim should be to establish, as quickly as possible, a type of surrogate

peat-forming acidic wetland which will eventually develop into a near-natural raised bog. However, some bogs (e.g. in Somerset and Ireland) have been "restored" into amenity wetland sites which do not substitute for the original peat bog. Of course the archaeological and palaeo-ecological archive cannot be restored.

The condition of the bog, and particularly the depth of peat remaining, is an important factor in the success of raised bog restoration. The UK Government's Minerals Planning Guidance 13 (DoE 1995) requires that a 'suitable depth' of ombrotrophic peat should be left *in situ*. While planning consents widely stipulate an average depth of around 0.5 m of residual peat, Wheeler and Shaw (1995) suggest that at least *ca.* 1 m of bottom 'black' peat should be left to act as an aquitard, with at least 0.5 m of white peat above for better plant regeneration. The distinction between average and minimum depth is important, given the requirement for the peat body to retain water. Consents have not been altered to increase the required residual peat depth because this would incur a compensation requirement.

### **The sustainability of peat use**

Widely differing views on the sustainability of peat use have been expressed. As modern peat extraction methods can remove up to 22.5 cm of peat *per annum* (in successive passes) but peat forms at only *ca.* 1 mm *per annum*, many have always regarded it as unsustainable for the biogeographic region. On the other hand, some industry interests have widely promoted the principle that UK peat use is insignificant in the context of global peat formation, ignoring the biodiversity and archaeological values that are specific to individual biogeographic regions. There is now much better understanding and acceptance of the need for sustainability to be assessed with more sophistication than at the gross, global level. Within the EC, peat is excluded from the Ecolabel for growing media and soil improvers, and is not treated as a renewable energy resource. However, there is no formal EC policy on peat sustainability and use which, with growing pressure from Member States with large reserves of peat such as Finland and Sweden (European Commission 2006), and increasing awareness of disturbed peat as a significant carbon source, needs to be addressed.

### **The carbon economy**

Peat contains large quantities of carbon which, as the scale of climate change becomes ever more apparent, needs to be kept safely stored away from the 'greenhouse-active' atmospheric carbon pool.

Peatlands in the UK are believed to store more carbon than the forests of the UK and France combined (Worrall & Rowson 2008). One cubic metre of extracted peat will eventually release some 50 kg of carbon dioxide (H. Joosten, pers. comm.) and further CO<sub>2</sub> is released from the drained, degraded peatland surfaces prepared for peat extraction. Furthermore, while the carbon dynamics of peat bogs are complicated and often site-specific, there is much evidence to suggest that pristine or near-natural peat bogs have far more favourable carbon balances than degraded peatlands, including those prepared for peat extraction and those used for agriculture (Strack 2008). Peatland management thus contributes to conserving carbon stores and climate change mitigation, and is being regarded in the post-Kyoto climate talks as similar to avoided deforestation.

## GROWING AWARENESS

### Early conservation initiatives

For conservation organisations, forward-looking industry and Government bodies, awareness of the serious loss of habitat caused by peat extraction in the UK grew into a broader sense of environmental responsibility. The next step was to consider the logic and morality of halting undesirable peat extraction in the UK and then simply exporting the environmental footprint to other countries by importing their peat.

The Peatlands Campaign Consortium (PCC), a coalition of twelve of the UK's leading wildlife and archaeological conservation organisations, was launched in 1990 to raise awareness of the peat issue amongst gardeners, growers and retailers. With a message far wider than the issue of commercial exploitation of designated wildlife sites, the UK peat-free campaign began with calls to ban the use of peat. Peat extraction should stop and thus remove the threat to the habitat, and gardeners and the horticultural industry should find and adopt more sustainable alternatives to peat. This bold, clear and strident message for the public made newspaper headlines and raised public awareness. Forward-looking gardening retailers saw that using peat was increasingly associated with negative publicity and started to take action to reduce their dependence upon it.

However, for some working in the horticultural industry, the raw 'ban peat' message was inflammatory and increased anger and defensiveness against the emerging environmental concerns. The prospect of peat replacement was seen as unrealistic,

especially given the scarcity of quality peat-free alternatives at that time. The opposing positions became entrenched.

Without a strong and simple environmental message, the peat issue may never have gathered momentum in the UK; yet the stridency of its delivery may also have hindered acceptance of the problem throughout the UK gardening industry and even the wider public. The 'peat debate' flared and raged for much of the 1990s with feelings running high in some quarters.

### Industry's response

An early voluntary agreement with Fisons Horticulture Division (a major owner of English peatlands and extractor of peat) saw more than 3,000 ha of their land holdings donated to English Nature (the government's nature conservation arm for England, now known as Natural England) in 1992. This allowed conservation management of more than 1,000 ha of peatland. Other peat companies continued as before, albeit with some development of alternatives. However, the limited availability and poor quality of early alternatives led many gardeners to believe that peat replacement was not a practical proposition. By targeting the major retailers, however, the PCC was able to convince some key industry players that the peat issue was important, and set the seeds for further progress.

### The Government's response

In 1992 the UK Government established a Peat Working Group (PWG) to look for a balance between environmental, conservation and mineral extraction interests affecting peatlands and to make recommendations for future policy on peatlands in Great Britain. In 1994 the PWG recommended conservation of the 'critical natural capital' of peat bogs. It would conserve examples of all peatland habitat types; establish a land use planning framework to constrain UK peat extraction to the level of horticultural demand; encourage the development and use of suitable alternatives to peat; and provide a framework for updating the conditions on existing peat planning permissions, with particular regard to rehabilitation and after-use (DoE 1994). The PWG also initiated 'best practice' principles (e.g. Wheeler & Shaw 1995). Much of this was framed in the Minerals Planning Guidance on peat (MPG13) published in July 1995. MPG13 (applicable to England only) also effectively capped new areas of peat extraction at 1,000 ha, stressing that this was not a target for peat extraction but an indication of what may be needed over the next 20 years. Significantly, MPG13 also introduced the

first government target for peat reduction, that 40% of the materials used in growing media and soil improvers should be peat alternatives by 2005. This target reflected aspirations for conservation, sustainability and reduced peat extraction in the UK, and was the first step towards using more sustainable materials. The UK Biodiversity Action Plan (1999) built on this by setting a second target, for the use of alternatives to rise to 90% by 2010.

In 2001 the Government provided £17.3 m to buy out the planning consents for peat extraction on Thorne Moors, Hatfield Moor and Wedholme Flow (on land within the 1992 Fisons gift) and to pay for restoration management. All three sites had become SACs since the agreement between Fisons (now The Scotts Company) and English Nature in 1992.

The UK government has also halted peat extraction on other key bogs in England and Wales (Fenn's & Whixall Mosses), Scotland (Flanders Moss) and Northern Ireland (Ballynahone Bog), and restoration of these bogs is now progressing. However, commercial peat extraction continues on two of the raised bogs (Bolton Fell Moss and Solway Moss) recommended by Natural England as sites of European conservation importance under the EC Habitats Directive, as an 'echo' from the decade of conflict and a symbol of the long-running and difficult nature of the issue.

## REMOVING THE IMPERATIVES FOR PEAT EXTRACTION

### The nation's use of peat and the paradigm shift

Peat use surveys since the early 1990s (Bragg 1991, Pryce 1991, DETR 1999, DETR 2000, Holmes *et al.* 2000, DTLR 2002, DEFRA 2006, Waller 2006, DEFRA 2008) divide the market and products into soil improvers and growing media. Many effective substitutes for soil improvers are available, whereas growing media are very strongly peat based. DEFRA (2008) calculates total market use in 2007 as 47% peat ( $2.69 \times 10^6 \text{ m}^3$ ) and 53% alternatives ( $3 \times 10^6 \text{ m}^3$ ), with 64% ( $3.63 \times 10^6 \text{ m}^3$ ) of the market being for growing media and 36% ( $2.06 \text{ m}^3$ ) for soil improvers. Of the peat used, 99% is in growing media and 73% of all growing media are peat based, whilst soil improvers consist of 99% alternative materials. UK horticulture currently sources 38% of its peat from UK bogs, 60% from the Republic of Ireland and 2% from northern Europe.

The UK garden retail sector (which mainly supplies the "hobby" market) has three broad divisions: groups of several hundred independent retailers often with just one retail store; around ten

companies with small regional chains of 10–25 stores; and a handful of major national retailers, mostly operating in the 'do-it-yourself' (DIY) market but with significant interests in gardening.

The large retail organisations in the latter category consider ethical and environmental issues to be sufficiently important for investors and marketing to justify production of environmental policies and standards, which include the use of peat. Indeed, the part played by these major retailers in moving forward peat replacement in UK horticulture became highly significant once they had understood and accepted the environmental arguments against peat use. In 1991, B&Q (the largest home improvement and garden centre retailer in the UK and Europe, and the third largest in the world) made a commitment to stop purchasing peat extracted from SSSIs (or the national equivalent) and to encourage research and development into peat-free alternatives. Prior to this, 60–80% of the peat sold by B&Q was taken from SSSIs (B&Q 1993). In 1992, B&Q introduced, alongside its peat-based products, a comparably priced range of peat-free ones packaged with information about their environmental benefits. By 1998 it was apparent that peat reduction could not be achieved purely by influencing the public's buying habits, or by simply substituting peat with peat-free products. In 1999 B&Q committed to incremental dilution of its peat-based products, thereby signalling peat dilution, as opposed to offering peat-free alternative products, as the most promising route for achieving eventual peat replacement.

Key elements of retailers' peat policies are: clear product labelling; requiring peat extraction sites to have in place at the onset of peat extraction effective plans for restoring the habitat lost; a commitment to use peat from existing commercial sites (effectively capping peat production); and of course, targets for ongoing peat reduction and its ultimate replacement. Whilst policy details and methods for monitoring progress on peat replacement vary between them, the three major national gardening retail companies now all have policies that are driving peat replacement towards the Government targets (B&Q 2007, Homebase 2007, Focus 2008).

Although some of the smaller retailers have also produced publicly available peat policies, not all are responding actively or positively to the issue. While they face different economic pressures this is in some ways ironic, as they are usually run by gardening enthusiasts among whom environmental issues might be thought to be closer to heart than with the large corporate organisations.

### Developments in growing media

Peats are highly variable due to their different origins, and hence produce a range of growing media, some of which are better suited to specific plants. Their characteristics are not always desirable, e.g. low initial nutrient status, poor rewettability, and poor shelf life in transit to the user. Development of new substrate mixes should encompass the good points of peat mixes such as low to medium fresh density, but also add characteristics including disease suppressive properties and enhanced shelf life in terms of both water holding and nutrient release capacity. The ultimate goal of peat replacement is to use sustainable components, preferably sourced close to market, and to actually add value to the resultant media mix. In addition to growing media supply, reducing transport costs is an increasingly prominent issue for all aspects of horticulture.

Several alternatives first emerged onto the horticultural market in the 1980s but the quality was variable. The main current peat replacement materials are bark (pine and spruce/larch mixes), wood fibre, coir and specifically selected composted green wastes (CGW). These meet customer perception that a substrate additive should be brown and freely flowing with consistent high quality, supply and cost. CGW is currently the most difficult to control in terms of quality unless there is source separation prior to the composting phase. Research continues on the production of high quality growing media from specific bio-waste streams (Bragg *et al.* 2005), whose use would be environmentally beneficial but potentially expensive because greater technical and logistical effort is often required. Horticulture may also increasingly compete for waste stream materials with energy production, which has been a key area for alternatives investment in recent years.

With pressure from the major retailers' peat policies and realisation that Government targets were not going to be relaxed, growers increased their trials of peat-reduced mixes, setting eventual targets to include no more than 10% peat. Many of the trials are undertaken privately by growers sponsored *via* the Horticultural Development Council or funded by interested parties such as the Waste and Resources Action Programme (WRAP) (Bragg *et al.* 1993, Bragg & Whitely 1995, Bragg 1998b, Rainbow & Wilson 1998, Waller 2006). Initial results often indicated performance levels below those of all peat mixes, but as knowledge and understanding of the new materials improved so did the results of the trials. By the late 1990s, many of the trials were proving very successful; and yet

commercial uptake has been limited. The reasons have not been researched, but may include allegiance to longstanding practices, extant commercial interests and the costs associated with both high quality alternative materials and changing nursery practices.

### Manufacturers and growers

Originally represented by the Peat Producers Association (PPA), the suppliers of peats and growing media in the UK are now represented by the Growing Media Association (GMA). The change in name some six years ago reflects the changing attitudes and marketplace within the growing media industry.

Investment in both industrial plant and materials is needed if GMA members are to supply new media mixes. A few grants have been made available through WRAP but these are limited to the use of mixed waste stream organics from kerb-side collections for composting operations. The WRAP target for annual use of composted green materials in growing media is >200,000 m<sup>3</sup> by 2010 (Carlile 2008). A number of companies have invested significant amounts of their own money in equipment and research programmes to diversify away from peat.

Many growers have become conditioned to using peat and there is a myth that there is nothing like 'peat' or 'black gold' for growing containerised plants (Peter Seabrook, BBC Gardeners' Question Time, 22 April 2008). There is, however, a whole range of peat types, e.g. the ten von Post classes (Bunt 1988) and a much greater range of media mix blends, so the suggestion of a single material actually being the panacea is ill-founded. The manner in which peat is formed means that many peat types have been used over the last 50 years, and growers have adapted systems to cope with their variable properties.

In the opinion of the authors, the reluctance of professional growers to embrace novel materials in growing media stems from:

- a) poor materials being used in the late 1980s / early 1990s;
- b) fear of poor traceability and risk to operators from the use of new materials; and
- c) financial costs of developing mixes with new materials and changing nursery practices.

It is only since the late 1990s that suppliers have been able to provide materials which actually raise the performance of reduced-peat mixes above that of all-peat mixes. The improvement lies in better understanding and appreciation of water and fertiliser management and better shelf life of the

growing plant in the alternative materials, allowing the innovative companies and growers to benefit.

### Consumers

Despite a number of public awareness campaigns, peat and the despoiling of peatlands has so far not captured the imagination of the general public (unlike tropical hardwood and rainforest destruction). Some consumers who tried early peat-free products were deterred by their variable quality in the late 1980s to mid 1990s. Since then the situation has changed, the formulations have been improved and customer confidence has increased. However, building and identifying consumer demand for composts that do not contain peat is a complex issue. A recent B&Q survey suggests that some 60% of customers are now aware of peat-free composts but only 35% have purchased them (B&Q Compost survey conducted by Edigital, 27 April – 01 May 2007, 1811 respondents). Nonetheless, these figures show a positive improvement on the 0% of 1990, and there is customer demand because just over 50% of current growing media sales are peat-free.

A variety of other factors influence the sales of peat-free materials. Industry representatives suspect that a high proportion of gardeners assume that multi-purpose compost and other products are some form of green compost, and are thus unaware they are buying peat. This is borne out by a number of consumer surveys (e.g. by the Midlands Bedding and Pot Plant Group in 2003), and undoubtedly hinders those actively seeking peat alternatives. A start is being made to address the issue through better labelling.

The continued erosion of gross profit margins in UK horticulture over the last 10–15 years has led to constant review of the costs of raw materials. Peat, as with many fossil carbon materials, is a 'ready-made' material and extraction costs can never reflect the time that the material took to accumulate and develop its unique properties. A quite different range of costs is associated with many of the peat replacement materials due to their processing and handling requirements, so that investing in them is not always economically attractive. A history of competitive pricing for peat-based products, combined with consumer tendency to buy growing media on price and failing to recognise either the environmental or the quality attributes of the products, has exacerbated the costs of producing alternatives.

The survey carried out by B&Q in 2007 (see above) shows that nearly half of buyers think it is important to consider using peat-free growing media

(Table 2). It shows fairly high customer awareness and it is perhaps the lack of availability of the right products at the right price that prevents sales matching attitudes to choice. Filling the shelves with good quality peat-free products ('choice editing') may be one potential route towards meeting the Government's targets.

Table 2. Extract from B&Q customer survey 2007.

Question	Response	%
What is important in your choice of compost?	price	58
	availability	48
	type (e.g. peat-free, John Innes)	23
	specific use	21
	information on the bag	15
How important is it to you that your compost is peat-free?	very important	18.6
	fairly important	28.7
	indifferent	42.7
	not very important	4.8
	not important at all	5.2

## REACHING THE TARGETS

### Growing media

From the late 1990s the environmentalists began to understand the practical problems of replacing peat in growing media mixes, whilst the seriousness of the environmental problems began to strike home amongst the horticulturalists. This improved awareness has led to a more sympathetic and constructive partnership between industry and conservation organisations.

The Government's Peat Working Group initiated the search for suitable materials and this was recognised by re-naming the group in 2005 as the Horticultural Growing Media Forum (HGMF), whose focus was on delivering the peat reduction targets.

Some parts of the industry have made significant progress, with the three large national retailers all achieving 50% peat replacement in their bagged product ranges. Partial dilution is becoming the norm for previously all-peat products and several manufacturers have now invested in wood fibre production plants and/or green composting facilities. Unfortunately in the UK, even with the HGMF in place, conflicts of interests, technical problems, increasing costs, reluctance and apathy have all contributed to slow progress towards achieving the 90% target for 2010.

In 2004, a small group which has subsequently

grown to include key non-governmental organisations (NGOs), the retailers (large and small), substrate manufacturers, growers and the Government Department for Environment, Food and Rural Affairs (DEFRA) met to discuss how to progress. DEFRA recognised the significance of the group's membership as well as the positive attitude and openness of the discussions. Now managed by the Horticultural Trades Association, the group launched the Growing Media Initiative (GMI) in spring 2008, to raise awareness of peat replacement among retailers and encourage them to join and achieve the peat reduction targets of the scheme. Participants agree to set themselves targets to reduce their use of peat year on year and to have policies in place that illustrate how they will do this. Companies' peat use figures and policies are independently audited and those that meet mutually agreed targets are allowed to promote themselves as GMI members and display a logo on products that meet set criteria.

Development of the scheme has enabled environmental and business interests to share issues and concerns, and build a common understanding and practical way to achieve peat replacement in the UK. The Government peat replacement target for 2010 was a key stimulus.

### **Protecting peatland habitat for wildlife**

The conclusion may well be drawn that the UK representation of both active and degraded raised bog Natura 2000 sites is still insufficient, and commercial extraction still occurs on UK peat bogs with conservation importance. Making good the shortfall brings into focus yet more peatlands on which peat extraction is taking place. Thus the conflict between the European need for habitat conservation and the requirement for peat in horticulture continues, despite both EC biodiversity conservation legislation and voluntary and Government efforts in the UK.

The UK currently imports more than half of the peat it uses. Protecting UK peat resources from further extraction and 'exporting' habitat damage to the peatlands of other countries presents an ethical dilemma, which the 2010 peat reduction target seeks to resolve. Yet the UK Government's peat reduction initiative and targets illustrate the limited impact a single small State can have on the world carbon store, and raises issues about modern industries that source products from different countries with different standards, even within the close-knit European Community. The EC should develop the UK's initiative by introducing a Community-wide policy on the use of peat and peatlands, building on

the foundation of the Habitats, Birds and Water Framework Directives.

### **Policy drivers and paradigm shift**

Consumer and corporate awareness of environmental, social and sustainability issues has grown markedly in recent years and is likely to continue to exert a strong influence on retail markets for peat in the future. The focus of attention is spreading from peatland habitat protection and impacts on flood protection and water quality to its importance as a carbon store and its role in both adapting to and mitigating climate change. How this will develop remains to be seen but it seems certain that the issue of peat in growing media will attract more attention, making the need for a coherent EC policy on peat use ever more relevant.

The UK horticultural industry now recognises the role that NGOs and conservation groups can play in helping to address issues. Their views are valid, of value, and can be supportive of an industry making change. Similarly, NGOs and conservation groups have become more aware of the economic and technical pressures within horticulture, revising their stance in some instances and recognising and supporting, where appropriate, the genuine desire of industry leaders to do the right thing by working towards peat replacement within UK horticulture.

The European Commission and Community are positioned as world leaders on climate change, with associated issues including sustainability and environmental responsibility not far behind. We conclude that, with mires and peat bogs becoming increasingly recognised as important carbon stores, the need to establish peat replacement will become more important in Europe generally, and that Europe needs a more co-ordinated approach to linking carbon management with habitat protection. We hope that the UK experience of working towards peat replacement will help to develop sustainable growing media throughout Europe, as an important contribution of the horticulture industry to resolving some of today's key environmental issues.

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