MAKING A LASTING IMPRESSION

A WWF/TRAFFIC REPORT

Description:	The impact of the UK's wildlife trade on the world's biodiversity and people
Author:	Carol Inskipp
Date:	21.05.03

WWF

TRAFFIC

Making a lasting impression

The impact of the UK's wildlife trade on the world's biodiversity and people

Carol Inskipp

May 2003

The views of the author expressed in this publication do not necessarily reflect those of WWF or TRAFFIC.

The author has used all reasonable endeavours to ensure that the content of this report, the data compiled, and the methods of calculation and research are consistent with normally accepted standards and practices. However, no warranty is given to that effect nor any liability accepted by the author for any loss or damage arising from the use of this report by WWF-UK or by any other party.

The designations of geographical entities in this publication, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of TRAFFIC or its supporting organisations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

ACKNOWLEDGEMENTS

The author is especially grateful to Helen Corrigan for assisting with CITES data analysis and plotting relevant graphs. James MacGregor, TRAFFIC International, kindly extracted Customs data on non-wood forest products. Special thanks go to Teresa Mulliken, Stephanie Pendry and Crawford Allan at TRAFFIC International for providing useful information and advice and also to David Cowdrey and Kirsty Clough, WWF-UK; Ed Green, Michelle Taylor and Colette Wabnitz, UNEP-WCMC; Sara Oldfield, Fauna & Flora International; Guy Clarke and Tim Luffman, CITES Enforcement Team; Tristan Bradfield, Corporation of London; Tim Inskipp and John Caldwell, UNEP-WCMC; Tuna Ekim, Head of Scientific Authority for Plants, Turkey; Susanne Schmitt, WWF-UK; Tom Langton, Froglife; Jane Withey, DEFRA; Vin Flemming, Joint Nature Conservation Council, Richard Luxmoore, National Trust for Scotland; Martin Sneary, BirdLife International; Jeff Wheatley, Surrey Bird Club; Peter Lambley and Jim Foster, English Nature; Martin Harper, Plantlife International; John Dawes, Ornamental Fish International; Duncan McNiven and Chris Townend, RSPB; Jonathon Loh, WWF International; and Keith Davenport, OATA; and the Marine Conservation Society. Thanks go to UNEP-WCMC for providing invaluable data.

For further information please contact:
TRAFFIC International
219a Huntingdon Road
Cambridge, CB3 0DL
Telephone 01223 277427
Fax 01223 277237
www.traffic.org

Cover photos
Trees; André Birtschi, WWF-Canon
Logs; Randall Hyman, AG Pix

Contents

Executive summary 4
Background and overview 4
Wildlife use at home and abroad 4
Wildlife in gardening and horticulture 6
The live animal trade 6
Conclusions 7
Recommendations 8

1 Introduction 9

2 Background 10

3 Overview 11
3.1 Wildlife in construction 11
3.2 Wildlife as food 18
3.3 Wildlife as medicine 27
3.4 Wildlife for fashion and decoration 32
3.5 Wildlife souvenirs 36

4 Case study: wildlife in gardening and horticulture 40
4.1 Peat use 40
4.2 Bulb trade 44
4.3 Rare plants 47
4.4 UK plant crime 49
4.5 Alien invasive species 51

5 Case study: the live animal trade 56
5.1 Aquaria trade 56
5.2 Bird trade 61
5.3 Reptile trade 63
5.4 Alien invasive species 67

6 Conclusions 71

7 Additional recommendations 73
Government action 73
Industry action 73
Consumer action 73

8 Where to go for more information 74

Executive summary

Few people living in the UK are aware of how much they rely on wildlife trade. Whether we're buying bulbs from the garden centre, wood furniture from a store, or a meal from a fish and chip shop, we are not only trading in wildlife, but also making a small but lasting impression on biodiversity and communities around the world.

Those who may regard this as inconsequential – there are always more fish in the sea, as the saying goes – are mistaken: many wild species used in the UK are declining, due to unsustainable harvests and trade. This threatens biodiversity, the livelihoods of those who rely on wildlife harvests as a source of income, and opportunities to use those resources in the future.

This report describes the impact people in the UK have on biodiversity and livelihoods as a result of their use and trade of wild plants and animals. A general overview of the UK trade is followed by case studies on the trade in live plants used in gardening and horticulture, and in live animals for pets. The "bad news" is presented, as is the "good news" – where it exists. We also list recommendations for UK policy-makers, industry and consumers.

BACKGROUND AND OVERVIEW

Wildlife resources are important to everyone because they provide food, medicines, clothing and other products. Although factors such as habitat destruction may be the greatest threat to many species, over-exploitation for trade is the major threat to others. Yet sustainable use can provide local incomes and positive incentives for the protection of wildlife resources and their natural habitats.

WILDLIFE USE AT HOME AND ABROAD

The trade in **timber and wood products** dwarfs all other natural resource trade in the UK. They are used in construction, flooring, furniture, as a source of resins used to make varnish and turpentine, and for making paper. In 1998, recorded UK imports of timber, paper, boards and other wood products totalled 53 million cubic metres valued at around £8 billion (US$11.6 billion). The UK is the world's second-largest net importer of forest products (by value), importing wood products from around 90 countries.

Bad news: Timber is imported into the UK from countries where in some cases natural forests are not well-managed, where logging affects indigenous people, and where felling affects old-growth forests. The UK's imports include species of conservation concern such as big-leaf mahogany, which is over-exploited in much of its range in Latin America.

Good news: Governments, consumers and industry are increasingly striving for improvements in forest management. International trade in several timber species is now controlled by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The Forest Stewardship Council (FSC) is working with producers and industry to certify and market timber that has been produced from well-managed forests, with consumers offered products ranging from paper goods to construction timber marked with the FSC "tick-tree" label.

Wild plants and animals are important sources of **food** in the UK, and include thyme, edible mushrooms, such as chanterelles, palm hearts and brazil nuts as well as animal species such as locally-produced deer. Of all wild food, consumption of marine fish is by far the most important economically and has the greatest environmental impact. Technological advances have made it possible to fish almost anywhere at any time, and to increase production of fish on fish farms.

Bad news: Increasing pressure on fish stocks is leading to a global pattern of overfishing, with the UK consumer playing a major role. In 1999, the UK's fishing ground "footprint" – the area required to satisfy our consumption of fish and seafood products – was as high as 0.47 global hectares per person, almost four times the world average. Declining fish stocks are not only a conservation concern, but they also reduce the long-term viability of fishing and coastal communities.

Good news: A turn-around in the health of fish stocks and the fishing industry is possible if appropriate recovery measures are taken – for example, developing a suite of fisheries management tools and working with the industry to adopt more sustainable fishing methods. Consumer actions can support a shift away from unsustainable fisheries, the Marine Stewardship Council (MSC) having been developed to certify fish from well-managed sources.

Medicines are also often produced from wild species. Plants are an important component of herbal products, traditional remedies and aromatherapy products, with the UK being the fourth- largest market for herbal remedies in Europe. Some animal species are also used for medicinal purposes, for example in traditional East Asian medicine (TEAM).

Bad news: There is concern that plant species such as goldenseal, ginseng and some species of thyme are being harvested unsustainably. This puts these species, as well as healthcare options and the livelihoods of people who depend on harvesting them for income, at risk. Products from some endangered animal species such as tigers and rhinos have been sold in UK shops specialising in South-east Asian merchandise.

Good news: WWF, TRAFFIC and others are bringing together representatives from industry, conservation, healthcare and government agencies to make sure medicinal plants come from sustainable sources. Government action to reduce the trade in endangered animal species includes more inspections of TEAM shops and the publication, in English and Chinese, of information aimed at reducing the trade.

Wild species are extensively used for **decoration and handicrafts**. A variety of reptile and other skins are used in crafting shoes, belts and other items of clothing; coral pieces are sold for decorating tables or shelves and made into jewellery; and wood is carved into figures and made into musical instruments. These items are offered for sale throughout the UK as well as overseas, including tourist markets.

Bad news: Products from some threatened species continue to be traded. They include shells from marine turtles, ivory and shahtoosh (the wool of the Tibetan antelope).

Good news: Much of the trade is sustainable and can make important contributions to rural incomes. Both WWF and Fauna & Flora International (FFI) have programmes that work with

producers of carvings and musical instruments who use trees that are at risk, so that they can be made more aware of sustainable practices. In addition, the UK government has worked with WWF to produce *Souvenir Alert* guides for tourists travelling overseas.

WILDLIFE IN GARDENING AND HORTICULTURE

The UK is rightly famous for its gardens and gardening. However, many plants that give so much pleasure originated in forests and other wild areas hundreds or even thousands of kilometres away. While much of the trade is now supplied by artificially propagated plants, some species continue to be sourced from the wild in large numbers. Snowdrop and cyclamen bulbs, for example, are imported into the EU in their millions from Turkey and Georgia, wild orchids are imported from Asia and cacti from Latin America. Peat extracted from bogs is often used in gardening and horticulture, with UK imports nearly doubling between 1997 and 2001. Amateur gardening accounted for two-thirds of peat use in 1999.

Bad news: Harvesting wild bulbs for trade is depleting populations in some areas, and the trade in rare plants threatens individual species. By contrast, rapid spread, rather than rarity, is the problem with a growing number of "alien invasive" species imported into the UK: floating pennywort, for example, is crowding out native plants, suffocating fish and native invertebrates, and altering the local ecology. Although less commonly thought of in terms of wildlife trade, the use of peat is considered one of the two most serious threats associated with the UK plant trade, threatening rare species found only in this type of habitat. Interest in growing bluebells in UK gardens is now prompting the theft of native plants from bluebell woods as well as the sale and planting of Spanish bluebells, which hybridise with the native species.

Good news: The bulb trade provides an important source of income to collectors in countries such as Turkey. The UK government and FFI have been assisting the government and producer groups in Turkey in developing means of keeping exports within sustainable levels. Action is being taken to address the trade in alien species and the Department for the Environment, Food and Rural Affairs (DEFRA) recently convened a working group to review government policy. The government has also pledged to reduce peat use in the UK and, with the Royal Society for the Protection of Birds, has produced an action plan to achieve this goal.

THE LIVE ANIMAL TRADE

The British keep an incredible variety of wild animal species for companionship or as a hobby. These include parrots, songbirds, reptiles, amphibians, marine and freshwater fish, and even invertebrates such as snails. The trade in marine species for aquaria has risen rapidly in recent years, as has the trade in live reptiles, but imports of parrots from the wild have declined. Captive breeding now supplies an increasing share of the trade in wild birds and freshwater fish, but is relatively less advanced for reptiles or marine species.

Bad news: The rapid increase in the trade in live reptiles could threaten some species in the wild, especially those with naturally low numbers or limited distribution such as the dwarf python. Rare bird and reptile species banned from import also continue to be smuggled into the UK. Some species, such as the North American bullfrog, are invasive and threaten native wildlife populations.

Good news: EU trade controls have improved to the point where EU imports of many species are no longer of concern, and temporary import controls can be imposed relatively quickly where necessary. British government action to reduce illegal trade resulted in the seizure of more than 4,500 live reptiles between 1990 and 1999. The Marine Aquarium Council is working with the aquarium industry and producer groups to provide marine specimens sustainably, and it provides incentives for reef conservation.

CONCLUSIONS

The UK trade in wild species provides benefits and costs, threats and opportunities. The benefits are enormous: British lifestyles depend significantly on the use of wild species for construction, paper goods, food, medicines, ornamentation, gardening and companionship. The numerous businesses supplying these goods, and the people they employ, similarly depend on the use of wild species, as do the harvesters who provide wildlife products for sale to UK markets.

Many costs of the wildlife trade are most keenly felt far from the UK through declines in species numbers, habitats and livelihood options as a result of over-exploitation. Species once extinct in the wild cannot be re-introduced easily, nor can habitats evolving over thousands of years be recreated overnight. People living in the UK are likely to feel a great sadness at the declines of rare plant or animal species. However, in developing countries, people whose income depends on sustainable use of wildlife resources are likely to feel a more direct impact on their day to day lives if they are no longer able to afford basic necessities such as schooling or healthcare as a result of overexploitation.

Other costs are felt closer to home. Declining fish stocks are threatening the livelihoods of UK fishing and coastal communities. Invasive species of plants and animals imported for gardening, use as pets and for food production are threatening native species and habitats. Continued extraction of peat for use in gardening and horticulture threatens Sites of Special Scientific Interest in the UK as well as fragile wetland habitats in other countries.

However, along with the threats posed by wildlife trade comes the opportunity for governments, industry and consumers to shift the balance in favour of sustainability, and to make a positive difference to the lives of people producing wildlife products for our homes, gardens and dinner tables. The government has a responsibility to ensure that sufficient legislation is in place and implemented to maintain trade within sustainable levels and to protect native flora and fauna. It is in industry's best interests to ensure that the materials it depends on are from sustainable sources, and to increase consumer confidence by adopting principles of sustainability and "fair trade".

But the role of consumers is perhaps the most important of all: it is us who shape both government and industry actions through our purchasing power and make our opinions known. By working together, government, industry and consumers can make sure that the lasting impressions left by our wildlife trade on biodiversity and society are good ones.

RECOMMENDATIONS

Government action

- improve application of the EU Wildlife Trade Regulations, including those concerning the monitoring and control of the trade in non-CITES species, to ensure that wildlife products imported into the EU are from sustainable and legal sources and, if live specimens, will not become invasive;
- increase the resources available to UK government agencies for enforcing wildlife trade controls and assisting developing countries with designing export strategies that encompass the principles of sustainable use and equitable benefit-sharing; and
- expand industry and consumer education campaigns aimed at increasing understanding of the importance of wild species to human welfare both in the UK and other countries, and therefore the importance of ensuring that the trade in wild species is conducted in a manner that conserves biodiversity and enhances rural livelihoods.

Industry action

- ensure that wildlife products offered for sale are produced in a sustainable, legal and socially equitable manner, and eliminate the sale of alien invasive species;
- improve product labelling so that it accurately states the species, country of origin and source (e.g. wild, cultivated) of products offered for sale; and
- support initiatives such as third party certification schemes aimed at securing sustainable and ethical sourcing.

Consumer action

- query the source of wildlife products offered for sale, and buy those that can be shown to have been produced in a sustainable and socially equitable manner;
- support the development of certification and labelling schemes that assess whether goods in trade have been produced in a sustainable, legal and ethical manner;
- buy certified products whenever these are available in the market – for example in the timber trade, marine fisheries and the marine aquarium trade; and
- encourage the UK government and industries supplying British markets to design and implement policies aimed at ensuring that wildlife products are sourced in accordance with conservation and development aims.

1 Introduction

Few people living in the UK are aware of how much they rely on wildlife trade. Whether we're buying bulbs from the garden centre, wood furniture from a store, or a meal from a fish and chip shop, we are not only trading in wildlife, but also making a small but lasting impression on biodiversity and communities around the world.

Those who may regard this as inconsequential – there are always more fish in the sea, as the saying goes – are mistaken: many wild species used in the UK are declining, due to unsustainable harvests and trade. This threatens biodiversity, the livelihoods of those who rely on wildlife harvests as a source of income, and opportunities to use those resources in the future.

This report describes the impact people living in the UK have on biodiversity and livelihoods as a result of their use and trade of wild species, both plants and animals. A general overview of the UK trade is followed by case studies on the trade in live plants used in gardening and horticulture, and in live animals for pets. The "bad news" is reported, as is the "good news" – where it exists. Finally, we list our recommendations so that UK policy-makers, industry and consumers can strive towards making sure that, where the use and trade of wild species is concerned, the lasting impressions we leave on biodiversity and society are good ones.

2 Background

Wildlife resources are important to everyone, providing us with food, medicines, clothing and other products. A recent study estimated that the benefit-to-cost ratio of wild ecosystems, if converted to agriculture, housing or other human uses, is more than 100 to 1 in favour of conservation – a strikingly good investment[1]. Although factors such as habitat destruction may be the greatest threat to most species, over-exploitation of wildlife plays an important part in driving the extinction crisis. However, sustainable use can provide local incomes and positive incentives for the protection of wildlife resources and their natural habitats[2].

The popularity of wildlife and wildlife products in the UK has been accompanied by a growing number of laws and regulations aimed at controlling the trade and ensuring it is sustainable. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) provides three levels of protection. Species listed in Appendix I of the Convention are banned from international trade for commercial purposes. Trade is regulated through a permit system for species listed in Appendix II. Appendix III includes species subject to regulation by a particular range country and for which the cooperation of other member countries is needed to control cross-border trade.

CITES is implemented in the European Union (EU) through Council Regulation (EC) No 338/97 and Commission Regulation (EC) No 1808/2001 (referred to hereafter as the EU Wildlife Trade Regulations), which are enforced in the UK by HM Customs and Excise (HMCE) at the borders, and by the Police inland. HM Customs and Excise implement the Regulations through the Customs and Excise Management Act 1979 (CEMA) which lists offences where goods are imported or exported illegally. It therefore applies when wildlife or wildlife products are imported into or exported from the UK contrary to the EU Wildlife Trade Regulations. The Police implement the Regulations through the Control of Trade in Endangered Species (Enforcement) Regulations 1997 (COTES) which established a series of offences and penalties for infringements of the EU Wildlife Trade Regulations. It primarily covers commercial trade (both purchase and sale) in wildlife and wildlife products of species listed on Annexes A and B of the EU Wildlife Trade Regulations, as well as the misuse and forgery of permits[3]. COTES can also be used by HM Customs and Excise.

Only wildlife and wildlife products that enter the UK directly from outside the EU are monitored by HMCE. A significant (and, in many cases, greater) proportion enters the EU through mainland Europe and the products are then brought to the UK by air, sea, rail or road. When arriving from another EU country, they are not required to be further checked by HMCE. This means that the total imports into the UK are not monitored and are therefore unknown.

---

[1] Balmford, A., Bruner, A., Cooper, P., Costanza, R., Farber, S., Green, R.E., Jenkins, M., Jefferiss, P., Jessamy, V. Madden, J., Munro, K., Myers, N., Naeem, S., Paavola, J., Rayment, M., Rosendo, S., Roughgarden, J., Trumper, K. and Turner, K. (2002) Economic reasons for conserving wild nature. *Science* 297: 950-953.

[2] Zain, S. (2001) *What is the Wildlife Trade?* TRAFFIC International, Cambridge.

[3] Holden, J. (1998) *By Hook or by Crook. A Reference Manual on Illegal Wildlife Trade and Prosecutions in the United Kingdom.* RSPB, Sandy.

3 Overview

3.1 WILDLIFE IN CONSTRUCTION

The trade in timber and wood products dwarfs all other natural resources trade in the UK. We probably use wood more widely than any other wild or wildlife products – for example in construction, flooring, making indoor and garden furniture, as a source of resins that are used to make varnish and turpentine and for making paper. Paper now accounts for 45 per cent of industrial timber production. The amount of timber, and particularly pulp, we consume continues to increase, but how many of us consider whether this is sustainable? [4]

Timber and wood products in international trade

How important is the UK?

In 1998, recorded UK imports of timber, paper, boards and other wood products totalled 53 million cubic metres[5] valued at around £8 billion (US$11.6 billion)[6]. The UK is the world's second-largest net importer of forest products (by value) and imports wood products from around 90 countries, the majority coming from nearby temperate forests in Europe. This rank reflects the UK's low forest cover (almost 85 per cent of wood products are imported), large population and high consumption levels[7]. Sawn wood comprises the great majority of the UK's timber imports; a substantial amount of pulp is also imported. In 2001 the UK imported 7.6 million tonnes of paper and exported 1.2 million tonnes[8]. The Republic of Ireland is the UK's principal export market for timber and paper[9]. Through its buying power the UK timber trade has the potential to influence the way that other countries manage their forests and was, for example, instrumental in helping convince Swedish companies to adopt certification[10].

Who is involved?

Hundreds of importers operate in the UK, although a few – particularly major retail chains, paper manufacturers and building suppliers – control the bulk of the market. This involves wholesalers, timber merchants, manufacturers, government procurement offices and consumers[11].

What is the UK impact?

Bad news

The international timber trade accounts for only a very small proportion of all timber cut, the rest being for domestic trade, but its ecological impacts outweigh its size. Some of the world's most important old-growth forests are affected including, through illegal logging and trade,

---

[4] Stolton, S., Dudley, N. and Toyne, P. (2001) *The UK's Forest Footprint.* WWF-UK, Godalming.

[5] Toyne, P., O'Brien, C. and Nelson, R. (2002) *Making the Case for Green Procurement by Government.* WWF International.

[6] Forest Industry Committee of Great Britain (1998) *A Reference for the Forest Industry 1998.* Stirling.

[7] Stolton *et al.* (2001) *supra*

[8] The Paper Federation of Great Britain website www.paper.org.uk

[9] Toyne, P. *et al.* (2002). *supra*

[10] Stolton *et al.* (2001) *supra*

[11] *Ibid*

many in protected areas. The timber trade is identified as the major threat to the quality of remaining native temperate and boreal forests. Selective logging opens tropical forests to other uses and can lead to increased harvesting of other forest products such as wild meat (wild animals killed for sale as food)[12].

Historically the UK exploited forests for timber throughout its colonies. The UK still imports timber (albeit a tiny proportion of the total imports) from countries where natural forests are not well-managed (for example, Cameroon and the Democratic Republic of Congo) and where felling affects old-growth areas (for example, Canada, Latvia, the Russian Federation and the US) and may similarly not be well-managed in some cases. The UK imports plantation pulp from countries such as Brazil and Chile, where poorly regulated plantation establishment has destroyed natural forest.

HMCE does not have legal jurisdiction over timber it believes has been illegally logged, but can only act when there is evidence that the timber is being presented for import in violation of UK laws, including those that implement CITES. In recent years UK companies have imported illegally felled timber from countries including Brazil, Cambodia, Estonia, Ghana, Latvia and the Philippines[13]. An estimated 14 per cent of timber imported into the UK is believed to be of illegal origin or imported without permits[14].

At least 6.4 million hectares (almost twice the area of Poland) throughout the world are used continually to service the wood demands of the UK consumer. That is almost three times the area of the UK's own productive forest and woodland. Additionally, the equivalent of some 67,000 hectares are deforested each year through logging (or are so badly damaged that they will become deforested) to supply UK markets, of which 75 per cent are in developing countries. However, developing countries account for only a small proportion of UK imports[15].

The environmental and social impacts of logging in tropical areas can be severe, with logging leading to declines in the populations of target species as well as having wider environmental impacts. The search for valuable timber species can also bring loggers into conflict with forest people, who may be displaced from their land so that it can be used for logging. Although cited as contributing to national economies, much of the revenue generated by tropical timber production does not accrue to the producer country[16]. Several tropical forest tree species used in the UK have been categorised as "threatened" by IUCN – the World Conservation Union, including some species of ramin *Gonystylus* spp. from South-east Asia (categorised as Vulnerable), African mahoganies *Khaya* spp. and *Entandrophragma* spp. from west and central Africa (most species categorised as Vulnerable and one as Endangered) and big-leaf mahogany *Swietenia macrophylla* from Central and South America (Vulnerable)[17]. Ramin has numerous uses in the home and in everyday life in the UK including veneer, cabinets, furniture, interior

[12] *Ibid*

[13] *Ibid*

[14] Toyne *et al.* (2002) *supra*

[15] Stolton *et al.* (2001) *supra*

[16] *Ibid*

[17] IUCN (2002). *2002 IUCN Red List of Threatened Species.* Downloaded from www.redlist.org 7 March 2003.

.

decoration, wall panelling, light flooring, toys, broom handles, venetian blinds, picture frames, rulers, window frames, skirting and planks. Indonesia recently placed ramin in Appendix III of CITES because of rampant illegal logging and habitat destruction. Even so, some ramin is still being illegally exported from that country[18]. African mahoganies have a diverse range of uses including furniture and cabinet wood, boat-building, joinery, veneer and plywood, panelling and shop fixtures[19]. A proposal to include *Khaya* spp. and *Entandrophragma* spp. in CITES was not successful because of opposition by producer countries. Although they are protected by domestic legislation in some countries, they are still at risk from heavy over-exploitation[20].

Big-leaf mahogany is the most commercially important of the American mahoganies. Considered one of the highest-quality woods in the world, it is principally used for interior finishing, furniture, ornaments, inlays and carving. It has been exploited for several centuries, though mostly since the other two American mahoganies become commercially extinct in the 20th century, and the most extensive stands remain in Brazil[21]. The trade is small relative to many other timber species, but very lucrative, worth £38.6 million (US$56 million) annually. Wild populations have declined in large parts of the species' range as a result of an intensive and often illegal harvest that is driven by strong demand and high prices from consuming countries. Unless there is significant change in the management of the harvest and trade of this species, it may follow the other two American mahoganies down the path to commercial extinction.

Big-leaf mahogany is exported from at least 14 Latin American countries and more than 120,000 cubic metres of the species enter international trade annually. Historically the dominant markets for big-leaf mahogany have been North America and Europe. In recent years the US has been by far the biggest consumer[22]. Although once the second-largest importer of mahogany, the UK has now fallen to third place, behind the Dominican Republic, with imports being a small fraction of those of the US (i.e. 5,078 m^3 and 85,307 m^3 respectively in 1999)[23]. The low figure for 1997 UK imports is because the species had only been recently included in Appendix III, and so trade reporting was very poor for that year.

Table 1: Gross imports of big-leaf mahogany into the UK, 1997-1999[24]

Year	1997	1998	1999	2000
Mahogany imports m^3	1,676	4,167	5,078	2,814

[18] Environment Investigation Agency website http://www.eia-international.org

[19] www.iswonline.com/wwp/wom/afmahogany.shtml

[20] World Conservation Monitoring Centre (2000) *Contribution to an Evaluation of Tree Species using the New CITES Listing Criteria.* UNEP-WCMC, Cambridge.

[21] *Ibid*

[22] TRAFFIC (2000) Mahogany Matters. *TRAFFIC Dispatches* 15.

[23] TRAFFIC International (2002) *Appendix III Implementation for Big-leafed Mahogany* Swietenia macrophyllla. TRAFFIC International, Cambridge.

[24] CITES annual report data compiled by UNEP-WCMC

A recent TRAFFIC study revealed many indications of increasingly scarce supplies of big-leaf mahogany within range states. Mahogany has already been depleted in the Caribbean and Central America, so the core of the harvest has moved to the denser tropical forests of South America – some being among the most biologically diverse regions of the world. Concerns about excessive levels of legal harvest are intensified even more by illegal exploitation of the species in the region, especially in Brazil and Peru[25].

Good news

The UK is a major importer of timber certified by the Forest Stewardship Council (FSC) as being produced in well-managed forests. The FSC is an independent non-profit organisation that evaluates, accredits and monitors certification organisations which inspect forest operations and grant FSC labels certifying that timber has been produced from well-managed forests[26]. The UK has agreed a national standard – the UK Woodland Assurance Standard – which is recognised by the FSC.

Around 80 companies in the UK are members of the WWF 95+ Group, which is committed to selling increasing proportions of credibly and independently certified timber. UK companies are also promoting certification abroad. When UK consumers buy timber, they find that the FSC "tick-tree" label is now a familiar sight in major stores such as B&Q, Sainsbury's and Tesco. FSC-certified paper is also becoming more widely available. However, consumer awareness is still very low, and more promotion needs to be done to educate consumers about the advantages and availability of certified products.

In 2000, the UK government agreed to procure its timber from certified sources[27]. At present it is developing its minimum requirements for enforcement and is considering the role of certification and labelling as a means of verification[28].

"Producer groups" have also been formed. These are WWF Forest and Trade Networks (FTNs) that promote improved forest management and credible certification through the offer of services that meet the needs of producer members, both forest managers and primary processors. Producer groups are established where FSC certification is not readily available, the first group being set up in Russia. Other groups are being developed in Latin America, central and west Africa, South-east Asia and eastern Europe.

As a member of the G8, the UK government is also committed to tackling illegal logging. FFI and Friends of the Earth recently produced *The Good Wood Guide*, a consumer guide to choosing and using timber. This promotes the use of reclaimed timber, gives tips on reducing waste, and describes the major forest certification schemes[29]. The UK has recently entered into a bilateral trade agreement with Indonesia to improve forest law, enforcement and governance,

[25] TRAFFIC (2000) *supra*

[26] www.fscoax.org

[27] Stolton *et al.* (2001) *supra*

[28] Toyne *et al.* (2002) *supra*

[29] Mace, G. (2002) Choosing and using Good Wood. *Fauna & Flora* 2:31.

and to combat illegal logging and the international trade in illegally logged timber and wood products[30].

WWF has formed a partnership with IKEA, a home furnishing company with stores in 22 countries, including 11 in the UK. IKEA has established a long-term goal of sourcing all wood in its product range from forests that have been verified as being well-managed. WWF and IKEA are working together to reduce unsustainable logging, promote legal compliance, strengthen multi-stakeholder-based forest certification, and increase the amount of forest under sustainable management.[31]

Table 2: Tree species listed in CITES

Appendices	***Scientific Name*** **Common Name**	**Year** **Listing Effective**	**NOTES** **(Uses)**
Appendix I	*Abies guatemalensis* Guatemalan Fir	1975	(Timber)
	Araucaria araucana Monkey-puzzle Tree	1975	(Timber, horticulture) Originally listed in Appendix II, Chilean population transferred to Appendix I in 1979; remaining populations in 2000
	Dalbergia nigra Brazilian Rosewood	1992	(Timber)
	Fitzroya cupressoides Alerce	1975	(Timber) Chile coastal population transferred to Appendix II in 1983 and back to Appendix I in 1987
	Pilgerodendron uviferum Parlatore's Podocarp	1975	
	Podocarpus parlatorei Parlatore's Podocarp	1974	
Appendix II	*Aquilaria malaccensis* Agarwood	1995	(Medicinal/Fragrance/Flavouring)
	Caryocar costaricense Aji	1975	(Timber)
	Guaiacum spp. Lignum Vitae	2003	(Timber, medicinal, flavouring) *Guaiacum sanctum* Holywood Lignum Vitae *listed in 1975; Guaiacum officinale* Commoner Lignum Vitae listed in 1992;

[30] Toyne *et al.* (2002) *supra*

[31] Anon. (undated). WWF and IKEA Co-operation on Forest Projects.

	Oreomunnea pterocarpa Caribbean Walnut	1975	(Timber) Originally listed in Appendix I, 1975 transferred to Appendix II in 1992
	*Pericopsis elata** Afrormosia	1992	(Timber)
	Platymiscum pleistachyum Quira Macawood	1975	(Timber) Originally listed in Appendix I; transferred to Appendix II in 1989
	Prunus africana African Cherry/Stinkwood	1995	(Timber/Medicinal)
	Pterocarpus santalinus Red Sanders	1995	(Timber/Dye/Medicinal)
	Swietenia humilis Mexican Mahogany	1975	(Timber)
	Swietenia macrophylla Big-leaf Mahogany	2003	(Timber) Listed in Appendix III in ; Appendix II listing effective 15 November 2003
	Swietenia mahogani American Mahogany	1992	(Timber) *logs, sawn timber only
Appendix III	*Cedrela odorata* West Indian Cedar	2001 2002	Peru Colombia (Timber)
	Dipteryx panamensis Almendro	2003	Costa Rica (Timber)
	Gonystylus spp. Ramin	2002	Indonesia = 27 species (Timber)

National governments are taking strong action to protect forest resources, and CITES is increasingly being used to help ensure that timber in international trade is from sustainable and legal sources. The UK, along with other G8 countries, pledged in July 2000 to improve efforts to "combat illegal logging, including export and procurement practices"[32]. To overcome the current unsatisfactory trends in the mahogany trade, Latin American countries have improved national legislation for mahogany, invested in forest certification, convened regional management workshops and suspended logging. After intense debate in the corridors and a close vote at the CITES biennial conference in November 2002, a proposal was adopted to introduce stronger international trade controls for big-leaf mahogany through listing in CITES Appendix II. It will now be important for consumer countries to work with range states to support these developments, to make sure that mahogany products presented for import are produced in accordance with CITES, and to ensure that import controls are sufficient to detect

[32] Anon. (2000). UK government buys green. *TRAFFIC Bulletin* 18(3):90.

any illegal shipments. Consumers also have a role to play, and can encourage retailers to support the FSC trademark[33].

Home-grown wood and wood products

While conservation impacts of the UK timber trade abroad are mainly due to the effects of selective logging and wider deforestation, great environmental damage has occurred within the country as a result of plantations of non-native conifers to supply the trade. Conifer plantations now form the majority of British woodlands. However, the proportion of planted native broadleaf forest has increased in recent years and overall forest management has improved.[34] In some woodlands, conifer plantations are even being converted back to broadleaf.

The volume of wood supplied from UK forests each year has more than doubled from 4 million cubic metres in the 1970s to nearly 9 million cubic metres today[35]. A small area (2 per cent of England's and 0.07 per cent of Scotland's total woodland area) is traditionally managed as coppice woodland to produce items such as rustic furniture, fences and charcoal. Most people who rely on native wild plants in the UK for a living are engaged in woodland activities as part of their work, although a figure is difficult to obtain[36].

Recommendations

Government action

- encourage all EU governments to increase inspection of imported timber shipments and otherwise improve enforcement of CITES and national trade controls for timber, as well as taking action in UK ports;
- translate recent statements about controlling the use of illegally traded timber into action at national and local levels; and
- develop and implement timber sourcing policies that emphasise the use of timber from forest areas independently certified as being well-managed.

Industry action

- establish sourcing policies and codes of practice that encourage good forest management and increased transparency in the trade and market-place;
- demand information from suppliers regarding where and how wood products are sourced, seek timber from forest areas demonstrated as being well-managed, and clearly label the origin of products offered for sale; and
- support independent certification by the Forest Stewardship Council (FSC) by selling and promoting the sale of FSC-certified products.

---

[33] TRAFFIC (2000) *supra*

[34] Inskipp, C. (2001) *Forests and Woods Data Support Scotland*. WWF Scotland and Scottish Natural Heritage, Aberfeldy and Battleby.

[35] Forest Industry Committee of Great Britain (1998) *supra*

[36] Sanderson, H. and Prendergast, H.D.V. (2002) *Commercial Uses of Wild and Traditionally Managed Plants in England and Scotland.* Royal Botanic Gardens, Kew.

Consumer action

- ask retailers about the source of wood and wood products offered for sale before buying, and refuse to take "I don't know" or "it's from a sustainable source" for an answer;
- choose wood produced from well-managed forests and, where available, from forests that have been FSC-certified; and
- support companies that demonstrate a commitment to offering products from well-managed sources.

3.2 WILDLIFE AS FOOD

Wild plants and animals are important sources of food in the UK, and include thyme and bay (laurel) leaf from Turkey and Spain, edible mushrooms such as chanterelles and porcini from Eurasia, pine nuts from the Mediterranean, palm hearts and brazil nuts from the Amazon, as well as animal species such as locally produced gamebirds. Of all our wild food consumption, marine fish is by far the most important economically, and has the greatest environmental impact.

Marine fisheries

What are the problems?

In the last 100 years, global consumption of fish has increased, as has our capacity to catch it. Technological advances have made it possible to fish almost anywhere at any time. From being a largely coastal activity, fishing now takes place in all international waters and in the depths of the ocean – all in the search for new catches. This increasing pressure on the fish stocks has led to a global pattern of overfishing.

Of the 60 main commercial fish stocks in the North-east Atlantic, 40 are "outside safe biological limits"[37]. This means that too many adult fish are being harvested to leave a viable breeding stock. All nine commercial fish species from the North Sea come into this category, despite EU efforts to limit catches[38]. For some stocks of European fish, such as cod *Gadus morhua*, whiting *Merlangius merlangus*, haddock *Melanogrammus aeglefinu*s and saithe *Pollachius virens*, the amount of young produced each year has decreased by half compared with the 1960s and 1970s[39].

But overfishing is not the only problem related to fisheries and the environment. Fishing activities also affect the marine ecosystem as a whole in a number of ways[40]:

- by removing excessive amounts of fish, fishing changes the food base for other species such as sea birds and marine mammals;
- since fishing often targets predatory species, such as cod or tuna, the predation pressure in the system as a whole is reduced;
- overfishing changes the species composition and structure of the entire ecosystem;

---

[37] OSPAR (2000) *Quality Status Report for the NE Atlantic.* Copenhagen.

[38] *Ibid*

[39] WWF-UK (2000) WWF's Ocean Recovery Campaign – ORCA. *Marine Update* 42. Godalming.

[40] Nordic Council of Ministers (2000) The Status of Fisheries and Related Environment of Northern Seas

- accidental capture of non-target species, such as skates and rays, may pose a threat to their existence in the long term;
- discarding (throwing unwanted catches overboard) is not only wasteful but also changes food availability for other species; and
- certain types of fishing gear, such as trawls or beams dragged over the bottom, disturb bottom-living communities, some of which may be destroyed – coral reefs or seamounts, for example.

The seas are running out of fish but supermarkets are not. This is partly because as some fish populations are over-exploited, fishermen are travelling farther and farther to find fish. In addition the UK, as well as the wider European market, has the buying power to import fish from all over the world to fill the fish counters.

We are also eating more farmed fish. The vast majority of fish farmed in the UK is Atlantic salmon *Salmo salar* and most farms are in Scottish sea lochs. In the last 30 years, catches of wild salmon have declined by 85 per cent in Scotland, 72 per cent in England and Wales and 78 per cent in Northern Ireland[41]. The wild salmon stocks are thought to be seriously at risk from the spread of disease and parasites from salmon farms[42]. Many people believe that fish farming relieves pressure on ocean fisheries, but the reverse may be true for some types of aquaculture, including salmon farming, as farmed salmon are fed mainly fish meal and oil produced from industrial ocean fisheries[43]. Salmon farms are also sources of pollution: solids and nutrients from food waste and fish faeces, for example, and chemicals used to treat diseases and parasites in farmed fish. In 2002, the Scottish Executive established a strategy group involving all key stakeholders to map out a sustainable future for the industry[44].

Who is involved?

The number of UK fishermen declined by 69 per cent between 1948 (47,647) and 2001 (14,645). Of these, 2,722 work part time. The fishing industry in the UK has around 7,170 fishing vessels, with a further 559 registered in the Channel Islands and the Isle of Man[45]. This decrease is partly a result of technological development, which often replaces labour with technology, but also a result of poor fisheries management leading to at times severe declines in fish stocks.

The UK also has one of Europe's largest fish processing industries, which primarily focuses on whitefish species from the North Sea and value-added processing of fish and shellfish[46]. Around 22,000 people – more than the total number of fishermen – are employed in the substantial UK fish processing industry which consists of some 550 businesses[47]. The salmon farming industry

---

[41] Mills, D.H., Hadoke, G.D.F. and Read, J.B.D. (1999) Atlantic Salmon Facts. Atlantic Salmon Trust, Pitlochry.

[42] *Ibid*

[43] Naylor *et al.* (2000) Effect of aquaculture on world fish supplies. *Nature* 405:1017-1024.

[44] Scottish Executive (2001) Brankin Announces Consultation on Aquaculture Strategy to Balance Environmental and Economic Concerns. *Press release*, 26 June 2001.

[45] DEFRA (2002) UK Sea Fisheries Statistics 2001

[46] The Green Paper on the Future of the Common Fisheries Policy (COM(2001)135)

[47] *Ibid*

is a key player in Scotland's rural economy, supporting around 6,500 jobs directly and indirectly throughout the country[48].

How important is the UK?

Consumption of fish in the UK has remained at about the same level – around 145 grams per person per week – since 1995. In a longer perspective, consumption has actually gone down – in the 1950s the average person ate 188 grams. With fish becoming scarcer, prices have risen and the average cost has increased by about 10 per cent since 1995[49].

Since the beginning of the 1960s, fishing effort (the number and capacity of fishing boats to catch fish) in the UK has increased substantially, mainly due to increases in the size and power of vessels and more efficient fishing methods. The management of fisheries has so far been ineffective and has failed to match fishing effort and the amount of fish that can be caught sustainably[50]. For example, stocks of cod, commercially one of the most important species to be found in UK waters and a key component of our national dish of fish and chips, are now on the verge of collapse[51]. It is estimated that fishermen remove more than 70 per cent of the total cod produced annually in the North Sea[52].

In 2001, some 738,000 tonnes of sea fish worth £574 million (US$827) were landed in the UK and abroad by the UK fleet. Some species caught by UK fishing vessels find a more lucrative market abroad and are usually exported or landed directly overseas. In 2001, UK vessels landed 280,000 tonnes of sea fish with a value of £151 million (US$218) directly into non-UK ports. In addition, the UK imported fish worth £1,432 million (US$2,064) in the same year and exported fish and fish products to the value of £700 million (US$1,009). A small proportion of the catch is used to make fish oils and animal feeds[53].

[48] Scottish Executive *in litt.* 2001.

[49] National Food Survey, 2000.

[50] WWF-UK (2000) ORCA Campaign 2000.

[51] Berry, C. (2000) *Marine health check.* A report to WWF-UK, Godalming.

[52] Gislason, H. (1995) Ecosystem effects of fishing activities in the North Sea. *Marine Pollution Bulletin* 29(6-12):520-527.

[53] DEFRA (2002) *UK Sea Fisheries Statistics 2001*. HMSO, London.

World fishing ground footprint

The fishing ground footprint of a country is the area required to produce the fish and seafood products that are consumed there. This includes all marine and freshwater fish, crustaceans (such as shrimp) and cephalopods (such as squid), as well as all fish meal and oils that are used to feed animals and farmed fish. It also includes an additional component in most countries – roughly 40 per cent – to allow for so-called bycatch (unwanted catch), which is generally discarded back to the sea. A country's fishing ground footprint also takes account of the kinds of fish that are consumed. A kilogram of fish higher up in the food chain, such as cod, will have a larger footprint than a kilogram of fish on a lower level, because it requires more of the ocean's primary production.

In 1999, the world's average fish consumption was about 22kg per person per year, which equals a footprint of 0.14 global hectares per person. This is the same as the average biological productivity capacity of the seas. This figure was calculated by dividing the world's estimated sustainable yield of fish by the productive sea area.[54]

What is the UK impact?

Bad news

The UK's fishing ground footprint in 1999 was as high as 0.47 global hectares per person, almost four times the world average and almost four times the average biological production capacity of the seas[55]. This puts the UK in 12th place after countries such as Japan, New Zealand, Norway, Russia and Spain.

Today, fish stocks are at an all-time low, the marine environment is becoming increasingly degraded and the viability of fishermen's livelihoods and many coastal communities is being threatened. Poor fisheries management, inappropriate fishing practices and the lack of stakeholder engagement in the management of resources are at the heart of the problem.

Good news

A WWF report[56] showed that a turn-around in the health of fish stocks and the fishing industry is possible if appropriate recovery measures are taken. One study in the English Channel showed that the fishery could be more than 1,500 per cent more profitable if fish stocks were restored. What is needed in the short term to achieve recovery is the development and implementation of well-resourced recovery plans. Short-term high-level investment will be necessary to implement a suite of management tools (including fishing-free zones) and support the industry while adopting more sustainable fishing practices – and in some cases, temporarily or permanently, finding alternative means of income. Most important, proper stakeholder engagement is required to ensure that recovery plans are supported, adopted and fully implemented.

The ongoing reform of the Common Fisheries Policy has started to address some of the root causes of the European fisheries crisis. Of particular importance is the fact that new regulations state that harmful subsidies used to increase the capacity of the fleet by modernising or building new fishing vessels will be eliminated by 2004. They also advocate the implementation of ecosystem-based and precautionary approaches to management. The importance of stakeholder

[54] Loh, J. ed. (2002) *Living Planet Report 2002.* WWF International, Gland.

[55] *Ibid*

[56] *Ibid*

engagement in the management of fisheries is also recognised, particulary in the new concept of Regional Advisory Councils that potentially involves all relevant stakeholders. Even so, there is still a long way to go before more effective management of our fisheries can be ensured.

The Marine Stewardship Council (MSC) is an international, non-profit organisation based in the UK that works to promote sustainable and responsible fishing practices worldwide. It seeks to harness consumer purchasing power to generate change and promote environmentally responsible stewardship of fisheries. The MSC has developed an environmental standard for sustainable and well-managed fisheries, and uses a product label to reward environmentally responsible fishery management and practices. Consumers concerned about the environmental and social consequences of fishing will increasingly be able to choose seafood that has been independently assessed against the MSC standard and labelled to prove it. The MSC has succeeded in bringing together a broad coalition of supporters from more than 100 organisations in 20 or more countries. To date, six fisheries have been certified against the MSC standard, three of them in the UK: South West Mackerel-handline, Burry Inlet Cockles and Thames Herring. At least seven more are under assessment, including the Loch Torridon nephrops fishery, Alaska Pollock and British Colombia Salmon. In the UK, five retailers are selling MSC-certified products including Marks and Spencer, Sainsbury's and Tesco[57].

Recommendations

Our seas contain some of Europe's most important fishing grounds. WWF is working with the fishing industry to find ways of making our fisheries sector sustainable. Without comprehensive recovery plans, there is a very real danger that some commercial fish stocks will be lost. Short-term investment in the fishing sector is needed to aid recovery of the stocks. The recovery programme should focus on four main areas:

- recovery plans – specific measures implemented to restore fish stocks;
- delivery mechanisms – overarching elements for achieving policy goals;
- trust – fishermen, scientists, managers and environmentalists must work together towards the same long-term goals; and
- money – any recovery plan will fail unless it receives sufficient funding.

Government action

- the UK Treasury should commit itself to investing money so that decisions are not based on short-term survival but on medium-term recovery and long-term sustainability;
- the UK government should commit itself to delivering regionally-based recovery programmes that include regeneration measures such as closed areas, bigger mesh sizes, scrapping vessels and lay-up schemes, along with appropriate delivery mechanisms;
- fishing-free zones should be piloted, and a stronger network of Marine Protected Areas around the UK introduced; and
- in order to strengthen the move towards a more sustainable fisheries sector, the UK government and devolved administrations should make funding available for pre-assessment and other necessary changes, such as the replacement of gear to minimise

[57] Marine Stewardship Council website www.msc.org

bycatch of unwanted species, in order to assist expansion of certification and labelling of UK fisheries under the MSC scheme

Consumer action

We can all help to stem the decline of the UK's valuable fisheries and to ensure that species such as cod do not disappear from our menus. Here are 10 simple ways in which the consumer can make a difference:

1 Buy a variety of different fish.
2 Avoid the fashion for smaller sizes.
3 Buy locally caught fish.
4 Find out how your fish was caught.
5 Support local management schemes.
6 Avoid vulnerable species such as orange roughy.
7 If buying farmed fish, choose those farmed in open sea.
8 Include herring on your shopping list.
9 Keep asking questions.
10 Keep yourself informed!

Freshwater fisheries

How important is the UK?

The UK trade in species fished in freshwater is much smaller than that from marine fisheries; the total value was estimated at around £1.05 million a year (US$1.53 million) in 1991[58]. Angling for wild salmon, which migrate from the sea into Scottish rivers to spawn, provides substantial revenue in Scotland, but in England and Wales freshwater fishermen mainly rely on stocked fish, with the exception of European eel *Anguilla anguilla.* In contrast to salmon, this species spends most of its life in freshwater, then migrates to the sea to spawn. The UK is a relatively small importer of the eggs of sturgeons *Acipenseriformes* spp., another group of species which spend time in both salt and freshwater, the eggs of which are processed and sold as caviar. There is a small freshwater fish farm industry in the UK.

Who is involved?

Eel fishing is small-scale in the UK and most participants supplement their income from other sources. Small numbers of, chiefly amateur, anglers catch wild salmon in Scotland. Criminals are involved in a lucrative illegal trade in caviar.

What is the UK impact?

Bad news

Overfishing for the international trade has played a part in the demise of the European eel; other contributory factors are changes in ocean currents affecting migration, loss of river habitat, pollution, the impact of invasive species and local fishing. There is a small but significant trade in European eels live-trapped in the Bristol Channel for export. In 1998 UK eel exports totalled

[58] Cobham Resource Consultants (1992) *Countryside Sports. Their Economic Significance.* Cobham Resource Consultants, Oxford.

18.6 tonnes with a value of £146 (US$241) per kilogram and formed 11.6 per cent of total exports from EU countries. Eel landings in Europe dropped by 43 per cent over the 17 years between 1984 and 2000. UK eel landings have also sharply declined by nearly two-thirds between 1979-88 (average annual catch 31.5 tonnes) and 1989-1998 (average annual catch 11.4 tonnes). A UK management plan for eel stocks is needed to prevent further declines[59].

Another group of fish that are both declining and in trade in the UK are sturgeons *Acipenseriformes* spp., the world's largest fish found in freshwater. The sturgeon is the source of caviar, legally available in relatively small quantities, and one of the most expensive food items in the world: in May 2001 caviar was being sold legally at Caviar House, Heathrow, for as much as £2,158 (US$3,132) per kilogram[60]. All but two sturgeon species are listed in CITES Appendix II, with the remaining species listed in Appendix I. Despite some evidence that the listing has relieved pressure on stocks, illegal harvesting and trade in sturgeon for caviar continues unabated and populations are declining precipitously[61]. With its high value, relatively low bulk, ease of transport, readily disguised identity and origin, and the potential to exploit the market demand unmet by restricted legal supplies, the caviar trade offers rich rewards for criminals[62]. The UK CITES Enforcement Team regularly seize illegal imports of caviar – for instance at Heathrow in January and March 2001 they seized 18kg and 120kg, respectively, shipped to the UK by post from Dubai[63].

Like other forms of wildlife use and trade, importing alien species for the production of freshwater fisheries products can carry with it the risk of threats to native wildlife. The white-clawed crayfish is our only native crayfish, lives in a diverse variety of clean aquatic habitats and was formerly taken for food. However, the species is now threatened as populations are being devastated by the introduction of non-native crayfish which have been farmed in Britain for food since the late 1970s. Crayfish are in demand in many *haute cuisine* restaurants: north American signal crayfish *Pacifastacus leniusculus,* slender-clawed (Turkish) crayfish *Astacus leptodactylus* and red swamp crayfish *Procambarus clarkii* have been imported for fish farms. The last-mentioned species is also imported for the aquarist trade.

Few crayfish farmers took adequate precautions to protect their stock and consequently the non-native crayfish escaped into the wild, continue to do so and are now well-established in the wild[64]. Soon after signal crayfish were brought into Britain, crayfish plague (a virulent disease caused by a fungus and carried by signals) broke out and spread rapidly, causing drastic losses of native crayfish in England's rivers. The introduced species pose a threat not only because some are disease-carriers, but also through predation and competition with white-clawed crayfish as they are larger, more aggressive and able to produce more young[65]. Under the 1981

---

[59] Ringuet, S., Fumihito, M. and Raymakers, C. (2002) The world trade in eels: the status and conservation impacts. *TRAFFIC Bulletin.*

[60] *Ibid*

[61] Vaisman, A. and Raymakers, C. (2001) The status of sturgeon resources in Russia. *TRAFFIC Bulletin* 19(1):33-44.

[62] Cook, D., Roberts, M. and Lowther, J. (2002) *The International Wildlife Trade and Organised Crime*. WWF-UK and TRAFFIC International, Godalming and Cambridge.

[63] Anon (2001) Seizures and Prosecutions *TRAFFIC Bulletin* 19(1):40.

[64] Holdich, D. (1991) The native crayfish and threats to its existence. *British Wildlife* 2(2):141-151.

[65] JNCC (2002) White-clawed (or Atlantic crayfish) *Austropotamobius pallipes* http://www.jncc.gov.uk

Wildlife and Countryside Act, it is now illegal to release into the wild these non-native crayfish – but these restrictions and associated enforcement efforts have come too late to protect our native species.

Good news

The Environment Agency for England and Wales has put together a new conservation strategy for the European eel. This involves trying to remove barriers that prevent young eels moving upstream to where they spend their adult years[66]. Thanks to the work of the Sturgeon Specialist Group of IUCN, TRAFFIC, WWF and others, the plight of the world's sturgeon species is now receiving increased attention. Dialogue and collaboration among countries with sturgeon populations around the Caspian Sea in order to secure conservation objectives is increasing. Greater controls on the trade in sturgeon combined with increased enforcement efforts are also bringing about numerous seizures of illegal caviar. Enforcement of trade controls was given a boost at the most recent CITES meeting, when CITES Parties agreed that caviar in trade has to be clearly labelled according to an agreed standard.

As wild salmon depend on clean rivers, commercial angling for salmon provides a high incentive to maintain river quality.

A UK action plan has been established to secure the future of white-clawed crayfish.

Meat from wild animals

The UK has a long tradition of hunting and eating wild animals, including native species such as roe deer *Capreolus capreolus,* various bird species such as grouse, and introduced species such as European rabbit *Oryctolagus cuniculus* and ring-necked pheasant *Phasianus colchicus*. Most of the UK trade in wild meat similarly involves species either native to or established in Europe, with smaller volumes of trade in the meat of more "exotic" species such as ostrich and crocodile. In the last few years, however, UK enforcement authorities have detected an increase in unauthorised wild meat imports from Africa. It is hard to know if this is because the trade itself is increasing or whether improved monitoring and detection is simply finding shipments of wild meat more often.

Wild meat from Africa is not commonly found on sale in UK retail outlets and restaurants, and tends to be available only in major cities with significant populations of the relevant ethnic groups. Much of the imported meat is brought in by individuals for consumption by family, friends and personal contacts. However, some commercial trade does take place. For example, in June 2001, two Nigerians were sentenced to four months' imprisonment in the UK for illegally importing and selling CITES specimens including antelope, pangolin and porcupine meat, and skins of various monitor lizards and pythons. As expatriate African populations in the UK grow, so too may the demand for wild meat from Africa. From a conservation perspective, the impact is small relative to that of domestic use in source countries[67] – but illegally imported meat does pose health concerns.

---

[66] Clover, C. (2002) Concern as world eel catch hits record low. *The Daily Telegraph* 18 November 2002.

[67] Pendry, S. (2001) Wild meat out of Africa. *TRAFFIC Bulletin* 19(1):5-6.

Wild plants

Numerous wild plants are traded as food in the UK, the large majority of which are imported. Some imported products reach substantial levels and can provide significant income for collectors in developing countries, who often have few other sources of income. One of the most valuable wild plant products imported into the UK in terms of total value is the brazil nut, the import value of which was £7.5 million (US$10.9 million) in 2001. Other examples are thyme and bay leaves from Turkey, which make up 21 per cent of these herbs' total imports into the UK (80,076kg out of 385,244kg total). Both grow in the eastern Black Sea region of Turkey, an area rich in medicinal and aromatic plants. If the harvesters were encouraged and supported by practical research and government, they could expand their trade in herbs[68]. Other wild plant foods and medicinal plants imported into the UK include pine nuts, herbs and spices, palm hearts and ginseng.

Table 3: Value of imports into the UK of some wild food and medicinal plants (millions of £)[69]

Year	1996	1997	1998	1999	2000	2001
Product						
Brazil nuts	7.98	9.91	7.50	8.72	9.73	7.61
Maple sugar, syrup	1.94	2.51	2.40	2.37	2.60	2.77
Pine nuts	3.46	2.52	4.61	4.80	2.83	2.55
Thyme, bay leaves	0.93	0.98	0.89	0.91	0.94	1.20
Mosses, lichens	0.99	0.74	0.59	0.72	1.40	1.16
Ginseng roots	0.35	0.36	0.58	0.38	0.72	0.53
Truffles	0.14	0.26	0.22	0.38	0.08	0.26
Liquorice roots	0.28	0.13	0.13	0.07	0.07	0.13

There is only a small domestic trade in native wild plants used as food, drinks and herbs, although some niche markets such as elderflower cordial production, marsh samphire and food from seaweed are increasing. In general, collecting for food has had very little impact on UK plant populations, although there are a few species where further research and monitoring of populations may be needed, particularly in the harvesting of laver, a seaweed found in north Devon and Cornwall. Cultivation may provide a cheaper and more reliable option than wild collecting for some species used in medicine, such as dandelion and borage in East Anglia and watercress, a common native that has long been cultivated in beds in English chalk valleys[70].

[68] Kucuk, M., Cetiner, S. and Ulu, F. (2001) Medicinal and aromatic native plants in the Eastern Black Sea region of Turkey. Pp.33-44 in *Seminar Proceedings, Harvesting Non-Wood Forest Products, Menemen-Izmir, Turkey, 2-8 October 2000*, Ministry of Forestry of Turkey.

[69] Anon. (2002) *Global Trade Atlas*. Global Trade Information Services, Inc., Colombia.

[70] Sanderson and Prendergast (2002) *supra*

3.3 WILDLIFE AS MEDICINE

The use of European herbal remedies is increasing in the UK, partly because of the popularity of alternative treatments and partly because there is increasing recognition of the benefits of traditional medical systems involving herbal preparations. The UK has one of the largest Chinese communities in Europe and seems to have the most retail outlets for Traditional East Asian Medicine (TEAM) – medicines largely produced from plant and animal derivatives. These outlets have expanded enormously to nearly every city or large town in recent years. There is also a growing interest in TEAM outside the Chinese communities, and many TEAM doctors and customers are now of non-Asian origins[71].

Medicinal and aromatic plants

How important is the UK?

Medicinal and aromatic plants (MAPs) are used both in the west and in TEAM. In 1999, the world market for herbal remedies was estimated at £13.3 billion (US$19.4 billion), with Europe in the lead (£4.05 billion; US$6.7 billion) with about a quarter of global imports of medicinal and aromatic plants each year. The UK is the fourth-largest market in Europe[72]. The European trade has typically been growing at an average of 10 per cent per annum in recent years, although the increase in the UK is not known. UK imports of TEAM material are far smaller than the western herbal trade. The UK trade in medicinal plants affects the countries from which the plant materials are imported, but because the UK does not supply wild-harvested herb material, this does not threaten the biodiversity of our flora[73].

Who is involved?

Information about the UK import trade is difficult to isolate because those who trade in bulk quantities frequently broker material overseas and act as middlemen for the European market. A further complication is that most importers are likely to sell to other traders in the UK, most of whom would also be importers. Traders are unwilling to state actual figures for the volume or value of their operations because this is commercially sensitive[74].

In Europe today, the medicinal plant trade is largely conducted through Germany. Britain's direct access to suppliers in eastern Europe declined after the break up of the Soviet Union, the trade becoming directed to an even greater extent through Germany[75]. Activities are under way to re-establish and strengthen former trade links between the UK and eastern Europe[76].

What is the UK impact?

A total of 704 medicinal plant species have been identified as traded in the UK, the largest proportion of which is imported from Germany. There is very little overlap in the UK between

---

[71] Crawford Allan, TRAFFIC International *in litt*. October 2002.

[72] Laird, S.A., and Pierce, A.R. (2002*) Promoting Sustainable and Ethical Botanicals: Strategies to Improve Commercial Raw Material Sourcing*. Rainforest Alliance, New York.

[73] Dennis, F. (1998) The trade in medicinal plants in the United Kingdom. Pp. 19-32 *in Medicinal Plant Trade in Europe: Conservation and Supply. Proceedings 22-23 June 1998*. Royal Botanic Gardens, Kew, UK. TRAFFIC Europe, Brussels.

[74] *Ibid*

[75] *Ibid*

[76] www.balkanherbs.org

trading systems for traditional European herbal medicines and other plant-based medicines from other traditions, such as TEAM, Ayurvedic and Unani. Species used in TEAM totalled 290, with only 33 species used in both TEAM and western herbal products [77].

The natural distribution of species indicates the possible source countries for each plant, but this is tempered by the lack of true data on whether these species are wild-collected or cultivated. Of the species traded in the UK, 355 had a natural distribution in Asia (51 per cent), 200 species in Europe (28 per cent), 89 in North America (13 per cent), 31 in Central and South America (4 per cent), 23 in Africa (3 per cent) and 6 in Australia (1 per cent). Note this information refers to natural distribution, not market source or market volume[78]. The lack of accurate information as to source countries, and whether plant materials are cultivated or collected from the wild, restricts the ability to draw conclusions about the impact of the UK medicinal plant trade.

Bad news

For generations, many traditional rural societies have sustainably harvested plants from the wild. However, changes in these societies resulting from population growth, immigration, conversion of land to agriculture, improved transport and accessibility to markets, as well as the popularity of herbal medicine today, are leading to higher levels of harvesting that may not only threaten some species' survival, but also local livelihoods. Examples of medicinal and aromatic plant species used in the UK and for which there is concern regarding over-harvest include:

- Goldenseal *Hydrastis canadensis* from North America. Demand has increased for this species, which is used for a wide range of ailments including digestive disorders and tinnitus, and has declined in the wild as a result.
- Devil's claw *Harpagophytum procumbens* from Namibia, which is becoming increasingly popular and is used to help relieve degenerative joint disease. Concern about unsustainable harvesting has prompted increased research and efforts to strengthen harvest and trade controls.
- Closer to home, thyme *Thymus* spp., which is harvested in huge quantities in Spain and Turkey to supply the market for aromatherapy oils as well as for use in cooking. There is concern that current harvest practices, which involve uprooting entire plants in some areas, could threaten rarer species such as *Thymus moderi*[79]. It is hard to reverse over-harvesting rapidly, and in the meantime local people may lose vital income and market share[80].

Good news

At present, consumers of herbal products have a limited choice of buying from wild sources certified as being well-managed, organic and/or in accordance with fair trade principles. However, there are organisations working to establish guidelines for best practice in the sourcing and manufacturing of herbal medicine[81], in line with existing guidelines and standards such as those of the FSC. For example, in 1998 a project was initiated for sustainably harvested devil's claw on a resettlement farm in Namibia. This has proved successful and has rapidly

[77] Dennis, F. (1998) *supra*

[78] *Ibid*

[79] www.wwf.org.uk/filelibrary/pdf/thymus.pdf

[80] www.wwf.org.uk/researcher/programmethemes/plants/0000000182.asp

[81] Laird and Pierce (2002) *supra*

expanded. The following year 10,210kg of certified organic devil's claw was produced, providing local people with a sustainable product at a guaranteed and fair price. By contrast, current prices for devil's claw, the collection of which provides an important source of income to between 10,000 and 15,000 harvesters, have dropped by as much as 85 per cent over the last 24 years[82].

The UK Medicinal Plants Sustainability Forum, initiated by WWF and the Herbal Apothecary, is focusing on the conservation and sustainable use of medicinal and aromatic plants. The forum, which operates informally, has brought together representatives from the herbal industry, practitioners, medicinal and aromatic plant-related associations and conservationists to explore ways of making the industry sustainable for the benefit of nature and people's health and livelihoods. Self-regulation by the industry, and certification to give the consumer a better guarantee of source and quality, are being explored as possible tools[83].

Several UK herbal companies and practitioners have joined a similar initiative in Germany, organised by WWF and TRAFFIC Europe, and have signed up to the Joint Declaration for the Health of People and Nature. This initiative is bringing together representatives of herbal product manufacturers, government ministries, healthcare concerns and conservation organisations in order to secure conservation, healthcare and development objectives. WWF and TRAFFIC staff are facilitating bridges between these two initiatives, and are the lead agencies on meeting the medicinal plant targets for the European Plant Conservation Strategy.

The UK-based Chinese Medicine Association of Suppliers is seeking to assure customers of product quality and safety, and its proposed kitemark programme would indicate the absence of any endangered plant or animal species through a set of criteria enforced by third-party random testing[84].

As well as providing an important source of income for collectors, wild-growing plants are useful sources of genetic diversity needed by the MAP industry for developing new strains or selecting strains with the highest amounts of active ingredients. Some users believe they are more potent than cultivated varieties, resulting in a demand for wild-collected plants and an increase in their price, as is the case for American ginseng *Panax quinquefolius* in East Asia.

Many medicinal and aromatic plants are either unsuited to growing as a single crop, or the market is too small to be worth the expense of introducing large-scale cultivation. Some plants can be sustainably harvested in the wild if appropriate methods are used. For instance, Weleda, a Swiss-based herbal remedies and cosmetics company, found that arnica *Arnica montana* can be harvested sustainably if only sections of the above-ground parts of the plants are removed together with only small parts of the rhizomes[85]. On the other hand, wild collection can result in

---

[82] www.wwf.org.uk/researcher/programmethemes/plants/0000000182.asp

[83] *Ibid*

[84] *Ibid*

[85] Ellenberger, A. (1998) Assuming responsibility for a protected plant: Weleda's endeavour to secure the firm's supply of *Arnica montana.* Pp. 127-30 in *Medicinal Plant Trade in Europe: Conservation and Supply. Proceedings 22-23 June 1998. Royal Botanic Gardens, Kew, UK.* TRAFFIC Europe, Brussels.

over-harvesting and demand for some medicinal and aromatic plants is so high that it can only be reliably met through extensive cultivation.

Both wild harvesting and cultivation have social dimensions. Taken together, locally-based cultivation and sustainable wild harvesting based on sound management criteria can be effective means of providing income for some of the poorest people and contribute to social stability, while supporting conservation. Progress will largely depend on support by governments and industry[86], as well as increased demand from consumers.

Recommendations

Government action

- support implementation of the European Plant Conservation Strategy targets for trade in wild plants in general and medicinal plants in particular;
- support modification of EU legislation such as *Council Regulation EEC No. 2092/91 of 24 June 1991 on organic production of organic products* to provide for certification and labelling of sustainably harvested plants used for medicinal and cosmetic purposes; and
- improve application of the EU Wildlife Trade Regulations regarding imports of medicinal plants into the EU.

Industry action

- sign up to the Joint Declaration for the Health of People and Nature, and support and participate in fora such as the UK Medicinal Plants Sustainability Forum;
- require suppliers to document the source of products in trade, and to demonstrate sustainable production of species known to come from wild sources; and
- include accurate information about the source of medicinal plants on product labels.

Consumer action

- ask retailers and suppliers about the source of medicinal plants on sale, and buy products shown to support conservation and the equitable sharing of benefits resulting from the trade;
- support laws aimed at promoting sustainability, improved product labelling, and demand for sustainably sourced materials; and
- look for suppliers that have signed up to the Joint Declaration or have otherwise demonstrated their commitment to ensuring sustainable and equitable sourcing.

Use of animal parts in traditional medicine

How important is the UK?

The UK is probably the largest trader of TEAM in Europe. TEAM therapies are becoming increasingly popular here and pharmacies continue to open[87]. Although the major ingredients in TEAM are plant-based, animal products are also used, ranging from marine species such as seahorses *Hippocampus* spp., that can be legally traded with the correct permits, to tiger *Panthera tigris* bone, the product of poaching and smuggling.

[86] www.wwf.org.uk/researcher/programmethemes/plants/0000000182.asp

[87] Crawford Allan, TRAFFIC International pers. comm. October 2002.

Who is involved?

Collectors obtain the raw ingredients of TEAM from many parts of the world, including Africa and the Americas, and transport them to east Asian destinations (especially China), where they may be processed into packaged medicines. The prepared medicines are then distributed to Asian pharmacies and other outlets, both in east Asia and western countries[88]. Although the majority of UK imports are legal, some raw medicinal products and packaged medicines are smuggled into the country and sold illegally. While many smugglers of TEAMs attempt to bring in relatively small quantities hidden in luggage or postal packages, larger commercial consignments have been found, often concealed in shipments of legal goods. The illegal trade in TEAM is plied through various routes, the most significant being through some legitimate pharmacies that will also sell prohibited items. The laundering of prohibited medicines is also helped by difficulties that enforcers face in distinguishing legal and illegal products (particularly where substitutes may be also be used)[89].

What is the UK impact?

Bad news

The use of threatened species in TEAM, and the unsustainable trade in species not yet threatened, poses risks to wild species in many parts of the world. Endangered species such as tiger, Great Indian rhinoceros *Rhinoceros unicornis* and Asiatic black bear *Ursus thibethanus*, continue to be in demand for their perceived therapeutic properties. TEAM has been practised for more than 5,000 years and traditional beliefs concerning the benefits of TEAM ingredients sustains the poaching and illegal trade that threatens some species' existence. In 1994 TRAFFIC surveyed pharmacies in the four main TEAM centres in the UK, and found that 50 per cent of those surveyed stocked medicines claiming to contain tiger bone, rhino horn or bear bile[90].

In 2000, TRAFFIC surveyed 41 premises in England and Scotland. Of the 22 premises that sold TEAM, 64 per cent were selling TEAM that claimed to contain protected species included in Annex A of the EU Wildlife Trade Regulations, either in patent medicines or as raw ingredients. They included costus root *Saussurea costus*, leopard *Panthera pardus*, bear and musk deer *Moschus* spp. A number of Annex B species were also available for sale in patent medicine or as raw materials, including orchids, saiga antelope *Saiga tatarica*, American ginseng and agarwood *Aquilaria* spp. Seventy-three per cent of practitioners were aware that the sale of products containing tiger and rhino were illegal. However, they were not aware that the sale of any of the other protected species they stocked was also illegal.

Good news

Following investigations by TRAFFIC International in 1994 and 1995 into the TEAM trade in the UK, the Metropolitan Police launched Operation Charm. Search warrants were executed at the premises of retailers, pharmacists and specialist importers, and large quantities of manufactured medicines and raw materials were seized, leading to the prosecution and subsequent conviction of a number of traders. This enforcement action was followed by initiatives to prevent this illegal trade and increase public awareness of it. The Metropolitan Police published advice to traders in English and Chinese about what was legal and what was

[88] Cook *et al.* (2002) *supra*

[89] *Ibid*

[90] *Ibid*

illegal to offer for sale in the UK. The Department for Environment, Food and Rural Affairs (DEFRA) produced a leaflet, also bilingual, giving information on the legislation in force in the UK and what was and was not allowed. More recently, HMCE and TRAFFIC International have jointly produced a TEAM identification guide for enforcers to aid them in identifying more than 400 patent medicines claiming to contain controlled species.

Recommendations

Government action

- inform pharmacists, traders and importers of the full range of TEAM ingredients that are either banned from import and sale or require permits for import (in this respect, multi-lingual awareness materials should be produced and provided to all known TEAM pharmacies, Chinese supermarkets and TEAM associations. These materials should include the medicinal names for protected species used, and explain how permits for legal import can be obtained for controlled species that are not endangered such as artificially propagated medicinal plants); and
- ensure enforcement agencies are provided with the necessary tools and training to identify illegal TEAM products on sale or import. The HMCE and TRAFFIC identification guide, for example, is updated and circulated widely to police and Customs, and training in its use is available.

Industry action

- ensure that importers and traders are aware of the legal requirements and that members of TEAM associations agree not to sell or import endangered species.

Consumer action:

- make it known to pharmacists and clinics that they will not use TEAM that includes endangered species ingredients;
- ensure where possible that medicines purchased do not contain endangered species; and
- report any sales of endangered species in TEAM to the WWF/TRAFFIC Eyes & Ears Campaign or Crimestoppers.

3.4 WILDLIFE FOR FASHION AND DECORATION

Numerous wildlife products are used in the production of clothing, jewellery and other fashion items. Perhaps most well known are the skins and furs of animals, which are used extensively to produce clothes and accessories. This includes a variety of reptile skins, used to produce leather items such as handbags and watch straps; worldwide, an estimated 10 million reptiles are killed for their skins each year[91]. The skins of some large bird species such as ostrich *Struthio camelus* and lesser rhea *Rhea pennata* are also traded for the production of leather items. Although once popular, the trade in spotted cat furs has declined dramatically in recent decades. Some mammal species continue to be used for their fur, including various fox species and mink. Once widespread, the legal trade in ivory to UK markets has all but stopped, although the legal trade in red coral *Corallium rubrum* and black corals *Antipatharia* spp. (Appendix II), often used in jewellery, continues. Wildlife products also continue to be used as ingredients in perfumes and dyes and in the production of essential oils.

[91] Holden (1998) *supra*

A wide variety of wildlife products are also used to adorn our homes, including those made into carvings and ornaments. Among the CITES-listed species commonly sold for ornamentation are stony corals and giant clams *Tridacnidae* spp.. Wildlife products are also used in the crafting of musical instruments, including less familiar species such as hairy armadillo *Chaetophractus nationi*, used to make churangos, an Andean stringed instrument, as well as a variety of wood species.

Who is involved?

A number of items, including some made from skins, furs and essential oils, can be expensive and are primarily bought by people who can afford what for many would be luxury items. Other goods, such as some wood carvings, have a wide price range that many of us can afford.

How important is the UK?

The UK is a major destination for the legal trade in wildlife products for fashion and decoration and, based on government seizures, it is also an important destination for illegal products. The EU as a whole legally imports reptile skins in their millions, and at least 10 per cent of these are destined for UK consumers. Seizures of goods manufactured from reptile skins constituted 17 per cent of dead items seized by HMCE between 1996 and 2000. Customs also seized raw ivory and worked ivory, indicating that there is still a ready market for ivory in the UK, despite its import and sale being illegal[92]. Shahtoosh shawls have been found on sale in the UK in large numbers, the most notable discovery being made by the Metropolitan Police in 1997, when 138 shawls valued at more than £350,000 (US$574,000) were found at a retail premises in Mayfair[93]. According to the SoundWood programme (see page 36), UK buying power is significant when it comes to rarer woods: we rank fourth in the world for purchasing and importing musical instruments made from threatened wood species[94].

What is the UK impact?

Bad news

Some products used for ornamentation are derived from rare species that have been banned from import, such as tortoiseshell derived from marine turtles (CITES Appendix I). Some products, including those derived from elephant ivory and sea turtle shells, are being sold via the internet, which makes their illegal sales easier, but more difficult to trace.

The shahtoosh trade is one example of the luxury market and the stages through which wildlife is illegally processed from capture to the end market. Shahtoosh is wool from the Tibetan antelope *Pantholops hodgsonii*, a critically endangered species listed in CITES Appendix I that is confined to the remote plateaux of Tibet, Xinjiang and Qinghai provinces of China. The population has dropped from several million at the turn of the 20th century to about 70,000-75,000 today. The shahtoosh wool is smuggled into India where, in the northern state of Jammu and Kashmir, it is woven into luxury shawls[95]. There are few places in the world where

---

[92] WWF and TRAFFIC (2002). *Switching Channels: Wildlife Trade Routes into Europe and the UK*. WWF and TRAFFIC, Godalming and Cambridge.

[93] Anon. (2000). Seizures and Prosecutions. *TRAFFIC Bulletin* 18(3):125.

[94] Paul Matthew, FFI *in litt.* to S. Pendry, TRAFFIC International, March 2003.

[95] TRAFFIC East Asia and TRAFFIC India (1999). Fashion Statement Spells Death for Tibetan Antelope. TRAFFIC East Asia and TRAFFIC India, Hong Kong and New Delhi.

shahtoosh trading is allowed, so the legal trade in pashmina shawls (made from cashmere goat wool) is used for cover and to transport shahtoosh[96]. The economic incentives to poach Tibetan antelope and engage in illegal trade are high[97]. A kilogram of raw wool can provide a poacher with the equivalent of several months' wages. Here in the UK, a single standard size shahtoosh shawl can sell for around £5,000 (US$3,435)[98].

Although few people in the UK are likely to consider purchasing a shahtoosh shawl, the number likely to consider buying a wood carving or musical instrument is high. Among the threatened tree species popular for wood carving are sandalwood and rosewood, while African blackwood or mpingo *Dalbergia melanoxylon* and muhu *Brachylaena huillensis* from east Africa are two of the most valuable timbers used for making musical instruments[99]. A recent survey of instrument manufacturers in the UK carried out by Fauna & Flora International revealed that 70 of the species used to make musical instruments are considered globally threatened[100]. Brazilian rosewood *Dalbergia nigra* is another timber that is prized for making musical instruments and in wood carving. It is listed in CITES Appendix I and as Vulnerable by IUCN[101].

UK purchasers are also far more likely to be offered perfumes and dyes that include products derived from threatened species. For example, wild musk comes from small musk deer in Asia and the Russian Far East. Musk deer are declining in all countries where they occur and are currently listed in CITES Appendices I and II. Although TEAM accounts for 90 per cent of the total musk market, the remaining 10 per cent goes to the European perfume industry[102]. The price of musk is three to five times that of gold[103], so there is a thriving illegal trade. There is also much concern about over-exploitation and smuggling of products from sandalwood *Santalum album*, a small tree found in parts of Asia. IUCN categorises sandalwood as Vulnerable[104]. Oil is extracted from the heart wood and is in high demand for incense, perfumery and medicines[105].

As discussed in more detail in the following sections, when trade involves live specimens, the negative consequences can extend far beyond the impacts on the conservation status of the species in trade. American mink *Mustela vison* is a wild North American species that was until recently farmed for its fur in the UK. In 2000 there were 13 mink farms in the UK, which contained an estimated 130,000 animals and produced up to 100,000 skins a year[106]. The government passed the Fur Farming Prohibition Act in 2000 and later announced that all

---

[96] Cook *et al.* (2002) *supra*

[97] TRAFFIC East Asia and TRAFFIC India *supra*

[98] TRAFFIC International pers. comm. September 2002

[99] Saoshiro, U. (2001) Ebony, Music and Deforestation in East Africa TED. Case Study No. 636. www.american.edu/TED/ebony.htm

[100] http://eces.org/articles/static/95145840027726.shtml

[101] IUCN (2002)*supra*

[102] WWF (2000) Musk Deer *Moschus* spp. Species facts. Eleventh Meeting of the Conference of the Parties to CITES Nairobi, 10-20 April 2000.

[103] *Ibid*

[104] IUCN (2002)*supra*

[105] WCMC (2000) *supra*

[106] The Mammal Society (2000) Position statement on mink farms. www.abdn.ac.uk/mammal/minkpos.htm

fur farms must cease operations by 1 January 2003[107]. This development is welcomed, but it does not solve the problem of the large numbers of mink that have escaped into the wild since the species was first imported in 1929. The Vincent Wildlife Trust estimated that in 1996-1998 the wild mink population was around 40,000. Escaped mink have caused a number of ecological problems as predators, not least their impact on the water vole *Arvicola terrestris*, which is now considered an endangered species.

The mink's effect on the extensive populations of ground-nesting seabirds on the formerly predator-free islands of north-west Scotland is also a major cause for concern – for example on Harris in the Outer Hebrides, which has internationally important seabird colonies[108]. The local economy of North Uist relies on the thousands of people who come each year to see the birds, but is now under threat from the damage caused by mink. Britain's biggest eradication programme, at a huge cost of £1.65 million (US$2.39 million), started in 2001 to eradicate mink from the Uists and drastically reduce numbers in south Harris over the next five years[109]. However, the Mammal Society believes that while local mink control can be worthwhile and effective, eradication from the UK would be very expensive and unlikely to be totally effective because the animals are so widespread.[110].

Good news

While there has been evidence of substantial illegal trade in skins from protected wild-caught reptiles in the past, most of the current trade is legal and often involves skins from ranched animals[111]. The ranching and farming of reptiles, such as Nile crocodile *Crocodilus acutus* and Orinoco crocodile *C. intermedius*, has helped not only to conserve species by relieving pressures on the catching of wild populations, but also, it has been argued, benefit communities – often in poor countries – who manage the facilities[112].

A TRAFFIC study has shown that there has been an overall decline in the trade of shahtoosh in Jammu and Kashmir in recent years, although some trade continues. The decision by the government of Jammu and Kashmir in 2002 to ban the use and manufacture of shahtoosh should help further reduce the trade[113].

Two recent initiatives in east Africa show the potential to use FSC-certified wood to make carvings and musical instruments (see the section on timber and wood products in international trade for more information on the FSC). Carvers in Kenya are aware of the threat to their livelihoods and have identified tree species such as neem *Azadirachta indica*, jacaranda *Jacaranda mimosifolia* and grevillea *Grevillea robusta* as possible replacements for traditionally used species such as muhu. All these replacement species are fast growing and are widely grown in Kenya for a range of uses. They can be harvested with minimal ecological impact, and their increased use generates incomes to farmers who have grown these species.

---

[107] Brown, P. (2001) Last mink fur farms must close by 2003. *The Guardian* December 28 2001.

[108] The Mammal Society (2000) *supra*

[109] Morgan, A. (2001) Minks from Fur Farms Ravage U.K. Wildlife *The Daily Telegraph* November 5, 2001.

[110] The Mammal Society (1998) Position Statements from the Mammal Society www.abdn.ac.uk/mammal/minklet.htm

[111] Cook *et al.* (2002) *supra*

[112] Stephanie Pendry, TRAFFIC International pers. comm. October 2002.

[113] Anon. (2002). Jammu and Kashmir Bans the Manufacture of Shahtoosh. *TRAFFIC Bulletin* 19(2):53.

In short, they are considered "Good Woods" – but carvers are used to carving hardwoods and at present there are few incentives to make the switch. A strong market-led demand for "Good Wood" carvings could make a major contribution to changing their practices. Certification of carvings made with "Good Woods" could prove to be pivotal, allowing the economic benefits of carving to continue accruing to the carvers and giving consumers an ethical choice, while helping to conserve the environment[114]. Considerable progress has been made towards FSC certification through training of carvers and farmers who will be producing neem trees as alternative carving wood sources. WWF has started working with Oxfam on three levels: farmers' organisation and support; carvers' training in quality assurance, design and business skills; and finding retailers in the UK who will commit to buying "Good Wood" carvings as an ethical alternative[115].

A similar project has been launched in Mozambique and Tanzania to provide wood used in making musical instruments. Musicians and musical instrument manufacturers share concerns about the threatened status of tree species and are keen to find solutions. The SoundWood programme was established by Fauna & Flora International (FFI) in 1992 to foster links between instrument manufacturers, timber traders, local people who rely on wood harvesting for their livelihood and conservation agencies. Mpingo is used to make clarinets, flutes, oboes, bagpipes, harpsicord keys and is also the preferred wood for carvings in many of the sub-Saharan countries where it occurs. Rates of commercial exploitation are unsustainable. With funding from the German government, FFI has embarked on a project to develop production of mpingo to FSC standards. This certification will support local livelihoods in Mozambique and Tanzania and provide wood users and product consumers in Europe with environmentally and socially acceptable timber for their specialist requirements. As many as 19 UK guitar manufacturers are taking positive measures to reduce their trade impact, including switching to non-threatened timbers, reducing waste and using salvaged wood. Woodwind instrument manufacturers are also looking for alternatives[116].

3.5 WILDLIFE SOUVENIRS

A wide range of wildlife products, some from CITES-listed species, are sold as tourist souvenirs. Common items include corals, tortoiseshell items, other marine shells, butterflies, beetles, ivory, and snake and reptile skin products such as handbags. Some holidaymakers try to bring home live plants and animals.

Who is involved?

Large numbers of tourists bring back wildlife products from abroad as mementos and presents.

How important is the UK?

Tourists from the UK travel widely and frequently try to bring home wildlife products or even sometimes live wild plants and animals that they have purchased abroad, often without realising the possible legal implications or possible damage to the status of the species populations.

---

[114] WWF (2002) FSC Certification: A Tool to make the Kenyan Woodcarving Industry Sustainable www.rbgkew.org.uk/peopleplants/regions/kenya/index.html

[115] Susanne Schmitt, WWF-UK *in litt.* July 2002.

[116] Oldfield, S. (2001) SoundWood *IDS Yearbook*.

What is the UK impact?

Bad news

Some countries are not effectively controlling the sale and trade of rare species, including CITES Appendix I species. Even in countries where controls are in place, vendors may say that the laws do not apply, or that they are unlikely to be enforced, to encourage a sale. Most tourists are unaware of the wildlife trade laws in the countries they visit, and are equally unaware that importing many species is banned, and that importing many others requires a permit.

Holidaymakers will encounter elephant ivory on sale in foreign markets and may be tempted to buy and bring it back to the UK, perhaps even having been told by local vendors that this is legal. However, importing such products into the UK is generally prohibited; furthermore, the vast majority of countries ban ivory exports, so that unsuspecting travellers may be breaking the law twice – when leaving the country where they made their purchase, and when entering the UK. Countries such as China, Nigeria and Thailand have been implicated as being frequent sources or destinations for large volumes of illegal ivory – largely as a result of poor law enforcement. Countries such as Egypt, India, the Philippines and Sudan have substantial unregulated domestic ivory markets and play important roles as illicit exporters of ivory. In some countries such as Nigeria and Thailand, ivory carvings are sold in the duty-free areas of airports, past customs controls[117].

The UK is one of Europe's largest importers of marine curios, which are also popular souvenirs brought home by tourists. As the trade has expanded rapidly in the past few decades, so has concern for the species involved, which range from giant clams *Tridacnidae* spp. to seahorses. Most marine souvenirs come from coral reefs in developing countries, where the collection and export of corals and shells provide a significant income for some coastal communities. However, the growth and reproduction rates of many species in the trade are poorly understood, few management practices are in place, and trade in many marine curios is unsustainable – so the souvenir trade adds yet another pressure to coral reef systems[118].

Dead corals and seashells (mainly queen conch) made up 21 per cent of dead items seized by HMCE and were almost always found in small quantities, reflecting the frequency with which tourists bring back such items as souvenirs. Between 1996 and 2000, HMCE made nearly 16,000 seizures of corals, shells and seahorses. Seizures from tourists did not decline during that period. Typically the number of items seized per individual was fewer than five[119].

A range of living souvenirs are typically offered to tourists which, while appealing, are in most cases the wrong thing to buy. By UK standards, these animals or plants are usually very cheap and this, coupled with their often being small and therefore easy to transport, may make them tempting to buy. However, their husbandry needs may not be considered, and tourists' awareness of regulations such as CITES, International Air Transport Association (IATA) and quarantine controls may be very low. Even if animals and plants do not require CITES permits,

---

[117] TRAFFIC Website www.traffic.org Illegal Ivory Trade driven by Unregulated Domestic Markets, *Press release,* 4 October 2002.

[118] Anon (2002) Tempted to buy marine souvenirs? *EZRA News* 38, April 2002.

[119] Lawson, T. (2002). *Traded Towards Extinction? The Role of the UK in Wildlife Trade*. WWF and TRAFFIC, Godalming and Cambridge.

they will require health certificates or a period of quarantine, and animals must be transported in accordance with humane transport guidelines.

In north Africa, live reptiles such as tortoises, chameleons and lizards are commonly sold in markets and tourist areas, some of which are rare species such as the Kleinmann's tortoise *Testudo kleinmanni.* Specimens of these species have been purchased by UK tourists and confiscated upon their return home. A tourist has even been stopped in the "green channel" at Heathrow with a baby sea turtle. Sixty per cent of live animal seizures made by HMCE from 1996 to 2000 were small consignments, often tourists returning with pets purchased abroad[120].

Many live plants also come under CITES regulations, although their export may be controlled by national legislation. Even so, rare plants that have been removed from the wild (sometimes illegally) can be found in markets used by tourists. These include orchid species from Asia and South America[121].

Good news
Souvenir Alert, a joint initiative by WWF, HMCE and the UK government, has been developed to raise tourist awareness of regulations governing imports of wildlife and wildlife products into the UK. Posters and more than a million information leaflets are distributed at airports, harbours and via travel agents, and the message is simple: "Don't buy souvenirs made from endangered species. If in doubt, don't buy." Further useful information on current trade controls can be found on the UK CITES website at www.ukcites.gov.uk.

[120] WWF and TRAFFIC (2002). *supra*

[121] Crawford Allan, TRAFFIC International *in litt.* October 2002.

Recommendations

Government action

- expand trade monitoring for non-CITES species for which there is potential conservation concern by seeking their inclusion in Annex D of the EU Wildlife Trade Regulations;
- ensure that the "personal possession" exemptions agreed during CITES CoP 12 are fully understood by enforcement personnel; and
- ensure that public education campaigns properly reflect both conservation and development messages.

Industry action

- endeavour to use suppliers who can demonstrate that products offered for sale have been produced in ways that meet both conservation and development objectives;
- properly label products offered for sale, and offer customers additional information about how they were produced wherever possible; and
- make tourists aware of inappropriate and illegal souvenirs by promoting initiatives such as *Souvenir Alert*.

Consumer action

- ask about the materials used to create fashion and home accessories, encourage the use of materials that come from sustainable sources and support the livelihoods of producers in the exporting countries; and
- when travelling, become familiar with the typical souvenirs to avoid and remember the following advice with regard to wildlife souvenirs: "if in doubt, don't buy";
- support projects such as the SoundWood programme and the WWF Kenyan woodcarving project.

4 Case study: wildlife in gardening and horticulture

The trade in wild plants associated with UK gardening and horticulture poses important environmental challenges. One is the widespread use of peat-based compost that is helping to destroy a non-renewable environment that sustains some of Europe's most beautiful plant and animal life. Another is the serious threat posed to our native wildlife and habitats by the introduction of "alien invasive" species. Importing rare plants such as orchids and cacti from abroad is threatening the survival of wild populations of some species, while at home our bluebell woods, which are unique to the UK, are at risk from being pillaged by unscrupulous bulb dealers.

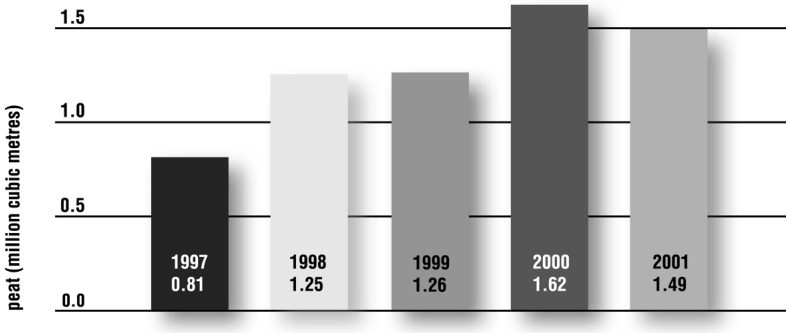
4.1 PEAT USE

The use of peat is one of the two most serious threats associated with the plant trade in UK horticulture today, according to Plantlife International, the UK-based plant conservation charity[122]. Using peat as a growing medium is no more justifiable than digging up rare plants from the wild in order to adorn gardens; both threaten rare species.

How important is the UK?

In gardening, more than 90 per cent of peat extracted in the UK is used for growing plants (94 per cent in 1992 and 1993[123]). The UK currently imports a significant amount of peat, as much as 23.6 per cent of the total used in 1999[124]. These imports increased from 0.81 million cubic metres in 1997 to 1.49 million cubic metres in 2001[125].

Graph 1: UK peat imports, 1997-2001 (million cubic metres)[126]



To date, most imports have come from the Republic of Ireland (71 per cent in 2001). Around 2,000 hectares, an area of bog 20 times the size of Monaco, is destroyed in the Republic of Ireland each year to supply peat for UK horticulture. A significant amount of peat also comes from countries around the Baltic Sea: 9 per cent from Estonia, Latvia and Lithuania in 1999 and

[122] Martin Harper, Plantlife International, pers. comm., August 2002.

[123] Office of the Deputy Minister (2002) *Mineral Planning Guidance Note 13 (MPG13): Guidelines for Peat Provision in England (Including the Place of Alternatives)* www.planning.odpm.gov.uk/mpg/mpg13/04.htm

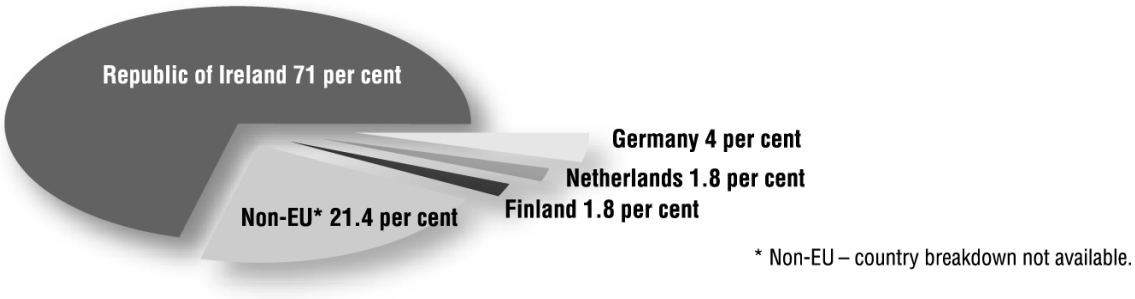
[124] Data prepared by Statistics (Commodities & Food) Accounts and Trade, ESD, DEFRA

[125] *Ibid*

[126] *Ibid*

13.5 per cent from Estonia alone in 2000[127]. The UK government recently abandoned a proposed ban on peat imports because it was believed that it would not have withstood a challenge brought under the auspices of the World Trade Organisation[128].

Graph 2: Major suppliers of peat to the UK (2001)[129]



Who is involved?

Table 4: Use of peat and peat alternatives by sector, 1999[130]

Market Sector	Amount of peat used by each sector (cubic metres)	Percentage of peat used by each sector (per cent)+	Amount of peat alternative used by each sector (cubic metres)	Percentage of peat alternative used by each sector (per cent)*
Amateur gardening	2,269,900	66.1	695,200	23.4
Local authority	14,000	0.4	189,500	93.1
Landscaping	9,400	0.3	949,600	99.0
Professional growers	1,140,000	33.2	61,800	0.05
Total market	3,433,300	100	1,896,100	35.6

+ Column 2 gives as percentages the amount of peat used by each sector out of the total amount used

* Column 4 gives as percentages the amount of peat alternative used out of the total amount of peat and peat alternative used by each sector

In 1999 a little more than a third of the gardening medium was supplied by alternatives to peat, but the use of peat alternatives varied widely in different market sectors – see Table 4. Peat alternatives were widely used for landscaping by local authorities. In sharp contrast,

[127] DEFRA *supra*

[128] Penman, D. (2002) Don't expect another Kyoto treaty. *Guardian Unlimited*. August 7 2002. http://www.guardian.co.uk/worldsummit2002/story/0,12264,770695,00.html

[129] DEFRA *supra*

[130] DEFRA data in Holmes, S., Lightfoot-Brown, S. and Bragg, N. (2000) *Peat Alternatives. A Review of Performance, Future Availability and Sustainability for Commercial Plant Production in the UK*. ADAS Horticulture, Cambridge.

professional growers had a very poor record in using alternatives to peat, which provided less than a quarter of the growing media used by amateur gardeners. Total peat use by professional growers has changed very little in the last few years, but the retail sector has increased its peat consumption by 46 per cent between 1993 and 1999[131]. This is largely due to patio gardening coming into fashion, growbags becoming cheaper and the development of multi-purpose composts, partly fuelled by the popularity of gardening programmes on television and the public's enthusiasm for "instant gardens"[132]. Amateur gardeners are responsible for two-thirds of all peat consumption and use almost twice as much peat as professional growers, dwarfing the amounts used in landscaping and by local authorities (see Table 4).

What is the UK impact?

Bad news

Lowland raised peat bogs are one of the UK's rarest and most vulnerable habitats, but 94 per cent of this original landscape has been lost: less than 6,000 hectares remain in a near-natural condition. The remaining bogs support rich and rare wildlife communities such as several species of *Sphagnum* bog mosses. Other specialist bog plants include sundews *Drosera* spp., butterworts *Pinguicula* spp. and bladderwort *Utricularia* spp.. Raised bogs are important wintering areas for many birds such as the hen harrier *Circus cyaneus*, merlin *Falco columbarius* and pink-footed goose *Anser brachyrhynchus*; dunlin *Calidris alpina* and golden plover *Pluvialis apricaria* breed there in the summer.

Raised bogs are also an astonishing historical treasure trove because their waterlogged conditions arrest decay and preserve their contents. But the UK's raised peat bogs have been seriously threatened for many years by industrial extraction which started in the 1950s[133].

Following years of campaigning by conservation organisations, peat extraction at several bogs, including Ballynahone Bog in Northern Ireland, Fenns and Whixall Mosses on the England/Wales border and Flanders Moss in Scotland, has ended. In February 2002, £17 million (US$24.7 million) of government funding put an end to peat extraction at Thorne Moors, Hatfield Moors and Wedholme Flow, which are especially important for wildlife and have been proposed as Special Areas of Conservation under the EU Habitats Directive[134].

While peat extraction at the largest sites in the UK has now ceased, damaging extraction continues on the country's other nationally and internationally important wildlife sites. A major concern is that ending peat extraction in the UK may simply shift the negative environmental consequences of our peat use to other countries if continuing consumer demand is met by increased peat imports. Almost all peat from the Republic of Ireland used in horticulture comes from raised bogs, of which less than six per cent are in a natural state[135].

---

[131] DEFRA data in Holmes *et al.* (2000).

[132] Holmes, S., Lightfoot-Brown, S. and Bragg, N. (2000) *Peat Alternatives. A Review of Performance, Future Availability and Sustainability for Commercial Plant Production in the UK*. ADAS Horticulture, Cambridge.

[133] RSPB (2002) *Peat Bogs – The Issue* www.rspb.org.uk/wildlife/envpolicy

[134] *Ibid*

[135] Irish Peatland Conservation Council www.ipcc.ie/peatfree.html

Good news

The UK Biodiversity Action Plan for lowland bogs calls for increased research into peat alternatives. It aims for a minimum of 40 per cent of the total market requirements for peat to be met by alternatives by 2005, and 90 per cent by 2010. Certain suppliers, for example, B&Q, have set even higher targets for the use of peat free alternatives – 50 per cent by 2003, 75 per cent by 2005 and 85 per cent by 2006. English Nature and the RSPB commissioned research and produced the report *Peatering Out*^{TM} *– towards a sustainable UK growing media industry*, which presents a scenario for meeting these targets[136].

Alternatives to match the highly prized qualities of peat as a gardening medium have greatly improved in recent years. Various firms are now making organic potting and seed composts from recycled waste, and many local councils make very good garden compost, which they deliver for a nominal charge. Some growers use sieved garden compost mixed only with perlite with very good results[137]. Coir (coconut husk) is a useful material on its own and in blends with other materials, but distribution costs are high because it is not indigenous to the UK[138]. Other advice on peat alternatives can be obtained from a number of organisations including Plantlife International and the Irish Peatland Conservation Council[139] [140]. The use of growing media which contains a smaller percentage of peat than traditional media is a good method of reducing peat consumption in the short term[141].

Recommendations

Government action

The government should take immediate steps to protect wildlife on peat bogs and signal an end to peat use in horticulture by:

- stopping extraction of peat from all Sites of Special Scientific Interest and Special Areas of Conservation;
- meeting or exceeding the targets set in the UK Biodiversity Action Plan for reducing peat extraction and use, by taking immediate steps to reduce peat use and encouraging short-term use of peat diluted with alternatives, and providing support, encouragement and funding to get alternative products established in the UK market; and
- improving the coordination and development of the composting network at national and local levels.

Industry action

- commercial growers should embrace targets for ending peat use by turning to more sustainable alternatives;
- suppliers of growth media should respond to new opportunities and the demand for peat-free products. Many materials are being developed or are in use; and

---

[136] English Nature and RSBP (2001). *Peatering Out*^{TM} *– towards a sustainable UK growing media industry*. English Nature and RSPB, Peterborough and Sandy.

[137] Don, M. *Peat Free Gardening.* Plantlife website www.plantlife.org.uk

[138] Holmes *et al.* (2000) *supra*

[139] www.ipcc.ie/peatfree.html

[140] www.plantlife.org.uk

[141] Holmes *et al.* (2000) *supra*

- garden centres and retailers should stock, and help customers choose, alternative products. Retailers should encourage sales of peat alternatives, raise awareness about the peat issue and the benefits of alternatives, and improve marketing of alternatives with promotions, clear labelling and sensible pricing.

Consumer action

- switch to peat-free growing materials, and choose plants grown in them;
- ask retailers to stock peat-free growing material and plants; and
- lobby your local authority to adopt a peat policy and a commitment to composting, and write to your MP urging adoption of a national peatland strategy based on the recommendations of the English Nature and RSPB report.

4.2 BULB TRADE

Gardeners may be contributing to the loss of attractive wild species by unwittingly buying plants harvested unsustainably from their native habitats abroad. Bulbs have been the main cause for concern in recent years. Now there is more awareness of the origin of our favourite spring bulbs, but can we continue planting each year with a clear conscience[142]?

How important is the UK?

Bulb-growing is especially popular in the UK. Some widely planted spring bulbs, notably snowdrops *Galanthus* spp, winter aconite *Eranthus hymalis, Cyclamen* spp. and windflower *Anenome blanda* are wild-collected and imported into the UK in huge numbers each year. Exact figures for UK imports are not known, as bulbs are usually first imported into the Netherlands and re-exported to the UK.

Who is involved?

Turkey is the major source and leading exporter of wild bulbs for the international market. Bulbs are wild-collected by villagers, who sell them to bulb export companies. Most of the trade is then channelled through middlemen in the Netherlands, and then on to the UK, Germany and the US, but the origins of the bulbs are often not clearly labelled.

Wild collection not only supplies overseas markets, but also provides an important source of income to villagers who live in the rural areas where snowdrops occur. The Turkish government, scientists and NGOs agree that there must be ongoing efforts to conserve the wild populations of commercially important bulbous plants[143]. Bulb exports from Turkey continue to be predominantly wild-collected or wild-transplanted, although there has been a substantial increase in the development of propagation initiatives in recent years. Propagation of some species, however, is not easy.

The quest for large and inexpensive supplies of snowdrop bulbs has led to the expansion of the trade into Georgia[144]. Export of the snowdrop *G. woronowii* bulbs started in 1994. Harvesting

---

[142] Oldfield, S. (1999) Collected wisdom. *The Garden* September 1999.

[143] Ekim, T. (1998) *Conservation Measurements taken on Exported Geophytes of Turkey.* Report to Regional European meeting in Czech Republic, 1998.

[144] Oldfield (1999) *supra*

takes place primarily in fields, where bulbs may occur naturally following earlier land clearance, or where they have been transplanted[145]. Harvesting involves approximately 1,500 villagers who are responsible for producing the plants on their land. These bulbs are subsequently shipped to foreign markets by export companies[146]. International concern about the impacts of collecting on wild populations led to snowdrops being listed in CITES Appendix II in 1989; both Turkey and Georgia joined CITES in 1996.

What is the UK impact?

Bad news

Concern remains about the sustainability of wild harvesting of bulbous species, although efforts are being made to improve the practice and introduce alternatives. Related to the trade in wild bulbs is the danger to rare species dug by accident or deliberately for replanting and trade. The snowdrop *G. krasnovii* is one such species, found in only one locality in Georgia, and in north-east Turkey. There are already fears that this species is entering Europe mixed with shipments of another snowdrop species, *G. woronowii*[147].

In Georgia an effectively-controlled bulb trade could provide much-needed income for villagers, but concern has been expressed about its management and sustainability. A German government review concluded that current methods used by Georgia's CITES Scientific Authority to establish population levels were questionable and did not provide a sufficient basis upon which to establish export quotas[148]. Problems in the regulation and control of harvesting and export of bulbs due to lack of funds have also been identified[149].

Good news

As noted above, the trade in bulbs from Turkey and Georgia provides an important source of income in rural areas, and actions are being taken to ensure that this trade is sustainable. In 2000 the CITES Plants Committee report stated: "*The bulb trade in Turkey involves probably thousands of collectors each year. Collecting takes place over a large part of Turkey and is very well regulated. The Plants Committee has recommended the Turkish regulatory system is an excellent example for other countries trading in the same type of species*"[150]. Both the UK and German governments have been providing support to scientists to assist in improving management of bulb harvest and trade. Staff from the Royal Botanic Gardens, Kew, the UK CITES Scientific Authority for plants, have a programme to map the ranges of 19 snowdrop species in order to assist with establishing sustainable harvest levels, and they have also produced a checklist of CITES-listed bulb species to assist with enforcement of CITES trade controls around the world. Staff from Kew's Conventions and Policy Section also develop various training materials to assist governments with CITES implementation for plants.

---

[145] German CITES Scientific Authority (2001). Harvesting Techniques of *Galanthus* in Georgia. CITES PC11 Doc. 9.1.b

[146] Association Green Alternative (2002) *Wildlife Trade in Georgia.* Tbillisi.

[147] *Ibid*

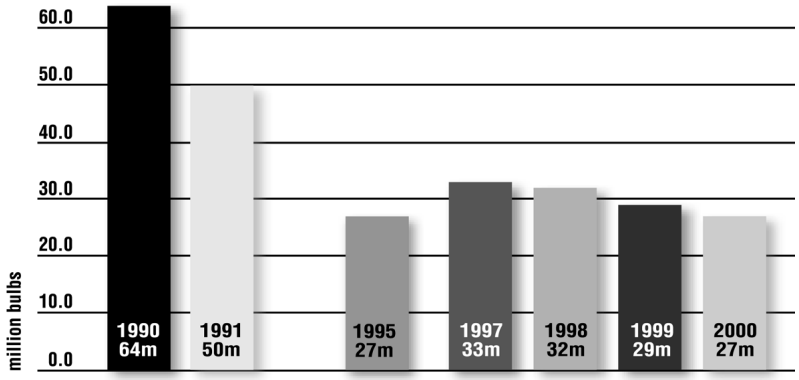
[148] German CITES Scientific Authority (2001) *supra*

[149] Association Green Alternative (2002) *supra*

[150] Anon (2000) Plants Committee Chairman Report Doc. 11. 11. 2, Eleventh Meeting of Conference of the Parties, 10-20 April 2002*,* Gigiri, Kenya.

In order to conserve wild bulb populations, exports from Turkey have been substantially reduced from 64 million bulbs in 1990 to 27 million in 2000.

Graph 3: Bulbs exported from Turkey[151]



The Flowerbulb Technical Committee, established in 1989, sets the quota of wild-collected and transplanted bulbs permitted for annual export, following field inspections made by scientific teams. Another important measure has been the reduction of the collecting period, which is now mainly in May (except cyclamen) when plants are in mature fruit. Education programmes by NGO scientists have produced very positive results in collecting villages. Now only export-sized bulbs are collected from the wild and while some small bulbs are inevitably dug up during the collecting process, they are immediately replanted[152].

Since 1991 FFI, in partnership with the leading Turkish conservation body, Türkiye Dogal Hayati Koruma Dernegi (DHKD), has been supporting the propagation of bulbs in Turkey. The project developed low technology methods for local growers to produce bulbs that could be classified as truly "artificially propagated". The project is chiefly limited to one species – the Turkish giant snowdrop *Galanthus elwesii*. By 2000 the number of villagers involved in bulb-growing had increased to 250 and bulb production had increased to 1,237kg (around 200,000 bulbs). The annual income from bulb production in the villages in 2000 was £3,985 (US$5,800), or around £52-62 (US$75-90) per family, an income estimated to be four times higher than would be obtained from selling an equal number of wild bulbs. The price paid for the bulbs was fairer, representing over 12 per cent of the final market price, in contrast to the previous 1 per cent from wild collection. Commercial buyers in the UK were informed of the opportunities to market bulbs from this project, and in 1999 demand outstripped supply.

Villagers involved in the project are generally extremely positive about it. They no longer take part in the collection of wild bulbs, since this requires far more effort and time and brings in less money. The project is a model for plant propagation for trade in a village environment, providing a source of local income based on local natural resources. However, it requires a much longer time-scale, and a much greater investment, than expected at the outset. Indeed, investment in the project is not yet matched by the resulting bulb sales. Replication of the

[151] Ekim, T. (1998) *supra*

[152] *Ibid*

project to other groups of plants has been limited, and may be most relevant to the trade in medicinal rather than horticultural plants[153].

In order to steer consumers towards sustainably produced bulbs, FFI also produces *The Good Bulb Guide,* which lists companies that pledge either to sell only cultivated bulbs or to clearly label the source of their bulbs if they also sell wild-collected stock. The 2002 *Good Bulb Guide* lists 20 UK retailers and 20 wholesalers in the UK and the Netherlands, including many major names in the industry[154].

4.3 RARE PLANTS

Volunteer wardenship of rare orchid species remains necessary in the UK, but nowadays many gardeners seeking rare plants import them from overseas. This specialist market is putting some of the world's rarest wild plants at risk, especially exotic orchids, bizarre succulents and unusual bulbs[155].

How important is the UK?

The UK trade in some rare and threatened plants is threatening wild populations. For instance, the UK is believed to be the second largest market for Chihuahuan Desert cacti, specialist desert plants from Mexico and the south-western US. From 1999-2000, a total of 197 species were advertised for sale in the UK, despite the export of some species native to Mexico having been banned, while the US was in the lead with 315 species advertised[156].

Who is involved?

Collectors and traders who deliberately target and collect the rarest wild plants for the specialist market are of the greatest concern[157]. Collectors may smuggle in plants for their own personal collection, and may also propagate them for exchange or sale to other collectors[158].

An example of the modus operandi of the illegal trade in rare plants is provided in a recent study of the trade in Chinese orchid species. Tens of thousands of rare lady slipper orchids *Cypripedium* spp. were found to be smuggled out of mainland China via Shanghai, Hong Kong and Beijing in the late 1990s, a trade that probably continues today. The main destinations were Taiwan, Japan and western Europe. Plants, which were offered via e-mail and colour photocopied lists, sometimes appeared under their correct scientific names, sometimes under their common names, or just with numbers. Customers' orders were passed to the dealer in Beijing, Shanghai or Hong Kong, who in turn informed the supplier in the province, who knew where the plants grew. The supplier or, more usually, the farmers who are the diggers for the supplier, removed the plants from the wild. They were sent to the dealer, who packed them and sent them abroad.

---

[153] Entwhistle *et al. supra*

[154] Anon. (2002). *Good Bulb Guide 2002*. Fauna & Flora International.

[155] Oldfield (1999) *supra*

[156] Robbins, C. (2002) Cactus conundrum: TRAFFIC examines the Trade in Chihuahuan Desert Cacti. *The TRAFFIC Report. Publication of TRAFFIC North America* 1(1).

[157] Oldfield (1999) *supra*

[158] The CITES Management Authority of Germany (2002) Illicit trade in live plants. *CITES World. Official Newsletter of the Parties.* 9:1-3.

The packages would not be labelled as orchids. A farmer in Sichuan was estimated to make about CNY80,000 (US$9,700) a year delivering orchids collected in the wild, with dealers said to have provided a farmer with a camera to take photos of the flowering plants for posting on their list. His income was thought to be about 40 times higher than that of his neighbours who were not in the orchid business. It has been alleged that many flowering-sized Chinese *Cypripediums* in the orchid trade are illegally collected. With a well-established network of suppliers, a dealer could make a lot of money each year and not need to propagate *Cypripediums* or other orchids[159]. As the seizure of orchids from Taiwan described below demonstrates, the UK is a market for rare plants such as these.

A recent study of cacti trade from the Chihuahuan Desert revealed that during the past decade, protected species that only occurred in Mexico and that were new for science were appearing for sale in foreign advertisements including the UK, suggesting specimens had been illegally exported from Mexico. Uninformed tourists also unknowingly encourage the harvest of these cacti by buying them as souvenirs[160].

What is the UK impact?

Bad news

The UK rare plant collector is frequently interested in a particular species or specific group of plants, often one that grows in temperate regions so will thrive in British gardens. The problem is that collecting even small numbers of a very rare plant can put the entire species at risk. Some conservationists are concerned that newly discovered species, for example *Cypripedium* orchids and cobra lily *Arisaema* from the temperate regions of China and neighbouring countries, may be threatened by over-collection during the few years between their discovery and possibly becoming available as propagated plants in nurseries. An added incentive to plant specialists is that many of these species are difficult to propagate. The UK market for Chihuahuan desert cacti may be threatening the survival of new species and those restricted to a few known populations. Between 1996 and 2000, Mexican authorities seized nearly 8,000 cactus specimens, 5,000 of which were species native to the Chihuahuan Desert[161].

Thousands of rare, illegally imported plants are seized in the UK each year. Seven per cent of smuggled consignment seizures in 1999 and 2000 were of plants, most of which were rare orchids. For example in September 2000 a shipment of orchids from Taiwan with a retail value of £60,000 (US$87,300) included the necessary permits for some specimens, but lacked them for many others[162]. Many rare and CITES-listed plants also arrive illegally through the post in mislabelled packages, which are very difficult to detect.

Good news

Royal Botanic Gardens, Kew has published three CITES orchid and one CITES cacti checklists to help government staff around the world implement CITES trade controls. Most trade is in artificially propagated plants that help to reduce the need for taking wild plants.

---

[159] Perner, H. 28 March 2002 www.cypripedium.de/forum/messages/637.html

[160] Robins, C. (2002) Cactus conundrum: TRAFFIC examines the Trade in Chihuahuan Desert Cacti. *The TRAFFIC Report. Publication of TRAFFIC North America* 1(1).

[161] Robbins, C. (2002) *supra*

[162] Stephanie Pendry, TRAFFIC International, pers. comm.

The horticultural community is becoming more and more aware of the problems of illegal trade, and the influence of well informed-traders, growers, trade associations and hobby groups is having a positive impact.

4.4 UK PLANT CRIME

Gardeners need to beware – they may unwittingly be contributing to the devastation of native wildlife habitat through buying illegally wild-collected bulbs. Recent prosecutions suggest that bulb thefts from British woodlands are increasing. The main species involved are bluebell *Hyacinthoides non-scripta* and snowdrop *Galanthus nivalis*[163].

How important is the UK?

The bluebell is native to north-west Europe. The UK, which is the bluebell's stronghold, is home to 30 per cent of the species' world population. Because bluebell woods are almost entirely confined to this country,[164] we have a special responsibility to protect them. Bluebells are under threat chiefly from loss of broadleaved woodlands and hedgerows to development, but bulb theft, grazing by deer and hybridisation with the Spanish bluebell *Hyacinthoides hispanica* are also damaging populations in some areas. The theft of snowdrops is considered less serious with regard to species conservation in the UK, and there is still debate as to whether they occur naturally in this country.

Who is involved?

Bulb theft is an organised business. Sales in nurseries and car boot sales account for some of the material and much goes abroad. Unfortunately, economics aid the wild bulb collector: bulbs from our woodlands can be sold more cheaply than many cultivated varieties. Bulb thefts have been reported particularly in East Anglia, although this may be because the police are more vigilant about bulb crime there. In 1999 the Cambridgeshire Constabulary dealt with at least five reported incidents of plant theft and it is believed that there are up to 12 active bulb thieves in the Cambridgeshire area. The police now have a plan to combat bulb theft. Norfolk also has several incidents each year, mainly involving snowdrops[165].

Recently large quantities of snowdrops have been dug from woodlands and private estates in Scotland without authorisation. The plants are then sold under the pretence of "cultivated stock" to often unsuspecting nurseries or through gardening magazines[166]. The trade is based on the considerable amounts of money that can be made – snowdrops are worth 10p a bulb and some rare snowdrop variants can be worth £45 (US$74) a bulb. In 1998 bluebells were given extra legal protection by being listed on Schedule 8 of the Wildlife and Countryside Act 1981. However, many conservationists are unaware of wild plant crime and it is only recently that the police have become aware of this problem. The courts appear not to take offences seriously and are unwilling to apply full penalties. Plant crime is difficult to detect and proof is hard to obtain[167].

---

[163] Akeroyd, J. (1999) *Plant Crime. Is the law working to save our threatened plants?* Plantlife, London.

[164] The Botanical Society of the British Isles. www.bsbi.org.uk.

[165] *Ibid*

[166] Sanderson and Prendergast (2002) *supra*

[167] Akeroyd (1999) *supra*

What is the UK impact?

Bad news

Entire woodlands have been stripped of bluebells and snowdrops. In others bulb populations have been "thinned", altering the woods' overall ecological structure. It can take decades for the sites to recover[168].

Recommendations

Government action

- provide support for achieving the trade-related targets of the Global Strategy for Plant Conservation of the Convention on Biological Diversity, and the European Plant Conservation Strategy;
- undertake and support further studies of the import and trade of wild plants into the EU as well as specifically into the UK;
- fund field surveys in countries supplying wild plants to EU and UK markets, aimed at helping to ensure that the trade is within sustainable levels;
- continue assisting efforts to improve CITES implementation for plants through supporting development of sustainable management strategies in countries such as Turkey, developing checklists and other identification materials and playing a leading role on the CITES Plants Committee; and
- modify national legislation where necessary to require that plants imported into and/or sold in the UK clearly state their origin (country and whether wild-collected or propagated) on all packaging.

Industry action

- require exporters and suppliers to document the source of plants offered for sale, and ensure that plants from CITES-listed species are imported according to CITES requirements;
- support initiatives such as the Fauna & Flora International indigenous propagation project that encourage sustainable sourcing of bulbs in ways that improve the livelihoods of bulb collectors; and
- sign Flora locale's Code of Practice for Collectors, Growers and Suppliers of Native Flora.

Consumer action

- ask retailers for information about the source of plants offered for sale, including information on guarantees of sustainable sourcing when plants are from the wild;
- be especially vigilant when buying plants from overseas catalogues, over the internet or via e-mail lists: if you have suspicions, inform the WWF/TRAFFIC Eyes & Ears Campaign (Eyes & Ears, PO Box 95, Cambridge CB3 0SQ or telephone 01483 426111); and
- buy plants produced by projects such as the indigenous propagation project in Turkey, and look for suppliers that have signed up to the Flora locale code of practice.

[168] Akeroyd (1999) *supra*

4.5 ALIEN INVASIVE SPECIES

A further invidious threat is the impact that imported species can have on native wildlife. UK policy on non-native species is currently the subject of a major review by the Department of Environment, Food and Rural Affairs.

How important is the UK?

After habitat destruction, introductions are perhaps the most pervasive threat facing our native flora[169]. While invasive plants are a threat to the UK's natural habitat, some British species have also been transported overseas with disastrous consequences, including gorse *Ulex europaeus* and broom *Cytisus scoparius* in Australia and New Zealand, and purple loosestrife *Lythrum salicaria* in the US[170]. In the past, the UK played a leading role – perhaps *the* leading role – in the spread of invasive species abroad as a result of its role as a coloniser and imperial power[171].

Who is involved?

Most non-native plant species have been brought to the UK intentionally from overseas by gardeners and people in the horticulture trade. Many species continue to be introduced.

What is the UK impact?

Bad news

A significant number of invasive, exotic plants are aquatic species. The UK government's own survey of water bodies showed that invasion is now becoming such a problem that one in six of all records of aquatic plant species in ponds was of a non-native species[172]. At least three species are causing significant environmental damage and pose a serious threat to natural habitats: New Zealand pygmy weed or Australian swamp stonecrop *Crassula helmsii*, parrot's feather *Myriophyllum aquaticum* and floating pennywort *Hydrocotyle ranunculoides.* They are widely sold to garden pond enthusiasts and aquarists. The plants grow so rapidly that purchasers soon have an excess, which is often dumped in the wild, where it soon swamps indigenous plants. It is still not illegal to introduce these plants into the wild.

Australian swamp stonecrop was first introduced from Australasia in 1911 and has spread at an alarming pace across the country. A 1998 estimate put the potential cost of species control at £2-3 million (US$3.3-5 million) over two or three years[173]. Furthermore, the only method of control is direct action involving herbicide applications which is not environmentally sound and may be unsuccessful if recolonisation is not monitored and treated.[174].

---

[169] Harper, M. (2000) *At War with Aliens* Plantlife, London.

[170] Imperial College (2002) Gardeners Urged to Help Stop Spread of Invasive Plants. *Press release* 9 May 2002. www.ic.ac.uk

[171] Stolton *et al.* (2001) *supra*

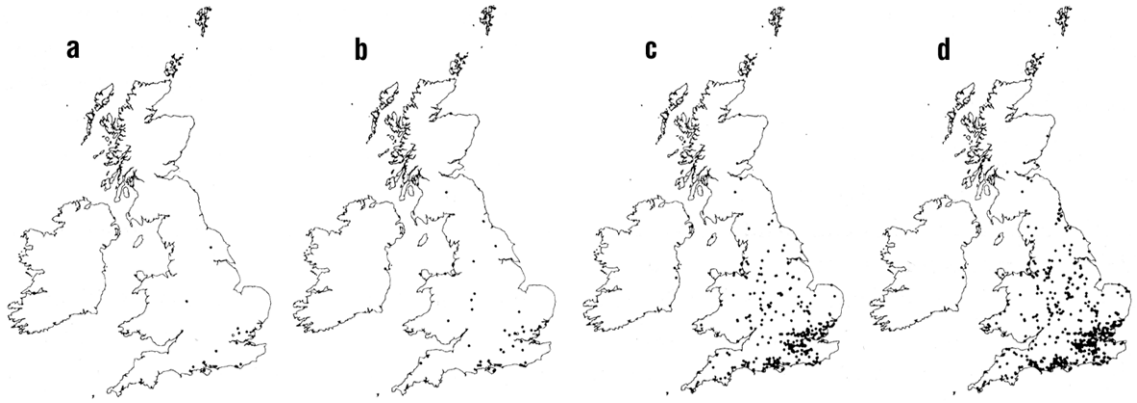
[172] Williamson, P.J. *et al.* (1998) *Lowland Pond Survey.* Department of the Environment, Transport and the Regions, London.

[173] Dawson, F.H. (1998) Programme 6: control of pests and disease: invasive aquatic plants. *Scientific Report 1997-1998* Institute of Freshwater Ecology, NERC 25-26.

[174] Leach, J. and Dawson, H. (1999) *Crassula helmsii* in the British Isles – an unwelcome invader. *British Wildlife* 10(4):234-239.

The stonecrop is a major threat to one endangered native aquatic plant, starfruit *Damasonium alisma,* which grows on the edges of shallow ponds[175]. There is evidence that breeding of the nationally threatened and specially protected great crested newt *Triturus cristatus* is restricted by the stonecrop, perhaps because it can cover large areas of open water that the newt needs[176].

Graph 4: Distribution of *Crassula helmsii* in the British Isles as obtained from BSBI vice-county recorders. All records (a) up to 1969; (b) up to 1979; (c) up to 1989; (d) up to 1998[177]



Parrot's feather became naturalised in the late 1960s and is mainly found in shallow ponds, although it has been recorded in a range of water bodies. It has colonised about 100 sites in the south of England. Currently it threatens one of the UK's six remaining sites of the British Red Data Book aquatic plant brown gallingale *Cyperus fuscus*[178].

Floating pennywort became established in Britain in 1990 and has been found in more than 40 sites mainly in the south-east and central southern areas, and in a range of water bodies, particularly rivers, ditches and ponds. The plant forms dense, interwoven mats of floating vegetation that grow across the surface, altering the ecology of the water body[179]. The species is causing a multitude of problems including deoxygenation of the underlying water, killing fish and invertebrates, drowning cattle, choking drainage systems and sluices, causing localised flooding and crowding out native plants[180]. The current estimate for controlling the total infested area by herbicides is between £250,000 (USS$362,500) and £300,000 (US$435,000) a year, in addition to the environmental costs of using herbicide.

Competition and hybridisation with the Spanish bluebell is another threat facing our native bluebell. Most bluebells planted in UK gardens are actually hybrids, which are spreading into the wild. In some urban areas the hybrid is now more common than the native species. There is deep concern about the planting of the Spanish bluebell as it is a more robust plant, has more

[175] Harper (2000) *supra*

[176] Watson, W. (1999) Amphibians and *Crassula helmsii Froglog* 31. www2.open.ac.uk/biology/froglog

[177] British Wildlife (April 1999) *Crassula helmsii* in the British Isles

[178] Harper (2000) *supra*

[179] *Ibid*

[180] English Nature (1999) Overgrown and Over Here! English Nature *Press Release*, 15 September 1999.

dominant genes and could eventually take over by cross-breeding with native bluebells. The UK Biodiversity Action Plan for Bluebells urges everyone to buy only native bluebells, and to ensure they are from a sustainable source[181] [182].

The introduction of invasive British species abroad has resulted in important impacts in many former and present colonies, particularly on islands where invasive species are likely to be devastating to native flora and fauna. Examples include New Zealand flax *Phormium tenax,* which was introduced to St Helena by the Royal Botanic Gardens, Kew, for use as fibre[183]. It is now a very serious and widespread pest on the island, where it excludes native vegetation[184].

Gorse is recognised as one of the worst weeds in New Zealand, Chile and Tasmania (Australia) and is recognised as a weed in at least 15 other countries or island groups around the world. It forms dense spiny impenetrable stands that exclude desirable plants in pasture lands. In open woodland, gorse interferes with reforestation and forest management[185].

Purple loosestrife has become a serious nuisance in the US as it alters wetland ecosystems and impacts upon threatened species such as the bog turtle *Clemmys muhlenbergii* in the north-east. It is the subject of various biological control programmes. Agriculture is also affected through loss of wild meadows, hay meadows and wetland pastures. When purple loosestrife invades irrigation systems, economic losses to agriculture can exceed £1.69 million (US$2.6 million) annually[186].

Good news

The UK is host to two international bodies that could provide further leadership in controlling invasive plant species. Over the past 70 years the International Institute of Biological Control has been undertaking biological control programmes against invasive species on a non-profit basis. Botanic Gardens Conservation International could be influential in developing protocols for the transfer of germplasm between botanic gardens to reduce chances of invasions[187].

The UK government has recognised the importance of tackling the invasive species problem, with DEFRA convening a working group in 2001 to review UK policy in this regard. Its report, released in early 2003, contains detailed recommendations aimed at reducing the risk to UK biodiversity and agriculture posed by alien invasive species. Its recommendations are supported by the Garden Centre Association, *Gardening Which?,* the Horticultural Trade Association and the Ornamental Aquatic Trade Association, as well as Plantlife International and the Royal Horticultural Society.

---

[181] National Farmers Union (2002) Spanish bulbs give villagers the blues *Rural News* 27 May 2002.

[182] Cheshire Wildlife Trust *Biodiversity Action Plan for Bluebells* www.wildlifetrust.org.uk/cheshire/bbelbpn.htm

[183] Stolton *et al.* (2001) *supra*

[184] www.hear.org/pier_v3.3/phten.htm accessed 2002

[185] www.wpsm.net/Ulex.pdf

[186] www.wapms.org/plants/purpleloosestrife.html

[187] Stolton *et al.* (2001) *supra*

Recommendations

Urgent action is needed, because both climate change and globalisation increase the likelihood that more alien and potentially invasive species will become established in the UK. The government should adhere to the principle that preventing the introduction of invasive species is the cheapest, most preferred option and should be given the highest priority[188].

Government action

- respond to the findings and implement the recommendations of the DEFRA Review Group as set out in the 2003 *Review of non-native species policy*[189];
- modify existing legislation in accordance with Decision VI/23 (alien species that threaten ecosystems, habitats or species) of the sixth meeting of the Convention on Biological Diversity, and the principles established within IUCN's guidelines for the prevention of biodiversity loss caused by alien invasive species;
- work with the industry to develop a communications strategy aimed at government personnel, importers, wholesalers, retailers and the public that highlights the problems of invasive species, steps that can be taken to reduce the threats they pose, and legal prohibitions in place; and
- take a more precautionary approach within EU and UK legislation regarding the import, sale and release of non-native species, recognising that preventing the introduction of invasive species is the cheapest, most preferred option, and should be given the highest priority[190]. Using the species list developed by the DEFRA Review Group as a guide, this can be done through:
  - including additional species known or suspected of being invasive in Annex B of Council Regulation (EC) No. 338/97 and establishing import restrictions for live specimens of those species; and
  - including additional species in Schedule 9 of the UK Wildlife and Countryside Act in order to provide for penalties in the case of unlicensed release and/or escape. Among the species that should be considered for inclusion are the Australian swamp stonecrop *Crassula helmsii*, floating pennywort *Hydrocotyle ranunculoides* and Parrot's feather *Myriophyllum aquaticum*, which are already causing significant environmental damage.

Industry action

- voluntarily end sales of alien species likely to become invasive, and support government efforts to legislate against the import and sale of such species in future;
- advise customers of the dangers of introducing alien species to the wild, and of the importance of properly disposing of plant waste that may contain seeds or other propagative parts; and
- promote consumer education campaigns, for example in plant catalogues and via specialist magazines and trade fairs.

---

[188] Harper (2000) *supra*

[189] DEFRA (2003). *Review of non-native species policy; Report of the working group*. DEFRA, London.

[190] Harper (2000) *supra*

Consumer action

- don’t buy or plant alien species likely to become invasive, and discourage your plant suppliers from selling them. Know before you grow!
- properly dispose of invasive species that may already be in your garden; and
- don’t bring home or plant materials from other countries, including seeds, without first checking with DEFRA about import controls, including those specifically directed at preventing the spread of invasive species.

5 Case study: the live animal trade

The trade in live wild animals has received a tremendous amount of attention in the UK press and from UK conservationists – second only, perhaps, to the trade in elephant ivory. Thanks to CITES and actions taken by governments in the UK and around the world, much of the live animal trade has been brought under effective control. However, changes in lifestyles and fashion, as well as the increased availability of some species, have brought with them a shift in the live animal trade, and therefore with related concerns. Declines in the trade in wild parrots, for example, contrast with an increase in the trade in live reptiles and species which are used to populate marine aquaria. There is also emerging awareness of a previously unconsidered downside to the live animal trade – the threat posed by the possible introduction to the wild of "alien invasive" species.

5.1 AQUARIA TRADE

There is a large and growing trade in marine and freshwater animal species for use in aquaria. The total value of global wholesale trade in ornamental freshwater and marine fish (live animals for aquaria only) is estimated at about £620 million (US$900 million), and the retail trade about £2,067 million (US$3,000 million). Since the 1980s these figures have been increasing. Today, keeping fish and other live aquatic species such as corals is a hobby practised by millions of people in industrialised countries around the world. The main importers of live fish are the US (25 per cent), Japan (18 per cent) and Europe, with the UK having a 7 per cent share of global imports. In terms of value, freshwater species represent around 90 per cent of the market.

According to many experts, the growth of the marine aquarium trade, including invertebrate species such as live corals, is the trend for the 21st century. On average 90 per cent of freshwater species are farmed, against 10 per cent collected in the wild, so there is little concern that the trade in freshwater aquaria species is reducing wild populations – although rare species that are often not raised in captivity may be an exception. Almost all captive-bred fish are raised outside developing countries, so most countries of origin are not benefiting[191]. By contrast, giant clams are being produced in increasing numbers in Pacific island countries such as Fiji.

Marine aquarium trade

Marine ornamentals are saltwater fish, corals and invertebrates (e.g. soft and hard corals, shrimp, small clams) that can be kept in an aquarium. Fish make up about 85 per cent of the trade by value. Traded marine aquarium organisms are mainly harvested from the coral reefs of South-east Asia, the Pacific Islands, south Asian and Indian Ocean islands, Australia, Hawaii, Mexico, Florida, the Caribbean, Brazil, east Africa and the Red Sea. Indonesia and the Philippines supply more than half the global marine ornamental fish trade, and Indonesia and Fiji are the largest suppliers of live coral. Aquaculture comprises less than 2 per cent of the marine aquarium trade and is growing very slowly due to economic and biological constraints on rearing fish and invertebrates in captivity.

[191] Anon (2001) *The Ornamental Fish Market* GLOBEFISH Research Programme Vol. 67. October 2001

How important is the UK?

The largest trader in marine aquarium life is the US, which imports nearly half of marine organisms recorded in trade in the Global Marine Aquarium database maintained by UNEP-WCMC. The UK accounts for 10.2 per cent of global fish imports and 11.4 per cent of global invertebrate imports recorded in the database[192]. UK imports are more important for some species, notably cleaner shrimp (79.8 per cent of all recorded imports), Atlantic anemone (38.5 per cent) and clown fish (24.8 per cent). Eight of the top 10 fish, and five of the top 10 invertebrate species, are the same for UK and global imports[193].

Table 5: The top 10 marine aquaria fish imports to the UK [194]

Common name	Scientific name	No. imported
Clown fish	*Amphiprion ocellaris*	110,925
Blue green damselfish	*Chromis viridis*	83,811
Sapphire devil	*Chrysiptera cyanea*	38,909
Goldtail demoiselle	*Chrysiptera parasema*	37,019
Domino damselfish	*Dascyllus trimaculatus*	28,963
Yellow sailfin tang	*Zebrasoma flavescens*	27,839
Bluestreak cleaner wrasse	*Labroides dimidiatus*	26,838
Blue surgeonfish	*Paracanthurus hepatus*	26,683
Sea goldie	*Pseudanthias squamipinnis*	21,097
Fourstripe damselfish	*Dascyllus melanurus*	20,428

[192] UNEP-WCMC Global Marine Aquarium Database

[193] *Ibid*

[194] *Ibid*

Table 6: The top 10 marine aquaria invertebrate imports to the UK[195]

Common name	Scientific name	No. imported
Cleaner shrimp	*Lysmata grabhami*	42,837
Atlantic anemone	*Condylactis passiflora*	22,433
Turban snail	*Turbo castaneus*	19,216
Delicate sea anemone	*Heteractis malu*	16,159
Peppermint shrimp	*Rhynchocinetes uritai*	15,187
Yellow trumpet anemone	*Parazoanthus axinellae*	9,657
Fire shrimp	*Lysmata debelius*	8,567
Banded coral shrimp	*Stenopus hispidus*	8,420
Magnificent sea anemone	*Heteractis magnifica*	7,875
Red fromia starfish	*Fromia elegans*	7,752

NB: None of the species listed in Tables 5 and 6 is considered to be threatened.

What is the UK impact?

Bad news

The world's coral reefs are continuing to decline. According to assessments in late 2000, 27 per cent of reefs have effectively been lost. The largest single cause for this was the massive climate-related coral bleaching event of 1998. Over-exploitation of reef ecosystems for food and the aquaria trade – the latter in part fuelled by the UK trade – are additional human impacts on reefs, together with sediment and nutrient pollution, sand and rock mining, cyanide poisoning and development on, and "reclamation" of, coral reefs[196]. These latter impacts are much greater than those caused by the aquaria trade[197].

In recent years the marine aquarium industry has attracted much controversy. Some in the trade operate to ensure sustainability and quality, and they maintain records to prove it. But others may be associated with the use of chemicals and other destructive collection methods or have poor husbandry practices, such as improper handling, inadequate water quality and high packing densities. The effects are unnecessary reef degradation and animal mortality.

Although there is no proof of any species collected for the marine aquarium trade being at risk of global extinction, there is evidence of local depletions[198]. For example, a study along the 230km Kona coastline of the Big Island of Hawaii showed that eight of the 10 species targeted by aquarium collectors were significantly reduced in abundance at collecting sites relative to

[195] UNEP-WCMC Global Marine Aquarium Database

[196] Ed. Wilkinson, C.R. (2000) *Status of the Coral Reefs of the World.* Global Coral Reef Monitoring Network, Australian Institute of Marine Science.

[197] Colette Wabnitz *in litt.*, October 2002.

[198] Wood, E. (2001) *Collection of Coral Reef Fish for Aquaria: Global Trade, Conservation Issues and Management Strategies.* Marine Conservation Society, Ross-on-Wye.

control areas[199]. Species that are naturally rare or have highly restricted ranges can reasonably be expected to be vulnerable to over-collection. The ecology of species can be an important factor – for example, fish that are hermaphroditic and maintain harems may be particularly vulnerable. Conversely, very common species may naturally occur in large enough numbers to sustain collection[200]. Other concerns include the effect on reefs from the increasing export of live coral and live rock, and the limited resources governments have to manage reefs and enforce laws against destructive practices.

Efforts to improve and ensure the sustainability of the trade in live specimens for marine aquaria remain constrained by the lack of quantitative and unbiased information available upon which to base management and purchasing decisions. At stake is the employment of thousands of people, especially in exporting nations, and the high incentives for coral reef stewardship that the marine aquarium trade may be capable of providing[201]. All species of hard coral and giant clams are listed in Appendix II of CITES, so trade data are routinely collected on these species. By contrast, of the marine ornamental fish, only seahorses *Hippocampus* spp. are thus far covered by the convention (the CITES listing takes effect in 2004). Estimates of trade volumes in fish species to date are based on a number of assumptions, so should be treated with caution[202].

Good news

Supporters of the trade point out that collecting marine organisms for use in aquaria provides one of the few potentially sustainable local industries in many coastal communities, which often have limited resources and few other options for generating income[203]. The live marine fish and invertebrate industry is of relatively low volume but very high value and, when conducted properly (for example, without the use of chemicals to stun fish before collection), is far more sustainable and can be more lucrative than other income producing activities such as blast fishing. This can provide an effective incentive to protect reef ecosystems. A kilogram of aquarium fish from one island country was valued at almost £344 (US$500) in 2000. In Fiji many collectors pay an access fee to collect on villagers' reefs and, by selling directly to exporters, local people can generate incomes many times the national average. By contrast, in the Philippines there are many middlemen, and collectors themselves typically earn only around £34.30 (US$50) a month[204]. The average monthly family income in the Philippines is £117.20 (US$186.8).

The CITES Appendix II listing for both corals and giant clams has not only improved the availability of trade data, but also prompted increased research directed at ensuring the trade is sustainable. The UK CITES Scientific Authority chairs the Coral Working Group of the CITES Animals Committee, which is examining issues of sustainability and trade monitoring, including

---

[199] Tissot, B.N. and Hallacher, L.E. (1999) *Impacts of Aquarium Collectors on Reef Fishes in Kona, Hawai'i.* Final report. Department of Land and Natural Resources, Honolulu.

[200] Green, E. (in press) Seeking Answers to Key Questions on the International Trade in Marine Aquarium Species through the Global Marine Aquarium Database.

[201] Marine Programme, UNEP World Conservation Monitoring Centre (2002) *Global Marine Aquarium Database* www.unep-wcmc.org/marine/GMAD/background.html

[202] Wood (2001) *supra*

[203] Marine Programme, UNEP World Conservation Monitoring Centre (2002) *supra*

[204] Green (in press) *supra*

the development of coral identification materials. TRAFFIC Europe and TRAFFIC Southeast Asia are collaborating on projects in Fiji and Indonesia that are helping local collectors and government staff to set sustainable collection levels for live corals.

The Marine Aquarium Council (MAC) is an international not-for-profit organisation working to ensure sustainability of the marine ornamental trade, and to conserve coral reefs and other ecosystems and quality within the marine aquarium industry through establishing standards and an accompanying certification system. The MAC was established in 1998 and comprises a network of conservation groups, hobbyists, aquarium industry representatives, government agencies and public aquaria including more than 2,500 individuals in some 60 countries.

The hope is that coastal communities will be provided with incentives to manage and conserve reefs, filling a void in many developing countries that lack the funds to create, implement and enforce laws and management plans to protect reefs[205]**.** In November 2001, MAC certification was officially launched and made available to guide consumer and retailer choice. However, this system is driven by market demand, so the more retailers and aquarists ask for MAC-certified marine ornamentals, the more the industry will work to supply them with labelled organisms. The first MAC certification of an exporting facility took place in the Philippines in June 2002, and certification processes are underway in Fiji and Indonesia[206].

As noted earlier, DEFRA convened a working group to recommend actions necessary to reduce the risks posed by the introduction of alien invasive species into the UK. The working group's report, published in early 2003, includes recommendations targeted at both terrestrial and aquatic species.

Recommendations

Government action

- continue to support CITES processes including the efforts of the CITES Coral Working Group, and offer support for implementation of the 2002 listing of seahorses in CITES Appendix II.

Industry action

- know the origin and methods of production of specimens offered for sale, and provide this information to consumers;
- support exporters who can document collecting methods and volumes, and who adhere to CITES requirements to ensure that harvests are sustainable and legal; and
- support certification initiatives such as the Marine Aquarium Council.

Consumer action

- seek out "MAC Certified" retailers and tanks with "MAC Certified" organisms; and
- ask about the origin of marine ornamental species offered for sale, how they were caught and handled and if their suppliers can substantiate any claims that the animals are "sustainable," "cyanide-free" or "net-caught".

---

[205] Marine Aquarium Council website http://www.aquariumcouncil.org/

[206] Marine Aquarium Council (2002) *MAC News* 2nd Quarter 2002.

5.2 BIRD TRADE

Significant conservation problems surrounded the UK wild bird trade in the 1970s and 1980s[207], but imports into the UK are now well regulated and controlled, thanks to action by conservation NGOs and the government. However, some areas of concern remain, and more information is needed on non-CITES trade, for instance. Transport conditions for birds – and indeed for all wildlife – are now much improved and in the vast majority of cases they are considered satisfactory, according to the CITES Enforcement Team at Heathrow[208].

How important is the UK?

Table 7: CITES-listed bird imports reported into the UK and EU, 1998-2000[209]

	1998	1999	2000
UK	12,351	9,149	10,344
EU	1,202,554	1,279,856	1,185,125

A huge number of birds – over a million – are imported into the EU each year. Total UK imports are unknown as the majority enter via Belgium and the Netherlands, mainly because of differences in quarantine regulations. These were tightened in November 2001 and are now the same throughout the EU, so an increase in direct imports into the UK can be expected. However, a significant number of birds may well still enter the UK via Belgium and the Netherlands, partly because they are cheaper there[210] and because they have better housing facilities for large numbers of birds[211]. Another significant factor is that major airlines such as British Airways will not carry wild-caught birds into the UK, even if they are being traded legally, because of action by NGOs on welfare grounds[212].

Who is involved?

Exotic birds are sold widely throughout the UK through pet shops, garden centres, bird breeding facilities, at trade fairs, and through specialist magazines. However, illegal trade can take place alongside legal trade – between unscrupulous bird traders and dealers, for example, with the public at trade shows and fairs, and through advertisements in magazines and on the internet.

What is the UK impact?

Bad news

The illegal import of CITES-listed species, especially parrots, continues to be a problem, as evidenced by frequent seizures. Some highly threatened bird species have been involved in recent years such as Lear's macaw *Anodorhynchus leari* (CITES Appendix I). In the UK, the seriousness which the law and those who implement it attach to wildlife trade offences fails to

---

[207] Thomsen, J.B., Edwards, S.R. and Mulliken, T.A. (1992) *Perceptions, Conservation and Management of Wild Birds in Trade* TRAFFIC International, Cambridge.

[208] CITES Enforcement Team, Heathrow Airport pers. comm.

[209] CITES annual report data compiled by UNEP-WCMC

[210] CITES Enforcement Team pers. comm. July 2002.

[211] Anon (2002) EU clampdown sparks foreign bird drought. *Cage and Aviary Birds* March 23 2002.

[212] *Ibid*

reflect the potential global threat they pose to biodiversity. There are indications that increased awareness has prompted more and better enforcement in the UK recently, with increases in seizures and (to a lesser extent) prosecutions[213].

There is also continued concern regarding the conservation impact of the legal trade. Imports into the UK and EU from 1991 to 2000 of CITES-listed species and those identified as globally threatened[214] were examined as part of this review to identify species of concern. It was difficult to ascertain whether the legal UK trade was threatening wild populations, in part because knowledge is very poor or non-existent for many species, and because trade data for UK imports independent from wider EU imports were unavailable. An exception was the trade in some populations of the CITES Appendix II-listed African grey parrot *Psittacus erithacus*: more than 90 per cent imported into the EU are wild-caught. Figures for wild populations are not known, but the large and recently increased number of the species in trade and especially the export of numbers above the export quotas established by some countries, notably Cameroon and the Democratic Republic of Congo, is of concern. A recommendation by the CITES Standing Committee to suspend imports from DR Congo was issued in 2001 because quotas were exceeded[215], but as demand is still high the parrots are likely to be imported from elsewhere.

Good news

Captive breeding is now supplying a significant share of the European and UK markets in exotic birds, which is believed to have reduced the trade-related pressure on some wild bird populations. There have also been major improvements in the control of EU and UK wild bird imports, including provisions both to regulate the trade in CITES-listed species, and to identify, monitor and if necessary restrict the import of non-CITES species for which there is conservation concern. Transport conditions for birds, and indeed for all wildlife, are now much improved and in the vast majority of cases they are considered satisfactory, according to the CITES Enforcement Team at Heathrow[216].

UK Customs and police are also cracking down on the illegal trade. In January 2002 Raymond Humphrey was found guilty of 22 offences relating to the smuggling and illegal trade in endangered species. He was sentenced to six and a half years in prison with a recommendation that he serve at least two-thirds of the sentence. This is the most significant wildlife case yet brought before the courts in the UK, and resulted in the longest prison sentence handed out so far. In addition, one of Humphrey's accomplices, Peara Jungthirapanich, was sentenced to 22 months for his part in the operation.

A joint police and customs investigation, started in 1997, uncovered evidence that Humphrey was involved in the illegal smuggling of birds of prey from Thailand. Customs intercepted Humphrey and two accomplices at Heathrow in July 2000 and discovered two suitcases containing 23 raptors. The birds had their legs taped together and were stuffed into blue plastic tubes drilled with air holes, and with pieces of chopsticks at either end to stop the bird getting

---

[213] Cook *et al.* (2002) *supra*

[214] BirdLife International (2002) List of Globally Threatened Bird Species.

[215] CITES Secretariat (2001) CITES Notification to the Parties concerning Democratic Republic of Congo, No. 2001/039, Recommendation to Suspend Trade. Geneva, 9 July 2001.

[216] CITES Enforcement Team, Heathrow Airport pers. comm.

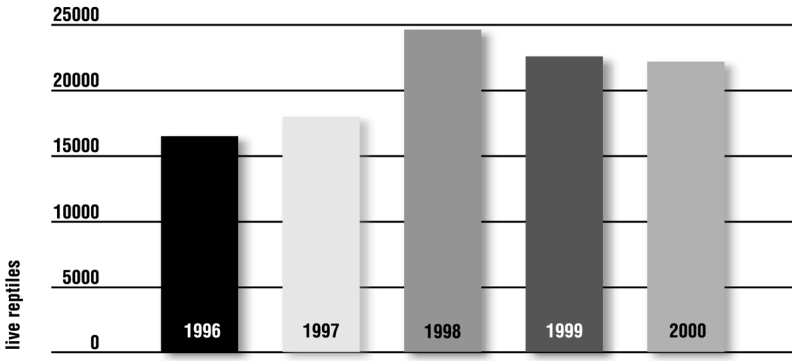
out. Six birds were already dead and another died the following day. A search warrant carried out at Humphrey's address the next day revealed further endangered species that were believed to have been smuggled into the country.

5.3 REPTILE TRADE

During the last decade reptiles have become favoured as pets, resulting in a growing trade in live specimens to and within Europe. The interest in keeping reptiles, and their image as impressive or unusual, is frequently reinforced in the media[217]. For example, snakes have been portrayed as the "perfect pets of the future" that can be left without food during their keepers' holidays, don't need much space and have no unpleasant smell[218]. Based on CITES trade data, around one million live reptiles were imported into the EU between 1996 and 2000, from a steadily increasing variety of taxonomic groups including snakes, monitor and horned lizards, chameleons and freshwater turtles (Table 8). The increase in the number of CITES-listed reptiles imported is shown in Graph 5.

The vast majority of the live reptile imports in the EU involved lizards (75 per cent), followed by snakes (15 per cent) and tortoises and freshwater turtles (8 per cent). TRAFFIC Europe's recent review of trends in the live reptile trade in the EU for the years 1990 to 1999 found that around 44 per cent of the imported reptiles were captive-bred and 41 per cent were reported as taken from the wild. Forty-five per cent of all live reptile imports were green iguanas *Iguana iguana* and of these, 84 per cent were of captive-bred origin.[219]

Graph 5: EU imports of CITES-listed reptiles, 1996-2000[220]



[217] Pro WildLife (2001) *Morbidity and Mortality in Private Husbandry of Reptiles.* RSPCA, Horsham.

[218] Nicolay, G. and Nicolay, H. (1997) Welche Schlange fur mein Terrarium? – Eine Auswahlhilfe fur Anfanger. *TI-Magazin* 135(6)46-48.

[219] Auliya, M. (in prep.): *Hot trade in cool creatures. Overview of the live reptile trade in the European Union*. TRAFFIC Europe, Brussels.

[220] CITES annual report data compiled by UNEP-WCMC

Table 8: EU imports of CITES-listed live reptiles, 1996-2000[221]

Reptile Type	1996	1997	1998	1999	2000	Total	% of Total
Snakes	22,075	22,502	30,874	4,5341	39,122	159,914	15
Turtles/tortoises	7,299	11,909	28,738	2,1653	15,524	85,123	8
Lizards	133,923	142,881	184,459	155,509	165,832	782,604	75
All reptiles	165,790	179,115	246,267	225,444	221,596	1,038,212	100

How important is the UK?

From 1990 to 1999, the main EU importers of live reptiles were Germany and Spain (each importing a total of around 300,000 live reptiles) followed by Belgium, France, the Netherlands and the UK (each importing around 150,000 live specimens).

Table 9: UK imports of CITES-listed live reptiles 1996-2000[222]

Reptile Type	1996	1997	1998	1999	2000	Total
Snakes	3,990	4,178	5,051	5,493	4,873	23,585
Turtles/tortoises	627	2,261	10,388	3,989	2,456	19,721
Lizards	22,180	21,118	13,254	10,279	12,514	79,345
All reptiles	26,930	27,687	28,825	20,408	19,985	123,835

Although direct imports into the UK do not show a similar increase to EU data, there is other evidence that reptile pets are increasing in popularity in the UK. Retail outlets are flourishing, for example. This is partly due to the increased availability of reasonably priced and unusual species, but also more effective and cheaper husbandry equipment, live food and information on keeping and breeding[223].

As well as entering the UK directly, live reptiles are probably also coming via mainland Europe. This can be illustrated by chameleon imports from Tanzania, a country that is a significant source of some chameleon species for world markets. One of the two most frequently exported chameleons from Tanzania is the flap-necked chameleon *Chameleo dilepis*[224]. There has been a dramatic increase in EU imports of this species from 50 in 1990 to 1,419 in 2000, although direct imports into the UK have increased by a smaller number, from zero in 1991 to 136 in 2000[225]. Belgium and the Netherlands are two important destinations for Tanzanian chameleon exports with 5.45 per cent and 4.88 per cent of the trade respectively; these import volumes are

[221] CITES annual report data compiled by UNEP-WCMC

[222] *Ibid*

[223] Crawford Allan, TRAFFIC International *in litt.* October 2002.

[224] Milledge, S. (2002) Family Chamaelionidae (Chameleons) *in prep.*

[225] CITES annual report data compiled by UNEP-WCMC

small in comparison with those of the US (61.24 per cent), but closer to those of Japan (8.28 per cent)[226]. As Belgium and the Netherlands have by far the best holding facilities for imported animals in Europe, it is likely that many reptiles imported into the UK arrive here via these countries[227].

Who is involved?

The trade in live reptiles and husbandry equipment is taking place in a wide variety of retail outlets: specialist hobbyist shops, garden centres, DIY warehouses and the more traditional pet shops, which in the past would only have sold domesticated species[228].

What is the UK impact?

Bad news

WWF, TRAFFIC and other conservation organisations are concerned about the possible conservation impact of the increasing numbers of reptiles removed from the wild for the international pet trade. Species with naturally low populations, restricted distributions and/or low reproductive rates are especially at risk from over-collection. These include, for example, dwarf or Angolan python *Python anchietae*, black or Boelen's python *Morelia boeleni* and the Madagascar boa *Acrantophis madagascariensis*[229].

As the demand for reptiles in Europe is increasing, so too is smuggling, and the UK is a major destination. Many reptiles are protected by laws in their country of origin and a large number of imported reptiles are regulated in trade under CITES or EU legislation. Recent TRAFFIC Europe research indicates that both legal and illegal traders are becoming more organised. Whereas the former can help increase transparency in the trade, an increasingly organised illicit trade must be closely monitored[230]. Recent seizures in the UK include a consignment of spiny-tailed lizards at Heathrow from Sudan in transit to the US in January 2001. This contained 68 Bell's dabb lizards *Uromastyx acanthinura* (Appendix II) and 81 eyed dabb lizards *U. ocellata* (Appendix II)[231].

The CITES Enforcement Team at Heathrow recently reported some irregularities in export licences of flap-necked chameleon and graceful chameleon *C. gracilis* exported from Tanzania and Uganda. Between November 2001 and March 2002 they seized 209 chameleons in 12 separate shipments from Tanzania. Most were in transit through Heathrow and the majority were misidentified (flap-necked chameleons were identified as gracefuls). Three shipments totalling 82 chameleons from Uganda were also seized in the same period, but in this case graceful was shown as flap-necked[232]. Most chameleons seen by the CITES team at Heathrow are in transit to the US[233].

---

[226] Milledge (2002) *supra*

[227] Crawford Allan, TRAFFIC International pers. comm. October 2002.

[228] Crawford Allan, TRAFFIC International *in litt.* October 2002.

[229] Auliya, M. (in prep.) *supra*

[230] Anon (1999) Reptiles become ever-more fashionable. *TRAFFIC Dispatches* January 1999.

[231] Anon (2000) Seizures and prosecutions. *TRAFFIC Bulletin* 18(2).

[232] Guy Clarke, CITES Enforcement Team *in litt.* to Stephanie Pendry May 2002.

[233] CITES Enforcement Team pers. comm., August 2002.

Good news

Enforcement efforts in the UK are resulting in the identification and seizure of thousands of reptiles arriving in violation of wildlife trade controls. According to seizures reported by EU member states in their CITES annual reports, a total of 4,616 live reptiles were seized between 1990 and 1999 in the UK (see Table 10)[234]. While almost certainly not the main destination for reptiles illegally imported into the EU, the UK has been successful in seizing and reporting a relatively greater number of reptiles in illegal trade. Captive breeding efforts are also greatly improving as more is learned about effective husbandry and as the trend for keeping and breeding of reptiles grows. This is offsetting the demand for wild-taken specimens.

Table 10. Number of live reptile seizures reported by EU member states in their CITES annual reports between 1990-1999.[235]

Country of import	
UK	4,616
Austria	2,715
Spain	2,153
Finland	295
Netherlands	250
Portugal	58
Germany	24
Denmark	15
Sweden	1
France	1

Recommendations

Government action

- expand monitoring of the trade in CITES and non-CITES species in order to identify emerging trade trends and enable a rapid response to suspected cases of unsustainable and/or illegal trade;
- assist the governments of exporting range States to develop management systems that ensure that their live animal exports are sustainable; and
- increase efforts to educate industry stakeholders about the variety of trade controls for live animals.

[234] Auliya (in prep). *supra*

[235] *Ibid*

Industry action

- as with other types of wildlife trade, know the source of any live animals imported and offered for sale; and
- make sure that customers are fully informed about trade controls, conservation and animal husbandry issues.

Consumer action

- ask retailers about the source of animals offered for sale, and buy only those where it can be shown that they are from sustainable and legal sources.

5.4 ALIEN INVASIVE SPECIES

At present, a major impact of the live animal trade on the environment in the UK is the introduction of alien species into the wild, especially amphibians, reptiles and fish. As shown below, some species have become established and are a serious threat to our native species. Introductions of British species abroad have had even worse consequences in some cases – for example, the rabbit *Oryctolagus cuniculus* which is considered an agricultural pest in many areas, especially where its natural predators have been eliminated. Rabbits eat cultivated crops and compete with domestic animals for forage. Millions of pounds are spent annually in countries such as Australia, New Zealand, the UK and the US in efforts to control, confine or exterminate them. Additionally, rabbits have inflicted enormous ecological damage in some areas where they have been introduced[236]. In Australia the red fox, an introduced species, is devastating native wildlife and threatens local livestock. It also contributes to the spread of disease, due to its wide range and its resistance to population control[237].

Among birds in the UK, 11 species are non-native. Most have found a vacant niche in our countryside or have a local distribution. Only the ruddy duck *Oxyura jamaicensis* is causing a serious problem; it is has spread widely and is now turning up in Spain, where it is hybridising with the globally threatened white-headed duck *O. leucocephala*[238].

Amphibians and reptiles

How important is the UK?

A number of amphibians and reptiles have been introduced to the UK. These include the closely related green frogs (marsh frog *Rana ridibunda,* edible frog *R. esculenta* and pool frog *R. lessonae*), which are native to continental Europe, but introduced to east and south-east England and are spreading in some areas, and the North American bullfrog *Rana catesbeiana*. The African clawed frog *Xenopus laevis* is now established in a few places in Britain. The Italian crested newt *Triturus carnifex* and other types of crested newt, imported particularly between 1950 and 1990, are established, although trade is now banned. Some pet snakes occur as escapes in the wild, the most common being rat snakes *Elaphe,* king/milk snakes *Lampropeltis* spp. and garter snakes *Thamnophis* spp.. The Aesculapian snake *Elaphe longissima* has been released in north Wales and has established itself there. Five species of

[236] http://animaldiversity.ummz.umich.edu/accounts/oryctolagus/o._cuniculus$narrative.html

[237] www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Vulpes_vulpes.htm

[238] White-headed and Ruddy Ducks, RSPB website www.rspb.org.uk

alien terrapins occur in the UK, including the red-eared terrapin *Trachemys scripta* and the snapping turtle *Chelydra serpentina* which were introduced from the US[239].

Who is involved?

Pet owners are probably responsible for introducing most alien amphibians and reptiles into the wild, either by allowing them to escape accidentally or by deliberate release. The red-eared terrapin was commonly for sale in pet shops until 1997, when its import into the EU was banned because of its potential ecological threat[240]. The trade then shifted to other subspecies. Many thousands have been released into UK ponds, lakes and water courses, although they have not been known to breed successfully[241]; terrapins in captivity need a lot of care and can grow quite large: they can live for more than 40 years and some owners have chosen to release them into the wild rather than keep them.

What is the UK impact?

Bad news

Some alien species such as the North American bullfrog *Rana temporaria*, red-eared terrapin and snapping turtle can eat large numbers of native amphibians and other small animals. Alien species can also have impacts through competition, exploiting food, space or other resources at the expense of native species. There is a further risk that diseases or parasites carried by released alien species may spread to native species. A more insidious risk may be posed by "genetic pollution". Some released alien species may breed with native species and produce hybrid offspring. Italian crested newts, for example, are hybridising with great crested newts, although their rate of spread is not known to be rapid[242].

One of the most worrying introductions recently has been that of the North American bullfrog. Adult bullfrogs can grow up to 20cm, twice the size of the UK native common frog, and are implicated in the decline of several native species in areas where they have become established in mainland Europe[243]. The first breeding in the wild in the UK was reported in 1999 from south-east England. Containment methods started with ring-fencing the main ponds and capturing the bullfrogs. The ponds were drained to eradicate the remaining tadpoles and older stages, but the frogs remained in burrows in the mud, making capture more difficult. The pond silt was then excavated, buried and covered in compacted soil. Around 100 frogs were found in 2000 and about 60 in 2001. Two further spawn clumps were discovered in summer 2001 and none in 2002.

The capture efforts and surveillance cost around £20,000 (US$29,000), not including officer time and "in kind" operations. This shows how difficult and expensive the eradication of an introduced animal species can be, even at one site. There was potential for breeding to occur in other parts of the UK, so a national press campaign was launched in summer 2000. As a result around 200 reports of North American bullfrogs have been received to date, but many were

---

[239] Froglife (1997) *Exotic Reptiles and Amphibians in the Wild.* Froglife Advice Sheet 8. Halesworth.

[240] *Ibid*

[241] Hatch, M. (1999) Red Eared Terrapin *Trachemys scripta elegans* Information Page www.users.globalnet.co.uk/~dmassoc/data/red_eared_terrapin.htm

[242] Froglife (1997) *supra*

[243] *Ibid*

misidentifications. Several adults were removed from garden ponds, but no breeding was confirmed. In 1997 the import of the North American bullfrog into Europe was made illegal[244].

Good news

Recognising the threat that non-native species can have on native fauna and flora, the EU Wildlife Trade Regulations provide a mechanism to regulate and even ban the import of live specimens of species that are known to pose a ecological threat to indigenous species. Such species can be listed in Annex B of the Regulations and an import restriction established. In 1997, two animal taxa were listed in Annex B as species posing an "ecological threat", and imports banned: red-eared slider (or terrapin) *Trachemys scripta elegans* and North American bullfrog *Rana catesbeiana*.

Fish

How important is the UK?

UK waters that have not been stocked with alien fish species are the exception rather than the rule[245]. Alien fish species have been recorded in the wild from many parts of the country, for example Wels catfish *Siluris glanis* in the Great Ouse and Thames, grass carp *Ctenopharyngodon idella* in the Thames and tilapia *Oreochromis* spp. in the Trent[246]. At this time half the freshwater fish species recorded in Scotland are non-native[247]. There are 26 species and genera listed in the Prohibition of Keeping or Release of Live Fish (Specified Species) Order 1998 for England and Wales which are considered likely to be imported and represent a threat – but import of these species is not banned. In 2002 DEFRA announced a consultation to add a number of species and genera[248].

Who is involved?

Around 12 species have been introduced by anglers as sport fish, including zander *Stizostedion lucioperca*, rainbow trout *Oncorhynchus mykiss* and Wels catfish. Anglers have been moving fish between waters and rearing them for restocking for recreational fishing for at least 150 years[249]. The grass carp was initially imported as a form of biological weed control. All other species including goldfish *Carassius auratus* and black bullhead *Ameiurus melas* have been imported for aquaria or ponds and then released deliberately or accidentally into the wild where they have established populations[250]. Some fish species sold for aquaria grow too large to keep; some look attractive when juveniles but grow large and ugly quickly, so they end up being despatched[251].

---

[244] Banks *et al.* (2001) *supra*

[245] The National Trust (undated) *The Management of Sustainable Freshwater Fisheries*
www.nationaltrust.org.uk/environment/html/nat_con/papers/fisher1_6.htm

[246] The Institute of Fisheries Management www.ifm.org.uk/transfers.htm

[247] Scottish Executive (2002) *Scotland's Freshwater Fish and Fisheries: Securing their Future.*
www.scotland.gov.uk/library3/fisheries/sfwf.pdf

[248] DEFRA (2002) *Consultation on Conservation of Native Freshwater Fish Stocks*
www.defra.gov.uk/corporate/consult/livefish-order/letter.htm

[249] The National Trust *supra*

[250] The Institute of Fisheries Management *supra*

[251] Crawford Allan, TRAFFIC International *in litt.* October 2002.

What is the UK impact?

Bad news

The indiscriminate transfer of fish species, their parasites and diseases can pose severe threats to the health of fish communities and the economic activity they support. For example, the introduction of zander to the Great Ouse in the early 1960s led to damaging impacts on the native fauna, including a substantial reduction in the roach *Rutilus rutilus* population. There are now breeding zander populations in many major river systems and canals in England[252]. Introduced fish can produce genetic contamination of indigenous stocks by interbreeding with them. Fish introductions also carry the risk of introducing diseases to established fish stocks. Introductions of fish have the potential to impact seriously on the status of rare species. For example, the illegal introduction of ruffe *Gymnocephalus cernuus* as livebait into Bassenthwaite in Cumbria had a deleterious effect on coregonid *Coregonus* spp. populations[253].

Recommendations

Recommendations presented above with regard to the trade in live plants are equally relevant to the trade in live animals. It is critical that government and industry work together to make sure that species suspected as being invasive are neither imported nor offered for sale. Consumers also need to act to make sure that animals in their possession are not released to the wild.

[252] The Institute of Fisheries Management *supra*

[253] The National Trust *supra*

6 Conclusions

Everyone living in the UK is involved in, and benefits from, the wildlife trade in one or more ways. Wild plants and animals, notably many species of fish, are important sources of food, and wild plants are frequently used as a source of medicines. Our homes are often filled with products from the wild, including building materials such as timber, exotic pets and even some of our favourite garden and pot plants. Wildlife products also feature in fashionable clothes, accessories and jewellery, as well as in perfumes and dyes, carvings and other ornamentation.

However, the species we rely on are paying a price for our demands; a growing number, together with the habitats in which they occur, are threatened by over-exploitation. In some cases there is also an unintended cost to our native wildlife and habitats, as species brought to the UK for horticulture or use as pets become established in the wild. The results of unsustainable use of wild species can also negatively impact upon the people whose lives depend on producing goods for UK markets, threatening rural livelihoods and the economies that depend on the wildlife trade.

Timber and marine fisheries products are by far the largest components of the UK wildlife trade. Unsustainable harvesting of timber species such as mahogany for UK markets has reduced wild populations and caused wider impacts on forest ecosystems and people. Unsustainable production of fisheries products has reduced the capacity of fisheries resources to sustain further harvests, and threatens the livelihoods of fishing communities.

Other sections of the UK wildlife trade also have important if unintended negative impacts. The British love of gardening and horticulture has coincided with an increase in peat-based compost in gardening, chiefly by amateur gardeners who use peat extracted from the UK and, more and more, from abroad. Almost all the peat used is extracted from lowland raised peat bogs, a highly threatened habitat that supports rare and beautiful wildlife. Some of the plant species brought to this country to grace our garden ponds, such as Australian swamp stonecrop, have escaped into the wild and now threaten wetland ecosystems; other species are encroaching on valuable agricultural land. The trade in invasive species has been in two directions, with plant species such as gorse exported from the UK having become invasive in other countries.

Imports of wild species for use as pets in aquaria and in wildfowl collections have coincided with declines in wild populations, some to the point that species such as the white-headed duck have become threatened. As with plants, some of these animal species have now become established in the wild, with introduced species of amphibians, reptiles and fish being especially problematic. Holiday souvenirs are often also not without a cost: many wildlife products offered to travellers are produced unsustainably or offered for sale without the permits necessary to import them into the UK.

Those seeking an easy answer might suggest banning all further wildlife imports. However, this is neither possible – we depend on imported goods such as medicinal plants in our daily lives – nor the best path to a sustainable future. Many rural households in developing countries depend heavily on wildlife resources for income generation as well as for subsistence purposes. In buying wildlife or wildlife products that support sustainable use by rural communities, we not

only help them economically, but we also provide them with incentives to support species and the species' habitats.

The challenge is to create a policy framework and an educated public that supports sustainability in the wildlife trade. EU governments are taking positive steps in this regard through the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on Biological Diversity (CBD), which seek international trade controls that balance conservation with sustainable use. The design and implementation of these conventions are helping to stem the trade in threatened species and to bring the trade in other species within sustainable levels. Action is also increasing to reduce the trade in species likely to become invasive.

Non-governmental organisations are also working to ensure that the wildlife and wildlife products we buy are sourced from sustainable and legal sources, and to make consumers more aware of the impacts of their buying decisions. These include groups such Fauna & Flora International, IUCN – the World Conservation Union, Plantlife International, the Environmental Investigation Agency, the Royal Society for the Prevention of Cruelty to Animals, the Royal Society for the Protection of Birds, Froglife and the Fair Trade Foundation as well as WWF and TRAFFIC. Efforts are increasing to "certify" wildlife products that have been produced according to a set of conservation and social guidelines. Some notable examples include the Forest Stewardship Council, which certifies wood and wood products, the Marine Stewardship Council, which certifies seafood, and the Marine Aquarium Council, which certifies animals for use in marine aquaria.

However, much more needs to be done to secure the future of the wild species upon which we depend, and the livelihoods of the people who produce wildlife products for sale in UK markets. The recommendations in the preceding sections and below are targeted at policy-makers, industry and consumers. By working together, we can make sure that the lasting impressions left by the UK wildlife trade are good ones.

7 Additional recommendations

GOVERNMENT ACTION

- improve application of the EU Wildlife Trade Regulations, including those concerning the monitoring and control of the trade in non-CITES species, to ensure that wildlife products imported into the EU are from sustainable and legal sources and, if live specimens, will not become invasive;
- increase the resources available to UK government agencies for enforcing wildlife trade controls and assisting developing countries with designing export strategies that encompass the principles of sustainable use and equitable benefit-sharing articulated in the Convention on Biological Diversity; and
- expand industry and consumer education campaigns aimed at increasing understanding of the importance of wild species to human welfare both in the UK and other countries, and therefore the importance of ensuring that the trade in wild species is conducted in a manner that conserves biodiversity and enhances rural livelihoods.

INDUSTRY ACTION

- ensure that wildlife products offered for sale are produced in a sustainable, legal and socially equitable manner, and eliminate the sale of alien invasive species;
- improve product labelling so that it accurately states the species, country of origin and source (e.g. wild, cultivated) of products offered for sale; and
- support initiatives such as third party certification schemes aimed at securing sustainable and ethical sourcing.

CONSUMER ACTION

- query the source of wildlife products offered for sale, and buy those that can be shown to have been produced in a sustainable and socially equitable manner;
- support the development of certification and labelling schemes that assess whether goods in trade have been produced in a sustainable, legal and ethical manner;
- buy certified products whenever these are available in the market – for example in the timber trade, marine fisheries and marine aquarium trade; and
- encourage the UK government and industries supplying British markets to design and implement policies aimed at ensuring that wildlife products are sourced in accordance with conservation and development aims.

8 Where to go for more information

- TRAFFIC International: www.traffic.org
- WWF-UK: www.wwf.org.uk
- BirdLife International: www.birdlife.net
- The Countryside Agency: www.countryside.gov.uk
- Countryside Council for Wales: www.ccw.gov.uk
- Department for Environment, Food and Rural Affairs: www.defra.gov.uk
- Department for International Development: www.dfid.gov.uk
- English Nature: www.english-nature.org.uk
- Fauna & Flora International: www.fauna-flora.org (includes *The Good Bulb Guide 2002*) www.fauna-flora.org/around_the_world/good_bulb_guide.pdf
- Global Trees Campaign: www.globaltrees.org (includes details of Soundwood and wood recycling)
- Forest Stewardship Council: www.fscoax.org (gives details of the FSC certification scheme)
- Froglife: www.froglife.org
- HM Customs and Excise: www.hmce.gov.uk
- Joint Nature Conservation Committee: www.jncc.gov.uk
- Marine Aquarium Council: www.aquariumcouncil.org (includes details of Marine Aquarium Council Certification Scheme)
- Marine Stewardship Council: www.msc.org (includes details of Marine Stewardship Council Certification Scheme)
- PAW – Partnership for Action against Wildlife Crime: www.defra.gov.uk/paw
- Plantlife International: www.plantlife.org.uk
- Royal Botanic Gardens, Kew: www.rbgkew.org.uk
- Royal Horticultural Society: www.rhs.org.uk
- Royal Society for the Protection of Birds: www.rspb.org.uk
- Royal Society for the Prevention of Cruelty to Animals: www.rspca.org.uk
- Scottish Executive: www.scotland.gov.uk (includes Scottish Biodiversity Forum and Environment section)
- Scottish Natural Heritage: http://213.121.208.4
- The Mammal Society: www.abdn.ac.uk/mammal
- UK CITES: www.ukcites.gov.uk
- UNEP-WCMC: www.unep-wcmc.org

STOP ILLEGAL WILDLIFE TRADE

WWF'S WILDLIFE TRADE CAMPAIGN IN PARTNERSHIP WITH TRAFFIC

Throughout the world, hundreds of millions of plants and animals are traded each year – something which impacts directly on the survival of many species in their natural environments. Of great concern is the fact that the UK has become a worldwide centre for this multi-billion pound trade, a quarter of which is estimated to be illegal. While trade in some wildlife is well regulated, some endangered species are targeted by the illegal trade.

One of the main problems in the UK is that you could be arrested for poaching pheasants – but not for buying or selling tigers. WWF-UK's Wildlife Trade Campaign, in partnership with TRAFFIC, will seek to change current legislation by calling for effective deterrents against offenders and providing guidance for the judiciary that will help stop the illegal wildlife trade and make sure the punishment fits the crime. We are:

- calling for the maximum sentence for illegal wildlife trade in the UK to be increased from two to five years imprisonment, which will make wildlife crime an arrestable offence; and
- lobbying the Home Office to ask for sentencing guidelines to be issued to magistrates and judges on the appropriate penalties for wildlife crime, to ensure that the penalties act as a deterrent.

The Wildlife Trade Campaign's mission is to restore the balance between humans and nature, and ensure that people's use of wildlife is managed carefully, so that it threatens neither the wildlife nor the natural resources upon which communities depend.

TRAFFIC

TRAFFIC, the wildlife trade monitoring network, works to ensure that trade in wild plants and animals is not a threat to the conservation of nature. It works in cooperation with the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

TRAFFIC is a joint programme of WWF and IUCN The World Conservation Union.

TRAFFIC International
219 Huntingdon Road
Cambridge CB3 0DL
t: +44 (0)1223 277 427
f: +44 (0)1223 277 237

www.traffic.org

WWF

The mission of WWF – the global environment network – is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable resources is sustainable
- promoting the reduction of pollution and wasteful consumption

Taking action for a living planet

WWF-UK
Panda House, Weyside Park
Godalming, Surrey GU7 1XR
t: +44 (0)1483 426444
f: +44 (0)1483 426409

www.wwf.org.uk

Printed on recycled paper made from 100 per cent post consumer waste Project number 1614/May 2003