**An investigation into trade in water-worn limestone between the United Kingdom and the Republic of Ireland**

# On Stony Ground

The Countryside Agency

An Chomhairle Oidhreachta
The Heritage Council

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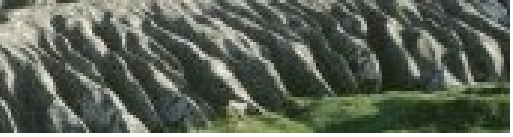



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# PREFACE

Limestone pavement is a rare and threatened habitat and landscape feature. Its protection and proper management is a conservation priority, the more so because the British Isles are home to the world's most important areas of pavement and we thus have international responsibilities.

Their importance is recognized in conservation designations in both the United Kingdom and Ireland and some pavements will have further protection as Special Areas of Conservation under the EU Habitats Directive. In addition, in England, the most important pavements are now covered by Limestone Pavement Orders (LPOs) made under the Wildlife and Countryside Act 1981 which prohibit damage and disturbance.

Despite these safeguards many pavement areas, particularly in England, have been extensively damaged to meet a demand for decorative rockery stone and, in some cases, to supply stone for larger landscaping schemes. This damage is continuing. It is now much reduced in England as a result of the LPO provisions but growing in Ireland, where market opportunities to meet demand for stone in the UK are being exploited.

Both the Governments of the United Kingdom and Ireland wish to see more effective protection of important pavement areas but need evidence of the extent of the problem, if action is to be taken.

The Countryside Agency in England and the Heritage Council of Ireland have jointly funded this research, which is intended to provide facts and figures on the extent of continuing damage to pavement areas and in particular on trade in water-worn limestone.

**Richard Lloyd, Chair**
**Limestone Pavement Biodiversity Action Plan Working Group**



# INTRODUCTION

## Limestone pavement

The United Kingdom and the Republic of Ireland are home to the world's most important areas of limestone pavement, a rare and endangered habitat and landscape feature. Within the UK there are only 3,000 hectares of pavement and much of this has already been extensively damaged. The limestone pavement sites are largely restricted to north-west England, with small pockets also found in Wales and central and north-west Scotland, as well as County Fermanagh in Northern Ireland. There are extensive pavement areas in the Republic of Ireland, but only in the west and most notable is the Burren.

The formation of limestone pavement took place under exceptional circumstances arising from a unique sequence of events which makes it irreplaceable. Deposition of limestones began over 300 million years ago in warm, shallow seas. Much later, the rock surface was laid bare by glacial scouring during the ice ages, creating the level and gently sloping platforms seen today. For the last 10 000 years, post-glacial erosion and weathering have enlarged joints and fractures in the rocks.

The post glacial weathering of the limestone platforms has created a surface patterning known as clints and grikes. The clints are the blocks or pavement slabs which are divided up by the grikes which are fissures or cracks in the pavement. The clints are often further patterned by gutter-like channels called runnels which have formed in the limestone. It is this surface patterning which makes limestone pavement attractive as rockery stone and which provides micro-habitats for a distinctive assemblage of plant species. Limestone pavements support 16 plant species which are rare or threatened in Britain including species which are reliant on pavement habitats for their survival. The Irish pavements centred around the Burren are famed for their unique mixture of wild plants. More than 700 different flowering plants and ferns have been recorded in the

Distribution of limestone pavement habitat in the UK and Republic of Ireland.

Photograph Copyright English Nature

Rigid Buckler fern.

## Limestone pavements - a unique habitat

Limestone pavements are of interest for their geological features, the flowers and ferns they support and for the beautiful landscapes they form. The geological features are a record of the ice ages set in stone – the history of the last ten thousand years. The distinctive range of plants found in limestone pavements reflects the varied habitats provided by the fissures and clefts. Plants shelter in the warm and humid confines of the grikes. Ferns such as hart's-tongue, limestone fern and rigid buckler fern are characteristic together with the beautiful dark-red helleborine, mountain avens and bloody crane's-bill. Ash trees, hazel, juniper and yew more commonly form a woodland canopy in the lowland pavements but a scrubby cover is more typical in the upland and Irish pavements. The wheatear and wren are birds which frequent the pavements together with fritillary butterflies and in Ireland the Burren green moth and the pearl-bordered fritillary.

*Pearl-bordered fritillary*

Burren representing three-quarters of native Irish flora.

Historically, limestone pavement was removed and used for walling or gateposts, and by farmers to improve pasture. This practise continues in the Burren where it is legal to clear the land outside of protected areas, and extensive areas have been bulldozed for the creation of grazing land. Limestone pavement has been used in garden rockeries in western Europe since the nineteenth century. However it is only in the last forty years that removal of pavement to supply rockery stone has become widespread. Extensive areas in the UK have been relentlessly stripped with the aid of machinery, as demand for water-worn limestone for rockeries and landscaping features has increased. The extent of this damage to limestone pavement sites is of particular concern because of the non-renewable nature of the resource. Once removed, limestone pavement habitat is gone forever.

## Status of limestone pavement in the United Kingdom

Limestone pavements of special interest within England, Scotland and Wales can be protected under a Limestone Pavement Order (LPO), which designates an area and prohibits the removal or disturbance of the limestone.

These Orders are made under Section 34 of the Wildlife and Countryside Act 1981. A total of 99 sites are protected under LPOs in Cumbria, Lancashire and Yorkshire, but the power has not yet been used in Scotland and Wales.

Seven sites in England and Scotland have also been declared as Special Areas of Conservation, under the European Union's Habitats and Species Directive 1992.

In Northern Ireland, 70 hectares of limestone pavement are included within two National Nature Reserves. In the UK, it is only legal to remove water-worn limestone from sites that have planning permission to do so.

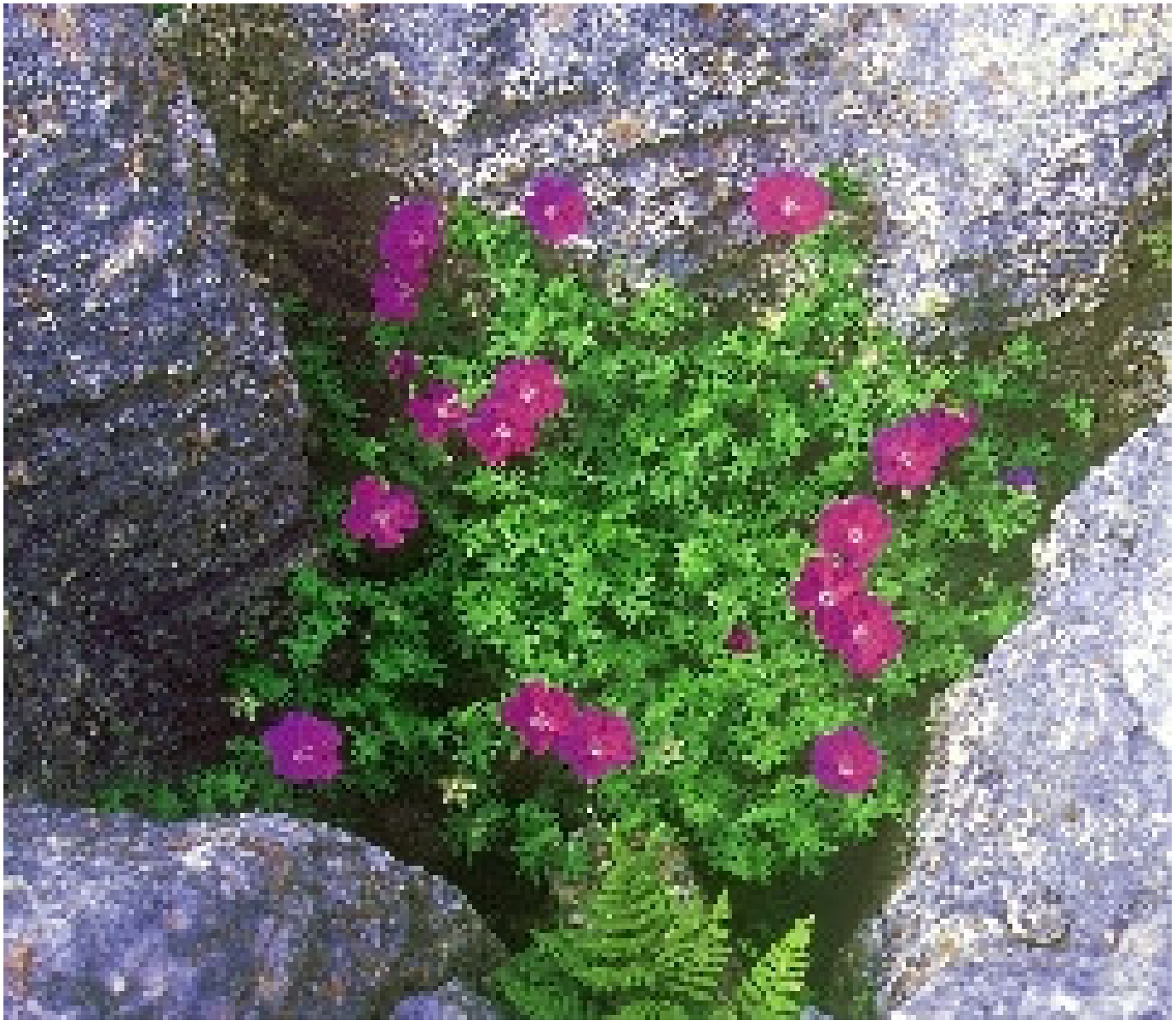
## Status of Limestone Pavement in the Republic of Ireland

The Republic of Ireland is fortunate in having a large proportion of the total limestone pavement resource of Europe, the most famous area being the Burren; perhaps the finest example in Western Europe of this endangered habitat.Selected limestone pavement sites are protected by two separate pieces of legislation.

A total of 63 sites are listed under the proposed Natural Heritage Areas (NHA). Of these, 42 occur in the counties of Clare, Galway and Mayo. The existing Wildlife Act



(1976) is currently being amended and on 1 July 1999 the Wildlife (Amendment) Bill was published. This amendment bill includes the procedure for designating and protecting NHAs. In addition to protection given under the NHA system, the best NHA sites are selected as Special Areas of Conservation (SACs), and protected under the EU Habitats Directive. Under this Directive, now signed into Irish law, a total of 42 limestone pavement sites have been selected, 30 of which are found in the counties of Clare, Galway and Mayo. This includes three separate SACs, totaling 28,503ha, which have been declared in the Burren. All extraction or damage to limestone pavement within SACs is illegal. However, extraction from other sites not protected under SACs can proceed so long as planning permission has been granted. Planning permission is not required for operations below 2.5 hectares in size outside of SACs.



*Bloody crane's-bill*

# THE INVESTIGATION

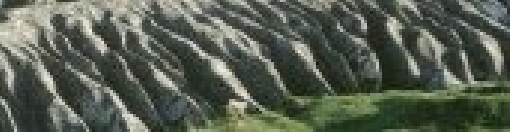
*Water-worn limestone extraction near the Burren, County Galway, Republic of Ireland*

This investigation was instigated to establish the nature and extent of the trade in water-worn limestone in the Republic of Ireland and the United Kingdom. Limestone pavement habitats are exploited for their water-worn rockery stone. Key elements of the investigation included the collation of known information, intelligence gathering, postal and telephone surveys, site visits, covert investigations, analysis of results and visual documentation of the trade.

TRAFFIC International was commissioned to carry out this investigation because of its experience in investigating illegal trade issues and its reputation for giving sound, scientific advice.

A total of 262 extractors, traders, wholesalers and retailers were contacted during the investigation. Information was obtained from the internet, landscaping directories, trade journals and gardening magazines. The investigation aimed to identify those involved in the limestone pavement trade, the volume of extraction in the UK and the Republic of Ireland, the movement of extracted limestone, the levels of legal and illegal trade, existing trade routes, and price differentiation between the UK and the Republic of Ireland and between wholesale and retail trade.

A mass of confidential information was collected on the trade and those involved in it, and includes photographic documentation of the trade and video and recorded conversations with traders.





*Extraction site in County Mayo, Republic of Ireland*

Since the tightening of legislative protection for limestone pavement habitat in the UK, through the designation of LPOs, pressure on this habitat has been substantially reduced in England. However, with this increased protection focus has shifted to the Republic of Ireland, putting pavements there under greater pressure and increasing the level of exploitation of pavement areas. It is believed that Irish pavements are being removed to supply the continuing demand for water-worn stone in the UK.

In the Republic of Ireland, at least thirteen traders are involved in water-worn limestone trade, which comes from 10 key sites. Of these sites, four are legal, two are illegal, two are on the border of protected areas and two are possibly illegal. However, extraction and export of water-worn limestone is concentrated in the hands of six traders. Based on figures obtained from five of these traders, the total amount of water-worn limestone exported to the UK is approximately 4,000 tonnes per year. By contrast, figures from the six main UK importers of water-worn limestone from the Republic of Ireland indicate the importation of approximately 9,000 tonnes per year. This discrepancy could be attributed to a number of unknown Irish suppliers, as well as the amount attributable to a sixth exporter (who was not available at the time of this investigation) which is known to be a significant volume. In addition, the disparity may have arisen because Republic of Ireland exporters may only have declared the amounts of water-worn limestone that were collected legally, whilst UK importers, not distinguishing between legal and illegal sources, declared all imports they had received.

Irish water-worn limestone enters into the UK in a number of ways. One of the more popular routes is via Larne, near Belfast, and then across the Irish Sea to Stranraer, before continuing its journey by road. Water-worn limestone is also leaving ports such as Dublin and Waterford, bound

for Liverpool and Holyhead, and again continuing on via road. Some of the trade transits through the UK and onwards to Europe, with the biggest demand currently coming from Germany.

In the UK only 23 retailers and stone suppliers, out of 153 contacted, said they could supply water-worn limestone. Prices paid per tonne for this commodity are extremely variable. Many of the extractors in the Republic of Ireland obtain pavement from their own land, so no fee is payable. Alternatively, a small fee is paid to the landowner for the removal of the stone. Wholesale price per tonne in the UK varied from £40 to £150 per tonne (average = £85), based on a 25 tonne load, with delivery but excluding VAT. But it is at the retail level that most of the profits can be made. For example, although it is possible to purchase by the tonne from a garden centre, the price paid will usually be over double that paid to a wholesaler. In addition, most retailers purchase water-worn limestone by the piece, rather than the tonne. A number of suppliers are aware of this and will break up the stone into hand-sized pieces, resulting in between 40-80 pieces per tonne. The public may then pay between £3-4 per piece, which equals £360 per tonne, or a 600% mark up in price from source.

*Digger at work in Horton Quarry, England*

*Irish water-worn limestone offered by a UK natural stone trader*

Water-worn limestone is still available from within the UK, the main source area being in north-west England. There remain seven quarries with planning permission to remove water-worn limestone. However, of these seven, five have reached their perimeter boundaries and no further extraction can take place; no water-worn limestone had been collected from one, and only one remains where extraction of water-worn limestone is ongoing. Extraction and stockpiling are now only undertaken by three companies, in contrast to much larger numbers involved in this trade prior to the introduction of LPOs. Of these three companies, one appears to be linked to illegal extraction. In addition, a number of suppliers had other sources of water-worn limestone, that they would not reveal, but they were not from the quarries with planning permission, and could therefore be illegal.

It is estimated that the total volume of UK sourced water-worn limestone traded per year in the UK is approximately 2,500 tonnes. This

*Holme Park Quarry, Cumbria which has now reached its perimeter boundary for its concession of Westmorland stone*

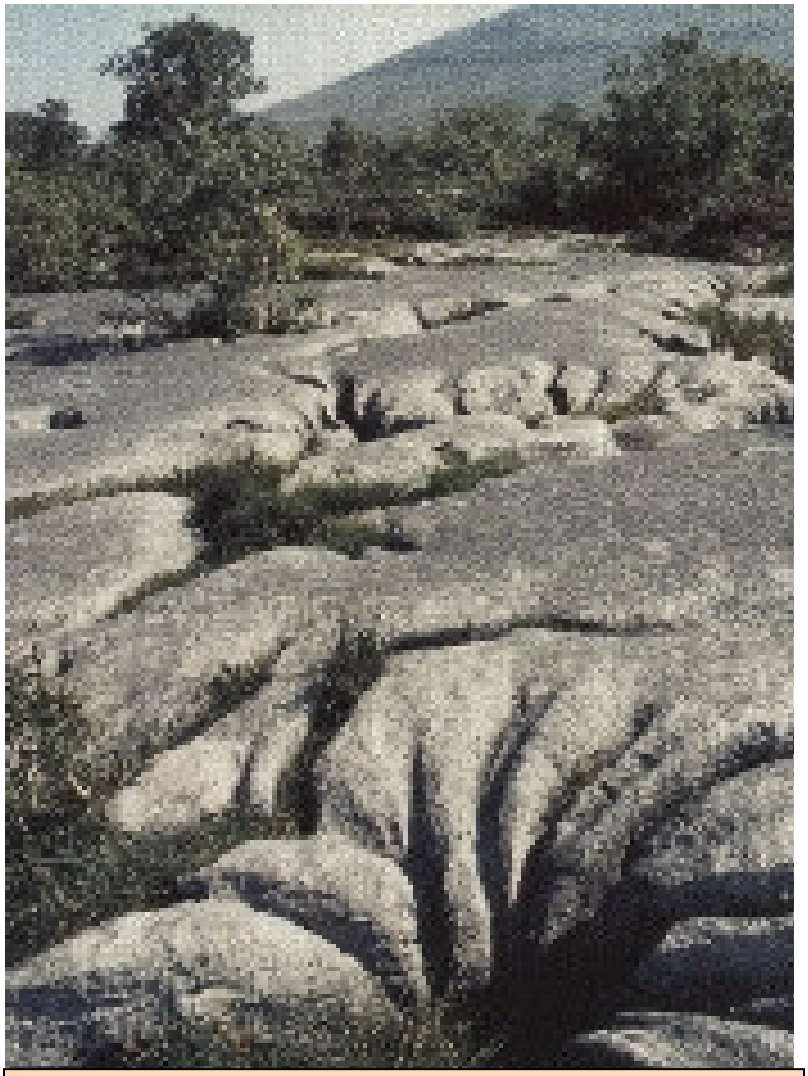
comes from sites with planning permission or existing stockpiles accumulated from these quarry sites. Extractors pay around £20 per tonne to the quarry operators. Wholesale prices do not vary significantly from Irish water-worn limestone prices, ranging from £35 - £150 per tonne (average = £95), which does not include delivery or VAT. Westmorland limestone is not available in the larger garden centre chains, which currently stock Irish water-worn limestone at substantially marked-up prices. Westmorland stone is only available at specialist outlets and landscape merchants, where prices per tonne, excluding VAT and delivery, range from £65 – £150 with an average of £110.

However, not all garden centres or retail outlets stocked water-worn limestone of any sort. In fact, out of a total of 89 centres contacted, only 5 responded saying they had water-worn limestone in stock and sold it on a regular basis.

# THE PROBLEMS

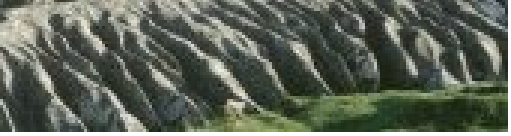
With the tightening of controls over limestone pavement sites in the UK, and a continuing demand by the public in both the UK and the European mainland for water-worn limestone, the Republic of Ireland has become a major source of this non-renewable resource. Despite having a large portion of the global limestone pavement habitat, Irish water-worn limestone is being exploited at a significant rate. While some of its extraction is legal, some stone is being illegally removed from protected areas in Ireland, which have been protected expressly because they contain some of the finest examples of this unique habitat.

However, the Republic of Ireland is not the only country suffering from this type of exploitation. The United Kingdom still harbours unscrupulous extractors who will continue to remove water-worn limestone from wherever they can obtain it – whether protected or not, so long as there is a demand for it. And as yet, the likelihood of such a demand lessening is not apparent. What is apparent is the shift that has taken place from water-worn limestone sourced in the UK to that sourced in the Republic of Ireland. A number of traders even stated that water-worn limestone from the Republic of Ireland was the 'sustainable alternative' to Westmoreland stone and, as such, were attempting to appeal to those who are aware of the problem limestone pavements face in the UK. However, no supply of water-worn limestone can ever be 'sustainable'. This is a habitat that has been created over thousands of years, and as such is not a renewable resource in any sense.



## THE PROBLEMS IN BRIEF

- ·Illegal extraction in the UK and the Republic of Ireland
- ·Demand for Irish water-worn limestone increasing due to increased protection of UK sites
- ·Many UK sites now depleted - Irish sites could go the same way if trends continue
- ·Influx of Irish water-worn limestone can provide a cover for the sale of stone extracted illegally in the UK
- ·Distinction not possible between stone from a legal or illegal source within the UK or from the Republic of Ireland
- ·Protection and enforcement are not adequate to safeguard these sites
- ·Irish water-worn limestone falsely being promoted as the green alternative
- ·Awareness is lacking by consumers of how important these limestone pavement sites are.





# ATTITUDES

There was a difference in attitudes of those involved in water-worn limestone extraction in the Republic of Ireland and those in the UK. All extractors contacted in the Republic of Ireland commented that despite having been approached by the authorities enforcing the SACs, they would all continue to extract water-worn limestone to meet the demand created by a reduction in availability of Westmorland stone. By contrast, a number of suppliers contacted in the UK, including garden centres and quarries, would not stock water-worn limestone because its sale was potentially illegal or was not condoned by that supplier.

Other stone suppliers in the Republic of Ireland, who have not specialized in water-worn limestone in the past, expressed a willingness to supply stone, should there now be a demand. Those involved in extraction in the UK are shifting away from the limestone pavement industry, as extractors diversify into other activities such as plant hire and the production of turf. However, there are also a number of suppliers who no longer stock water-worn limestone sourced from the UK, yet were stocking water-worn limestone sourced from the Republic of Ireland, promoting it as the 'sustainable alternative'.

The differences in attitude towards the use of water-worn limestone between the UK and the Republic of Ireland are largely due to the difference in volume of source material. The UK has less than 3000 hectares of limestone pavement, and only three per cent of it remains entirely undamaged. By contrast, the Republic of Ireland has thousands of acres of limestone pavement habitat, and the authorities there have designated the most important areas for protection. Limestone pavement is a valuable resource to the Republic of Ireland and pressure for its extraction will continue if there is a market for it.

Great Asby Scar, Cumbria

# CONCLUSION

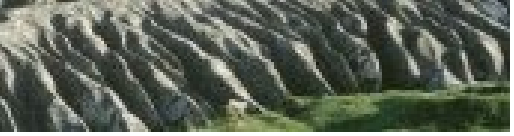
Important limestone pavement sites have been given legal protection in both the UK and the Republic of Ireland. The appropriate authorities in the UK and the Republic of Ireland strive to enforce this legislation, as well as carry out the important role of education and community involvement. However, despite this, illegal extraction does occur.

From the data collected, it has become clear that there has been a move away from the extraction of water-worn limestone from sites in the UK to its extraction in the Republic of Ireland. The majority of retail outlets that formerly supplied Westmorland water-worn limestone have changed over to supplying Irish water-worn limestone. In addition, the number of extractors of Westmorland stone has dramatically reduced over the last decade. This can be attributed to the pressure placed on these extractors by campaigns as well as legal restrictions, which have largely prevented the removal of limestone pavement in the UK.

Irish water-worn limestone is currently being promoted by the stone suppliers in the UK as the 'sustainable alternative' to Westmorland stone. Retail outlets seem to have accepted this statement and are supplying Irish water-worn limestone on an increasing scale. Similarly, suppliers in the Republic of Ireland have noticed a substantial increase in the demand for water-worn limestone from the UK in the last three years. Irish extractors commented on the pressure they have come under from the local authorities enforcing Special Areas

of Conservation legislation, yet expressed their intention to continue extracting until legally prevented from doing so. Some stone suppliers in the UK have commented that Irish water-worn limestone habitats will be in a similar situation in a few years time as Westmorland limestone habitats are now. In the interim, however, the current demand in the UK will be met from sources in the Republic of Ireland. It appears that there is not as much demand for water-worn limestone from within the Republic of Ireland itself, compared to the UK market.

Many UK suppliers are under the mistaken impression that water-worn limestone sourced from the Republic of Ireland is from a 'sustainable source'. However, the implications of statutory protection of pavement are clearly understood by extractors in both countries. There is the potential that problems will arise in the future should current trends continue. Habitats in the Republic of Ireland will be damaged permanently if demand from the UK continues. Protection of limestone habitat will always be difficult when there is a legal trade, behind which much illegal trade can take place. A combination of legislative enforcement and awareness raising is needed to control demand and protect limestone pavement habitats both in the Republic of Ireland and the UK.



On Stony Ground

# THE SOLUTIONS

The following recommendations are proposed based on the information collected and analysis undertaken as part of this investigation.

## Intelligence Information on Illegal Trade

Intelligence information shows illegal trade exists:

Divulge all information on offenders undertaking illegal extraction and trade to the relevant bodies involved with limestone pavement protection in the Republic of Ireland and the UK

Investigate further those involved in illegal activities both in the UK and the Republic of Ireland

## Legislation and Enforcement Provisions

It is important to increase the awareness of existing legislation and ensure its enforcement:

·Ensure that the remaining important limestone pavement sites in the UK and the Republic of Ireland are legally protected under LPOs, SACs and NHAs

·Consider the use of trade restrictions to protect limestone pavements from further damage

·Ensure there is better enforcement of the legal protection covering limestone pavements by the relevant authorities in the UK and the Republic of Ireland

## Awareness and Education

Awareness and education are very important for the long-term security of limestone pavement. Consumers should be aware of the potentially damaging effects their purchases of water-worn limestone may have:

·Continue the public awareness campaign to influence buying practices of consumers of natural stone sourced from the UK and the Republic of Ireland

·Ensure that awareness campaigns are also targeted at landscape gardeners, quarry operators and suppliers

·Promote sustainable alternatives to water-worn limestone

·Explore the possibility of setting up a Limestone Pavement Stewardship Council – guaranteeing stone as coming from a legal source

## Monitoring and Research

· Continue to monitor the levels of exploitation and trade in limestone pavement in the UK and the Republic of Ireland

· Investigate the trade in limestone pavement in mainland Europe, focusing on sources of supply and volumes.

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The Heritage Council was established as a statutory body under the Heritage Act 1995. Its role is to propose policies and priorities for the identification, protection, preservation and enhancement of the national heritage

TRAFFIC is a joint programme of WWF – World Wild Fund for Nature and IUCN – The World Conservation Union. TRAFFIC's purpose is to help ensure that wildlife trade is at sustainable levels and in accordance with domestic and international laws and agreements. This is achieved through the investigation, monitoring and reporting of such trade, particularly that which is detrimental to the survival of flora and fauna and that which is illegal.