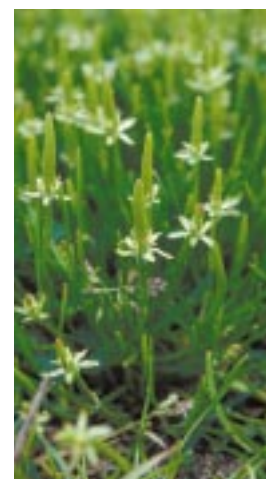




A dozen arable plants appear on the Government Biodiversity Action Plans, forming almost 20% of the 66 flowering plants listed. Some arable plants such as cornflower and corncockle are species which can readily be recognised, but now, ironically, are hardly to be seen in the wild. To help with the recognition of the less familiar species English Nature and WILDGuides launched an identification guide *Arable plants – a field guide* – co-authored by Phil Wilson and Miles King, at Kew Gardens in July. Professor Peter Crane, Director of Kew Gardens and Sir Martin Doughty, Chair of English Nature, led the presentations given at the event. The launch was undertaken as part of Kew's *Go Wild* summer theme which concentrated on British Biodiversity and featured some additional 19 installations including wildlife-friendly gardens, an arable plot, a human-sized badger sett and a tree-top walk.

Another aspect of arable plants is a relative dearth of information on their whereabouts. While the recent *New Atlas of the Flora of Britain and Ireland* does include these species they are likely to have been under-recorded. This is partly due to their occurrence on private land and partly to neglect from botanists. Wiltshire Farming and Wildlife Advisory Group has initiated a project, funded by Defra, to rectify this lack of information locally by encouraging new recording of arable plants. This information can then be used to help target agri-environment schemes. In addition, English Nature and the Esmee Fairburn Trust are together funding Plantlife International on behalf of the Arable Plants Group to establish an Arable Areas database. People who own, or who regularly visit, farms, are being encouraged to submit a form detailing their findings in the expectation that our knowledge base will improve. The Royal Society for the Protection of Birds local

team working on the curl bunting in the South Hams district of Devon has done much to extend local knowledge of the locations of some of these rarer plants and the Northmoor Trust has done an immense amount of detailed survey in the Chilterns.



Mouse-tail *Myosurus minimus*. Dr Chris Gibson/English Nature

Defra reported their findings following a Committee investigation into the issues raised by invasive species. A workshop held jointly by the British Lichen Society and English Nature at Nettlecombe Court attracted a range of enthusiastic European lichenologists to present papers on the impacts of nitrogen deposition on lichens. A workshop on fungi held by English Nature in association with Cardiff University proved to be an excellent stimulating event.

Two years ago Andy Jackson, then Biodiversity Officer for Kew based at Wakehurst Place, and now head there, had an idea. Given the international importance of the British bryophyte flora and interest of the bryophytes at Wakehurst why not give them prominence? Last September, the Francis Rose Reserve was launched, an appropriate tribute to a person who identified their importance and who has done so much to get Sites of Special Scientific Interest notified for their lower plant interest.

Other contributions in this varied edition of *Flora English Nature* include articles on fungi as indicators of dead wood habitat quality, plant conservation work on Pitcairn Island, a UK overseas territory, and Bronze Age botany!

# Tower mustard *Arabis glabra*

## Could a ‘Hardy’ plant see ‘The Return of the Native’?

The urban concrete jungle of the great metropolis seems a complete antithesis to Thomas Hardy’s Dorset – a rolling, rural landscape cloaked in greenery, which most people would conjure up in their minds when thinking about biodiversity hotspots in Britain. However, London holds its fair share of ‘biodiversity’ and, despite habitat fragmentation from the urban sprawl, supports important populations of a variety of species. To this end, the London Biodiversity Partnership has been successful in promoting biodiversity in Greater London for the past six years, with over 60 organisations participating in 10 Habitat Action Plans and 12 Species Action Plans (SAPs).

Tower mustard has been one of the United Kingdom priority SAP plants that form part of the London Biodiversity Action Plan. Historically, the plant was more widespread across London. Indeed, the earliest written British reference to the species comes from Middlesex, listed by John Gerard in *The*

*Herball or Generall Historie of Plantes* of 1597 as ‘Tower Cress’ occurring ‘at Pymys by a village called Edmonton neere London’. Alexander Irvine reported plants at another Middlesex location between Hampton Wick and Sunbury in 1835, coinciding with the only known locale of the capital’s current extant population. William Newbould was the last to report the plant’s presence in Middlesex in 1860. Thereafter, the species was believed to have been extinct in London throughout the 20th century until Brian Spooner re-discovered a population in 1987 at Stain Hill Reservoir. The reservoir retains the only extant population (of the 30 known UK sites) in Greater London.

It is part of the massive system of water storage works in south west London owned by Thames Water. The principal population of plants is located on free-draining, sandy soils on or alongside a grassy causeway dividing the reservoir basin. The site was thought to hold one of the largest UK populations of this nationally scarce and declining biennial, with c. 3,000 flowering spikes and many non-flowering rosettes recorded in 1997. However, when Phil Wilson<sup>1</sup> re-surveyed the reservoir in 2001, it demonstrated that the London population had declined to a fraction of its former self with only 134 flowering spikes remaining.

Fortunately, the future of tower mustard in London is looking more secure as a working group has been formed between English Nature, Plantlife, Thames Water, Royal Botanic Gardens and the Wildfowl and Wetlands Trust (WWT). Thames Water has undertaken appropriate management at Stain Hill Reservoir to help the native population recover, which has included a combination of grass cutting, scrub clearance and soil disturbance. Plants have also been grown at Kew Gardens from collected seed (a proportion of which has also been stored at the Millennium Seed Bank), with a further population of plants recently established on sandy banks at WWT’s London Wetland Centre. Encouragingly plants at both these sites successfully flowered and set seed this year. Furthermore, the information gleaned about the species, not only from ongoing conservation action on the ground in London and elsewhere in the UK, but also from current research by academic institutions including Sussex University, could facilitate future reintroduction of tower mustard back to some of its former historic UK haunts. Who knows, perhaps we could see ‘the return of the true native’ on suitable sandy banks around Bridport and Parkstone in Hardy’s Dorset?

**Richard Bullock**  
Wildfowl & Wetlands Trust  
Biodiversity Officer

<sup>1</sup>Project Officer for Plantlife International funded by English Nature’s Action for Plants contract

Tower mustard *Arabis glabra*.  
Dr Chris Gibson/English Nature



## Cut-grass *Leersia oryzoides* discovered in Richmond

Cut-grass is a nationally rare plant, status in Britain Endangered, and is listed in Schedule 8 of the Wildlife & Countryside Act as well as being a Biodiversity Action Plan priority species. There are recent records of it as a native in just three sites in south east England, in Surrey and West Sussex, therefore the discovery of a small population beside a pond close to the River Thames at Richmond in Surrey is highly significant.

The plants were discovered by Madeline Holloway of Ecological Network Information Consultants in early September 2002 whilst carrying out a Phase 1 survey to assess the ecological impact of a proposed flood alleviation scheme adjacent to the river. They were growing at the margins of a small pond which held little water at the time of survey. Associates included greater pond-sedge, reed canary-grass, purple loosestrife and a North American introduction, pickerelweed.

The contracted panicles were only partially exerted from the leaf-sheaths and the spikelets only just emerging.

Cut-grass was last recorded in the Richmond area, at Kew, between 1779 and 1805 by one Bishop Goodenough, but it is considered by a local botanist that the recently discovered plants have probably arrived within the last few years. One possible route for colonisation of the site is via seeds deposited by the River Thames during a seasonal flood.

The proposed flood protection scheme has now been shelved, and discussions are underway between English Nature and the site's owners and local botanists to ensure that the cut-grass population is properly protected and that its habitat continues to be suitably managed.

**Madeline Holloway**

Adapted from an article in BSBI News

## Rediscovery of rare lichen in Hampshire

A remarkable lichen find has been made in Hampshire by Neil Sanderson. *Bacidia subturgidula* is a small lichen which has only ever been found on two occasions, in 1868 and 1873, both in the New Forest and on old holly wood. The new discovery was made in April 2003 at Queen Bower, also on an old holly, and Neil was particularly excited as he has been looking for this species for nearly 15 years!

## *Paulownia kawakamii* in Essex: a mystery solved

In the early summer of 2000, a large plant sprang up from a crack in the tarmac, at the foot of a south-facing wall, in the car park of English Nature's Colchester office. Despite the local concentration of informed observers, nobody could put a name to it. Even as it grew, to some 2 metres in height, with huge heart-shaped, shallowly-lobed leaves, to 80 cm across, we were no nearer to identifying it, nor even being able to assign it to a particular family.

At the end of the summer, the aerial parts withered rapidly, and the plant was forgotten until in 2001 and 2002 when up it sprang again. In 2003, it was even more robust, reaching nearly 4 metres. It was a mystery which refused to go away. Then, in June 2003, I visited Kew Gardens, and saw the same plant growing in the herbaceous borders – it was *Paulownia kawakamii*, a relative of the more familiar foxglove tree *P. tomentosa*. *P. kawakami*, one of several species bearing the English name 'dragon tree', is not listed by Stace or Clement & Foster as occurring in the 'wild' in Britain.

*Paulownia kawakamii* in the car park of English Nature's Colchester office. Dr Chris Gibson/English Nature

*P. kawakamii* is a native of China, and can grow into a deciduous tree up to 8 metres in height. It bears flowers in large racemes, up to a metre long and 50 cm wide, each with around 300 frilly, scented flowers. It is cultivated in Australia and the United States (often the bluish-flowered cultivar 'sapphire dragon') for ornament, shade, timber and the rehabilitation of degraded farmland. Other cultivars are available in different flower colours (from white to pink), and with differing degrees of drought tolerance and hardiness. The susceptibility of the Colchester specimen to cool temperatures suggests we are not likely to see it in its full, flowering glory here, but it is nevertheless a magnificent sight which is much appreciated by local staff. Jo Braddock, Administrative Officer, says "We love our 'triffid' and look forward to its appearance every year".

**Dr Chris Gibson**

Essex, Herts and London Team, Colchester





Garden escapes threaten native shingle plants at Pagham Harbour SSSI. Nature Coast Project

## Squeezing life back into our coasts

For the past three years the Vegetated Shingle Project has concentrated on raising awareness of vegetated shingle as an important wildlife habitat in West Sussex. Only specially adapted plants can cope with the arid, almost soil-less conditions and salt-laden winds but those that do, in turn, support many invertebrates and coastal birds.

Now, the Nature Coast Project is carrying on this work for all coastal habitats in the county from seabed and lagoon to salt marsh and sand dune. With a densely populated coastal strip and high levels of recreational pressure, public attitudes towards coastal wildlife have a huge influence.

The Project, launched earlier this year with a children's design-a-logo competition, is an English Nature-led partnership project, which is supported by the Heritage Lottery Fund. Although basically an awareness-raising project, it is also involved in practical management issues such as research into the control of invasive garden plants on the vegetated shingle at Pagham Harbour Site of Special Scientific Interest, where houses border the beach.

In October, a new vegetated shingle identification leaflet was published. Produced in partnership with the East Sussex Coastal Biodiversity Project, it will help those with an interest in the habitat to improve their knowledge.



The Nature Coast Project has also launched a Beach Warden scheme, encouraging volunteers to 'adopt' their local beach and monitor its wildlife. Training in wildlife identification, surveys and organising beach cleans is being provided along with a handbook offering useful advice and contacts. Beach Wardens will report any damaging activities as well as encouraging local community awareness by producing articles for parish newsletters and running guided walks and practical conservation tasks.

The biggest threat to dynamic coastal habitats is coastal squeeze - where coastal wildlife becomes trapped between rising sea levels on the one side and fixed coastal defences on the other. Coastal habitats, which under natural conditions would migrate landward, are unable to do so. *Coastal Wildlife – feeling the squeeze?* is a conference for school children being held in Chichester. Organised jointly between Nature Coast and the West Sussex Countryside Studies Trust, the aim is to raise awareness among the next generation of planners and coastal managers, of climate change and the problems it will pose for our coasts. This is a particular problem in West Sussex where 93% of the coastline is defended against the sea and predicted sea level rise is among the highest in the country. Yet habitats such as saltmarsh and shingle beaches provide a natural coastal defence and offer a more sustainable alternative to the traditional hard defences such as sea walls.

For more information about the Nature Coast Project contact Julie Hatcher on 01243 863141 or visit the website at [www.pebbledash.org.uk](http://www.pebbledash.org.uk)



The Nature Coast Project logo is unveiled at the Project's launch. Nature Coast Project

## New site for coral necklace in Dorset

Coral necklace *Illecebrum verticillatum*, recently reclassified as Nationally Rare, is largely restricted as a native to Hampshire and Cornwall. It is a very rare plant in Dorset, so the 2003 discovery of a small population at a new site at Avon Common was particularly welcome. The find was made by English Nature Conservation Officer Douglas Kite.

# Wiltshire FWAG launches project to help rare arable plants

Plants such as cornflower and corn marigold, which once added a splash of colour to our arable farmland, have largely disappeared from the very cereal fields that gave many of them their names. In July, Wiltshire Farming and Wildlife Advisory Group (FWAG) launched a new county-wide project aimed at promoting the conservation of these plants. It coincided with the national launch of *Arable plants – a field guide*, a book co-authored by Phil Wilson and Miles King designed to help people recognise these plants and understand their requirements.

Arable farmland can support a unique collection of plants that are adapted to colonise the disturbed land created by tillage. Nearly 300 species of wild plant have been found on arable land, including species such as shepherd's-needle, pheasant's-eye and rough poppy. However, over the last 60 years once-widespread and common cornfield flowers have suffered a serious decline due to changes in agricultural practices, including faster maturing crops, increased efficiency of modern herbicides and a move away from traditional rotations. These plants may now be the rarest species on the farm!

Fortunately, Wiltshire still supports a number of important rare arable plants. The county is nationally important for the spectacular pheasant's-eye and red hemp-nettle. There is also a characteristic community of nationally scarce species, including corn gromwell, corn parsley and Venus's looking-glass.

In recognition of this, Wiltshire FWAG, supported by English Nature and Defra, has

set up the Wiltshire Rare Arable Plants Project. The project aims to review existing records of arable plant distribution and work with farmers and agronomists to record new sites and secure management beneficial to these plants. The project was officially launched in July at a two-day event in Kingston Deverill for farmers and agronomists, entitled *Managing Wildlife On Your Farm*. This included a talk on the identification and management of rare arable plants by national expert and co-author of the new field guide, Dr Phil Wilson, and the chance to see a number of these fascinating plants.

To help conserve these plants, some farmers are leaving uncropped cultivated margins in their fields, which will encourage them to grow. Others are actually restricting the types of herbicides they use so that the plants can grow, whilst still allowing the farmer to produce a crop. Not only does this help these rare plants, it can also provide valuable habitat for other farmland wildlife including hares, grey partridge and beneficial insects. Despite parts of Wiltshire being recognised as nationally important for these plants, their distribution and current status are still poorly known. The project is working with agronomists and farmers to record sites where these species occur - hopefully this will confirm old records and identify new locations. Recording forms can be requested from the Farmland Biodiversity Project Officer, Simon Smart.

**Dagmar Junghans**  
English Nature, Wiltshire Team

## Rare orchid dug up

An unwelcome incident of plant theft occurred in Dorset concerning the lizard orchid, a nationally rare plant classified as Vulnerable. A very small population growing beside a main road near Wareham has persisted for at least 12 years, but in 2003 the only flowering plant was deliberately dug up and removed. The incident is a reminder of the vulnerability of rare plants to theft, and raises the issue of the extent to which confidentiality is necessary concerning location information for such species.

## Narrow-leaved helleborine in Hampshire

Good news concerning the nationally scarce narrow-leaved (also known as sword-leaved) helleborine *Cephalanthera longifolia* at Chappett's Copse, a Hampshire & Isle of Wight Wildlife Trust Reserve. Monitoring by Volunteer Reserve Warden Richard Hedley, who also leads the management work on the site, revealed a total of 2,185 flowering spikes in 2003, the highest total since 1995.

## Three-lobed water-crowfoot in Kent

Work for three-lobed water-crowfoot *Ranunculus tripartitus* has yielded positive results at Combwell Wood SSSI in Kent. A joint project between English Nature, Plantlife and the Kent High Weald Project has seen the first reappearance of this plant at Combwell since 2000. The plant is found in a temporary pond on the edge of this woodland SSSI. Work involved increasing light levels, removing the build-up of organic matter in the pond, clearing invasive *Juncus effusus* and the

reintroduction of disturbance - a group of local schoolchildren proved particularly effective here! Twenty-four plants made an appearance during the late spring and summer of 2003, with many producing flowers. Monitoring continues at the site and it is hoped that further work may be possible to encourage the recovery of this plant at Combwell.

**Pauline Harvey** Conservation Officer  
English Nature, Kent Team



Peter Bennett

# Go Wild at Kew Gardens and Wakehurst Place

Peter Bennett



Last summer, Kew Gardens and Wakehurst Place held an exciting and ambitious festival concentrating on British biodiversity. It is often easy to overlook the diversity of life on your doorstep. This festival, called *Go Wild*, celebrated our native wildlife and ran from May to September. It highlighted species which occur in the gardens, and explored the diversity of wild habitats throughout the United Kingdom. *Go Wild* also looked at sustainable practices in traditional agricultural and land management.

Visitors were able to climb into the canopy of a magnificent oak tree, explore the tracks of small mammals living in the wilder areas of Kew, discover the medicinal value of native wild plants or listen to the rustling of a traditional wheat field. *Go Wild* demonstrated the interdependence of plants, animals and humans, and showed the irreplaceable beauty of Britain's unique wildlife. Through special features, exhibitions and art installations, *Go Wild* conveyed the conservation message at the heart of Kew's work.

## Features at Kew Gardens included:

### Tree-top walkway

A 110 m walkway winding through the canopies of oak and redwood trees - a rare chance to view trees from a bird's-eye perspective and to explore the lives of the many creatures which make their home in Britain's tree-tops.

### Field hospital

An evocative collector's pavilion illustrated the traditional medicinal uses of native species. Presenting the science behind folk remedies, the Field hospital also demonstrated why plants, leeches and maggots are finding a new role in modern medicine.

### Something's brewing at Kew

A dramatic living display of hops and barley, growing in the Princess of Wales Conservatory, showed the interdependence of traditional practices on the landscape, culture and rural economy.

### Self raising flowers

Modern agricultural methods, pesticides and herbicides have created uniform fields of wheat, instead of the rich mixture of flowers and wild plants of 70 years ago. The traditional wheat field showed how fields looked in the past and how they supported insect life and wildflowers.

### Grown home

Artist and maker, Lois Walpole, grows her own willow and fashions the living wood into an amazing range of items including coat hangers, tables, chairs, baskets and bowls. This intriguing living installation showed how sustainable manufacture is possible in an urban environment by growing, harvesting, using and recycling willow artefacts.

### Vegetarian option

Kew's Diploma students presented their vegetable plots, which use traditional methods to improve soil condition, encourage beneficial wildlife and produce healthy crops using methods like companion planting.

### Blooms, birds, bugs and bees

A huge floral plantscape highlighted the importance of domestic gardens as havens for wildlife.

### A badger sett!

A human-sized underground badger sett offered an amazing insight into the life of one of Britain's most intriguing and misunderstood wild animals.

### Carbon light life

A series of glass panels located in the gardens, revealed the tracks of small mammals going about their lives, showing the vital link between habitat and wildlife.

### Wild harvest

A new exhibition in White Peaks Gallery showed a selection of artefacts made from British native plants, British timbers, photographs of British habitats and of present-day uses of wild plants.

### Flying pollen

A series of beautiful microscope images illustrated the complex structure of wind-borne pollen from UK native plants and their relationship with plant reproduction. The images were presented as banner installations in the landscapes of Kew.

### Wild ideas

Six showcase gardens illustrated ways of creating a wildlife-friendly haven in a small domestic garden. The plots were designed by Kew final year Diploma of Horticulture students to inspire urban gardeners, and were judged by English Nature and Kew for their promotion of biodiversity and landscape design. The aim of the designs was to encourage a greater understanding of

biodiversity and show the important role domestic gardens can play in becoming corridors for wildlife. The prize of £200 worth of vouchers was provided by English Nature as part of their Gardens Initiative. The winner was Bob McMeekin with his 'Railway Reclaimed' garden. Chris Gibson, English Nature's judge, said, "The Railway Reclaimed garden highlights how gardens and disused railways are important for nature in urban areas, both acting as important wildlife corridors. This garden links the two and shows how innovative garden design and biodiversity can work together."

The Wild Ideas gardens were sponsored by the SITA Environmental Trust, and the gardens were judged by Chris Gibson, Conservation Officer for English Nature; Nigel Taylor, Head of Horticulture and Public Education at Royal Botanical Gardens, Kew, Steve Ruddy at Royal Botanical Gardens, Kew; and Mary Reynolds, designer of the Defra Biodiversity Garden at Kew.

## Features at Wakehurst Place included:

### Charcoal burner's encampment

Charcoal burning was a hugely important industrial process from Roman times to the middle of the 19th century. Today, 40,000 tonnes of charcoal are used in barbecues, much of it imported from south east Asia. An authentic charcoal-burner's encampment illustrated a form of sustainable woodland management, which can reduce the impact on threatened forests of the world.

**Peter Bennett**

Go Wild co-ordinator



Peter Bennett

## Cornish plant finds

There have been some good plant discoveries in Cornwall lately. Ian Bennallick has refound oak fern and a second site for marsh fern in east Cornwall, and dense-flowered fumitory in a barley field at Porthcothan, growing with narrow-fruited cornsalad, round-leaved fluellen, weasel's-snout, dwarf spurge, tall ramping-fumitory and small toadflax.

Cornfield knotgrass *Polygonum rurivagum* has been discovered in good numbers at a farm near Saltash and Porthowan. The recently published book *Arable plants – a field guide* has proved useful with the arable plants identifications. Good populations of cranberry have also been refound on Bodmin Moor at two of its three sites in the county.

Last year *Flora English Nature* reported the discovery of northern yellow-cress *Rorippa islandica* in Somerset by the Somerset Rare Plants Group – the first record for England. More recently a Botanical Cornwall Group workshop discovered a large population of the rarity growing with marsh yellow-cress *R. palustris* on the muddy margins of Upper Tamar Lake, on both the Cornwall and Devon shores of the lake. The plants were identified by Paul Green.



# The Francis Rose Reserve

## A tribute to Francis Rose - doyen of field botanists

On 16 September 2003 an eclectic gathering of botanists, saplings and veterans piled into the Millennium Seed Bank conference room at Wakehurst. Such was the draw of one of the most distinguished field botanists of our generation, Francis Rose MBE. We gathered here, not only to celebrate this great man's contribution to botany and conservation, but to launch a new reserve in his honour at Wakehurst, a special area of imposing sandrock exposures, home to a host of Atlantic moisture-loving lower plants.

Andy Jackson of Kew and Head of Wakehurst Place, introduced the day's celebrations followed by a talk from Francis himself. He expressed his delight and pride that this area would in perpetuity be managed with mosses, liverworts, lichens and ferns centre stage, groups that Francis has fostered so much awareness of to a steady flow of students for more than half a century. The Francis Rose Reserve is the first nature reserve in England to be devoted to lower plants and the second in the world (the first goes to Dawyck in Scotland!).

Peter Crane, Director of Kew, then paid his warm tribute. Andy Brown, English Nature's Chief Executive, rightly acknowledged Francis's contribution to botany and conservation, recognising the role he has played in inspiring many of us in English Nature today, and his guiding hand in the early days of the Nature Conservancy Council when many of his detailed reports led to sites being designated as Sites of Special Scientific Interest. We also heard from Tim Rich of the

National Museum of Wales, who gave an amusing potted biography, followed by Nick Hodgetts, former plants advisor at the Joint Nature Conservation Committee, who outlined the national and international importance of the Wealden sandrocks for lower plants.

Brian Marsh then presented the coveted Marsh Christian Trust Award to an individual who has done much to further the conservation of bryophytes. The recipient - David Holyoak - has done sterling work for English Nature and Plantlife International in recent years and is Conservation Officer of the British Bryological Society.

In our excitement the proceedings somewhat over-ran, so over a buzz of conversation we headed for Wakehurst's restaurant and downed our excellent dinner. Then we did what had to be done - entered Francis's real element - the field. Tours of the sandrock reserve took place in warm sunshine, not so good for the delicate liverworts and ferns (they will survive) but matched the mood of the day. I'm sure I'm not the only one in English Nature who can look back to memorable days in the field with Francis, when you want to soak up every moment of his infectious passion for plants, and wish you could somehow achieve just a fraction of what Francis has achieved for plant conservation in this country.

**Ron Porley**  
Bryologist, Botanical Unit  
Terrestrial Wildlife Team,  
English Nature,  
based at Newbury



Andy Brown, English Nature's Chief Executive.



Nick Hodgetts.



Tim Rich.



Andy Jackson.



Peter Crane.

All photos Ron Porley/English Nature





Woolly oyster *Hohenbuehelia mastrucata* on a fallen beech trunk, a carnivore which traps and eats nematodes. Dr Martyn Ainsworth

## Fungi as indicators of dead wood habitat quality

Grasslands containing waxcap fungi have rightly attracted an increasing amount of interest in the last 10 years. As some of these do not support a wide range of flowering plants they have, perhaps, been overlooked, but recent work has redressed that balance such that they have been the focus of increased survey work and public interest (*Flora English Nature* winter 2002 - pink waxcap). While woodlands have been known to harbour a wide range of fungi for a very long time, there has not, as yet, been a method available to facilitate surveying them. One of the more promising avenues now being pursued is the development of a list of fungal species which are characteristically found fruiting on the dead wood of broadleaved tree species in southern England so that we can compare habitat quality between different woods.

This approach marks a departure from the waxcap-dominated grassland assessment as dead-wood communities often feature many genera but each is represented by only a few species. Having a shortlist of target species to search for will help to make the task more manageable for the small dedicated group of fungi specialists available. Furthermore, it should help to highlight the conservation importance that sites can gain as their trees increase in age and decompose naturally. In the first instance, the approach will be to look at the larger elements of dead wood such as trunks and large branches. As with other groups of organisms which interact with

trees in an age-dependent manner, fungi help to transform these bulky items into labyrinthine mini-ecosystems and help to create more niches as they go. Fungi colonising standing and fallen dead trunks and branches have a more limited distribution and are more endangered than colonisers of more ephemeral woody resources such as twigs. Hence it is expected that the detection of suites of fungi which are apparently dependent on larger diameter (ie older) dead wood will be helpful in assessing relative conservation value.

Selecting fungi living on dead wood (saprotrophs) is also attractive because they are a species-rich group associated with this resource, the main agents of primary decay, relatively amenable to laboratory manipulations and hence offer possibilities of combined ecological and genetic investigations. Surprisingly in this regard, but again probably reflecting their restricted habitat, the ecology of fungi colonising bulkier woody substrata has been largely neglected. This contrasts with the large research portfolio developed from studies of the pioneer community (primary colonisers) of twigs and small branches led by Dr Alan Rayner (Bath) and Prof Lynne Boddy (Cardiff). This expertise is transferable to species of conservation concern as is already being demonstrated in Cardiff with species of *Hericium*, a genus strongly associated with large-diameter woody resources.

*Continued on page 10 ►*

## New fungus record after 130 years

Nothing for 130 years. But in September an endangered species of fungus was spotted by an English Nature Biodiversity Action Plan Fungi Officer – and it was only his second day on the job!

En-route to Kings Lynn station with English Nature's lead contact for fungi, Carl Borges, Dr Martyn Ainsworth suggested a detour to the home of the last West Norfolk sightings of the oak polypore *Piptoporus (Buglossoporus) quercinus* – at Castle Rising. It was a fruitful diversion! Armed with only an inaccurate grid reference and the name of the village the chances of finding this rare species were low, but Martyn's enthusiasm paid off when they stumbled on it in the local woodland.

The rare golden yellow bracket fungus was last recorded at Castle Rising in 1871 and 73, and nothing has been seen since in the West Norfolk area.

In fact, across the country this species is only found where there are collections of old oaks and their fallen branches are left to decay naturally. The fungus is not killing the trees and may even prolong their life. It actually helps to recycle the dead parts of the tree and provide holes and crevices for other wildlife

*Continued on page 11 ►*



Pink bracket *Aurantiporus alborubescens* on a fallen beech trunk in Berkshire, one of four counties with records. Dr Martyn Ainsworth

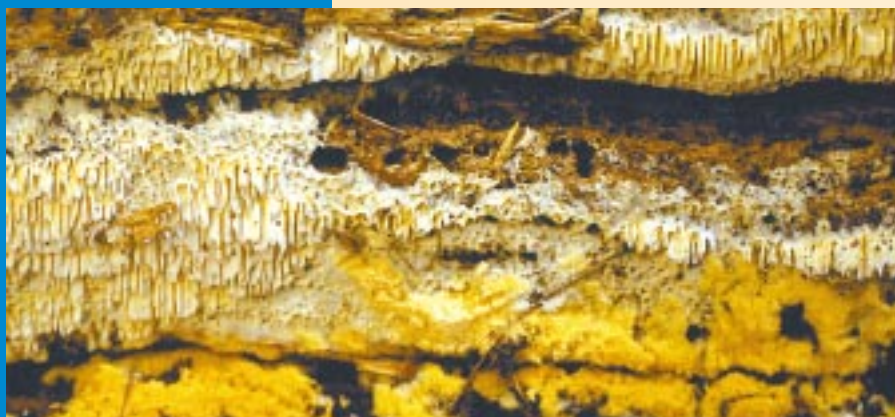
Interestingly, 50% of all fungi specially protected under the Wildlife and Countryside Act 1981, ie oak polypore *Piptoporus quercinus* (listed as *Buglossoporus pulvinus*) and bearded tooth *Hericium erinaceum*, are species of bulky substrata, thus further accentuating the importance of this habitat.

Since this is very much a new venture, it is worth considering some of the historical events which have catalysed the development of this approach. In addition to the publication of the Swedish book *Signalarte* and pyramids of ‘signal species’ for Scandinavian virgin forests, three projects that had the greatest catalytic impact on me personally are outlined below:

### Northwest Forest Plan - habitat of the northern spotted owl

Declaring the northern spotted owl ‘threatened’ in 1990, the US Fish and Wildlife Service sparked a series of legal challenges bringing Pacific Northwest timber sales on Federal land to a halt and an intervention by President Clinton in 1993. In the ensuing debate, public and scientific concerns about maintenance of ecosystem function were seen to outweigh those of saving viable populations of individual species. The focus was on diminishing ancient (old-growth) forests at a late-succession or climax stage of development and, for the first time, fungi became a major part of forest management in the owl’s range. The ecosystem management team considered species associated with late-succession forests drawn from eight organism groups (fungi, lichens, bryophytes, amphibians, mammals, molluscs, vascular plants and arthropods).

Orange powder porecrust *Ceriporia metamorphosa* on fallen oak trunk showing the accompanying orange powdery spore masses of its asexual state. Dr Martyn Ainsworth



Of the 404 species deemed not to have adequate habitat protection, a surprising 234 fungal species were selected in 1994 for attention under the four survey-and-manage strategies of the Pacific Northwest Forest Plan. One notable outcome was the sudden ‘celebrity’ status of a bracket fungus found on dead *Abies* and *Tsuga*. Although having fruitbodies unflatteringly described as resembling a doormat, the fungus formerly known as *Bridgeoporus nobilissimus* became better known as the noble polypore. The sheer size of its fruitbodies (one was recorded as weighing 136 kg in the original description) helped to give confidence to the assertion that, in the fruiting state at least, it really was rare and not merely overlooked. Each known site was even accorded its own exclusion zone of 240 hectares protected from disturbance and any planned ground-disturbing activities had to await a noble polypore survey. At the other end of the scale, all 234 fungal species were proposed for extensive surveying to find high-priority sites and a decade of regional surveys for little known species commenced in 1996.

### Indicators of habitat quality in European beech forests

Concern for loss of native biodiversity from European forests prompted Jacob Heilmann-Clausen and Morten Christensen to start mapping fungi that were characteristic of dead wood in Danish beech forests in 1998. Their aim was to produce a list of mostly easily identified fungi with relatively conspicuous fruitbodies. This was a deliberate strategy to promote interest in the project and stimulate recording. It also helped to circumvent the issue of fungi which have few records but are so inconspicuous they are probably overlooked by most recorders. It must not be forgotten that the downside to this strategy is the omission of many species characteristic of dead beech wood, for example a cornucopia of inconspicuous corticioids (fruitbodies resembling white paint or smears of wax) which demand specialist attention and considerable microscopy time. Jacob and Morten used the phrase “coarse woody debris” (as did those working in the spotted owl’s range), however I am reluctant to describe a standing dead oak trunk, the product of several centuries of development, as any form of ‘debris’.

Following Danish field testing and potential inclusion of extra indicator fungi, Jacob and Morten are now expanding their efforts to try to include more non-Danish sites in their top 20 beech sites in Europe. One factor unfavourably affecting the scores of non-Danish participants is undoubtedly the questionable pan-European applicability of the Danish list which may result in future adoption of some country-specific fine tuning. That said, I could not resist applying the existing Danish list to one of my local woods near Windsor. I had high expectations because I had chosen 14 hectares which probably constitute the best surviving fragment of the pre-Saxon Windsor Forest. Satisfyingly, it was on a par with Fontainebleau Forest and within the top ten European sites documented during the early years of the project. Interestingly, the Danish team were struck by the repeated co-occurrence of several indicators on the same log or trunk. This is now being refined into a concept of ‘decay pathways’ whereby the presence of one species can sometimes render the microhabitat in a more favourable condition for colonisation by others.

### Important Fungus Areas (IFAs) in the UK

It was becoming clear that in order to evaluate and compare sites or habitats for their fungal interest, more criteria were urgently needed. Indeed the Important Fungi Areas dossier highlighted the lack of site-based information as a factor holding back fungal conservation. Furthermore in

summing up the next steps required, this assessment highlighted three essential tasks: survey work, production of a UK Red Data Book for fungi and the identification of indicator species to assess habitat quality. One of the four criteria which emerged as useful for site selection described sites which are ‘outstanding examples of a habitat type of known mycological importance’. Only the waxcap grassland fungal species diversity values (eg the CHEG profile) were cited as a guide to application of this criterion. Clearly there is much room for improvement (apologies for the pun!) in assessing any other fungal habitat, not least for the purposes of SSSI selection.

Looking to the future, the initial phase of this project involves compiling manageable lists of appropriate fungi starting with those associated with oak, beech, elm and lime, some of which I have studied and photographed near Windsor over the last 10 years. The more conspicuously-fruited candidate species show an enormous range of form. They release spores from structures as diverse as spines (eg *Hericium* and *Mycoacia*), tubes (eg *Ceriporia* and *Phellinus*) and gills (eg *Ossicaulis* and *Hohenbuehelia*). Some example species (identifications checked by microscopy where appropriate) and their bulky wood habitats are shown on these pages. In order to validate the list and show it can work to highlight areas already accepted as important for their bulky dead-wood assemblages, it is hoped to incorporate an analysis of existing

*Continued on page 12* ►

► *Continued from page 9*

such as birds, bats and insects. Places where oaks are allowed to become ancient and slowly decay are now in short supply so the species is the subject of a Biodiversity Action Plan and is protected under Schedule 8 of the Wildlife and Countryside Act, 1981.

“It was incredible luck to find it with so little information,” said Carl. “But Martyn has spent over 20 years studying dead-wood fungi and how they live and fight each other for territory and this species in particular has taken his fancy so he’s made it his personal mission!”

“I am very lucky that I live near Windsor Great Park,” said Martyn. “Here there has been a continuity of oaks since Saxon times at least and not surprisingly the oak polypore is still very much a part of the local wildlife. I am currently working with English Nature to assess how fungi such as this and the bearded tooth *Hericium erinaceum* can be used as indicators to pinpoint sites of conservation interest. In some ways this is using fungi like we use top predators such as birds of prey, if they are doing well then the ecosystem as a whole is probably doing well. What we need to be doing now is making sure that there will be a continuous supply of old trees so their associated wildlife has a secure future”.

Robust bracket *Phellinus robustus* on a fallen oak trunk in its Windsor Forest stronghold. Dr Martyn Ainsworth





Fragrant toothcrust *Mycoacia nothofagi* on a fallen beech trunk, usually detectable by its powerful sweet soapy scent. Dr Martyn Ainsworth

fungal records. In view of this and to avoid unnecessary identification and recording effort, the indicator lists will not include very common species with broader ecological amplitude in genera such as *Stereum*, *Bjerkandera* and *Schizopora*.

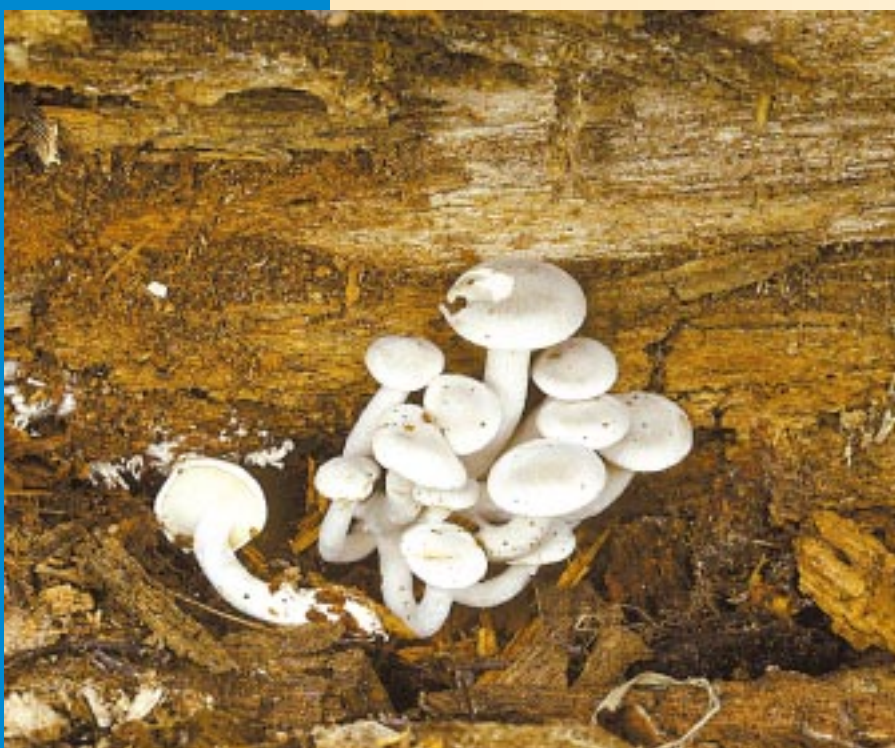
Hopefully, the British Mycological Society Fungal Records Database (BMSFRD) can be made available for interrogation beyond the summary data currently accessible to the public on the BMSFRD website.

To realise the potential of this fundamental resource, funding is currently required to standardise recording of sites and update distribution maps. In the meantime, all site-based queries require laborious ‘manual de-replication’ of data entries, particularly where sites are uniquely described by different recorders and the same site is visited over several years. The ‘cleaned’ data can then be augmented by consultation with other fieldworkers experienced in this ecological group and hopefully successfully tested across a wide geographic area.

Ultimately the ‘best’ sites for bulky dead-wood resources will emerge for comparison with those obtained by assessing saproxylic invertebrates. The task of assessing how well their fungal inhabitants are protected can then follow. The future supply of dead wood should also be considered. Small concentrations of dead wood may currently harbour a hotspot of fungal diversity but they cannot be viewed in spatial or temporal isolation. Attention should focus on the wider landscape and century-based timescales in which such hotspots may be seen to be a temporary and mobile feature. All of which brings the issues of provision of sufficient areas and continuity of trees sharply into focus.

**Dr Martyn Ainsworth**  
BAP fungi contractor

Mealy oyster *Ossicaulis lignatilis* and associated brown rot within a hollow fallen elm trunk. Dr Martyn Ainsworth



# Bronze Age botany

In a move to broaden interest in biodiversity, and plants in particular, an English Nature Peterborough-based project has begun, with the aim of promoting links between archaeology and wildlife. This is happening at the Flag Fen Bronze Age Centre, located to the south of the city which contains a 3,500-year-old 2 kilometre-long wooden platform. Discovered in the 1970s by archaeologist Francis Prior during preparations for extending an industrial estate, the platform is in an astonishingly good state of preservation thanks to being buried under several metres of peat.

Flag Fen has already been involved in plant conservation, as it provides a nursery area for the rare species, fen ragwort *Senecio paludosus* (*Flora English Nature*, winter 2001). The site recently opened its new visitor centre and, with Flag Fen becoming popular as an educational resource, an opportunity arose to demonstrate how human beings once interacted with their environment. English Nature staff paid a visit in the summer of 2002 and recorded what was present. From this list, I then researched how humans throughout the ages have exploited the various properties of these plants.

A leaflet is currently in production, which will be free to visitors. Around the site, a number of small 'flags' will mark the position of the plants mentioned and these have been grouped into four categories; food, medicines, tools and practical uses and multi-purpose plants.

Food plants covered in the leaflet include common mallow *Malva sylvestris* and fat-hen *Chenopodium album*. Both these species have had a long association with humans, mallow having been mentioned by the Roman writer Pliny and fat-hen giving its old Scandinavian name 'Melde' to two villages in Suffolk.

Medicinal species include purple and yellow loosestrife *Lythrum salicaria* and *Lysimachia vulgaris*, and (with a cautionary note!) hemlock *Conium maculatum*, apparently used to cure rabid dog bites! Woad *Isatis tinctoria*, the ancient Britons' war paint, provided one of several splendid



A view of the Flag Fen site.  
Paul Lacey/English Nature

examples of plants that can be put to practical use. And, stinging nettle *Urtica dioica* showed how a plant many people despise can serve as a source of cloth, rope, dye, food and medicine.

This work has already produced two unexpected spin-offs. I was asked to give a talk on the subject as part of Flag Fen's summer lecture schedule. Then, I had to appear on a television programme, offering advice to a 'Bronze Age family' on what in the hedgerows was good or bad to eat. The family, recruited by Central News, spent a week attempting to live like a Bronze Age group. Although their principal concerns centred on being deprived of their normal plant-based stimulants tea, coffee and cigarettes, they did show some interest in such sustaining fare as dandelion leaves, fat hen and wild parsnip. They were, however, far less enthusiastic about the sloes they were offered!

**Paul Lacey**  
Communications Unit  
Terrestrial Wildlife Team

**Flag Fen**   
BRITAIN'S BRONZE AGE CENTRE

# Plant conservation activities on Pitcairn Island



*Hibiscus australensis*, first noted on the island in 1997, where it is rare and local. The species also occurs in the Austral islands where its conservation status is uncertain, but likely to be very rare. It is being trialled on Pitcairn as a ground cover in plots cleared of the invasive *Syzygium jambos*.  
Dr Steve Waldren

Pitcairn Island, the fabled home of the *Bounty* mutineers, is isolated at the eastern extremity of the main group of Polynesian islands, roughly half way between New Zealand and South America and just south of the Tropic of Capricorn. Identification of the flora of Pitcairn began almost as soon as European contact with the community of mutineers and their Tahitian wives, but it was not until the Mangarevan Expedition of 1934 that extensive collections of the island's flora were undertaken. Research interest from Trinity College began in 1991 during the Sir Peter Scott Commemorative Expedition to the Pitcairn Islands, which focused its attention mainly on 'nearby' Henderson Island (a World Heritage Site) and two atolls Oeno and Ducie. However, it became apparent in 1991 that the main conservation issues with the flora of these islands was on Pitcairn itself. As a UK Overseas Territory governed from the British High Commission in New Zealand, the responsibility for biodiversity conservation on the island rests with the UK Government. Accordingly, we secured funding from the UK Foreign & Commonwealth Office in 1997 to examine in detail the floristics, vegetation communities and conservation status of the native flora.

Our 1997 visit to the island provided a more complete floristic inventory than was previously possible. We added 12 new records of presumed native species to bring the total native flora to 81 taxa, of which 10 are considered endemic.

We were also able to describe and map vegetation communities, and to provide better information on the conservation status of native species, including an assessment of the major threats and, for certain taxa considered to be most at risk, an assessment of population size and demographic structure. In a few cases such data were backed up with a molecular assessment of genetic diversity. Thus we were able to provide a large amount of baseline data that could be used to prioritise future conservation activities. The main threats to the native species were identified as those posed by invasive non-native plants, by critically small population size or distribution, by habitat loss, and by erosion. The main invasive species causing problems are *Syzygium jambos*, introduced originally for fuel wood, and *Lantana camara*; both are well known as pest species elsewhere. Several native species were found to exist in either very restricted areas, such as *Lastreopsis aff. pacifica* where all but one individual occurred in a colony occupying an area of 20 x 60 m<sup>2</sup>, or occurred in very low numbers, such as the endemic *Coprosma benefica*, where only 12 individuals were recorded. *C. benefica* was thought to be dioecious, and in 1997 we found only one male plant, though the sex of several individuals could not be determined. The vulnerability of species with such low numbers was made evident when the largest specimen of *C. benefica* blew over during a storm. We were unable to locate the endemic *Abutilon pitcairnense* and *Myrsine* sp. previously recorded from the island.

Following the 1991 expedition, recommendations were made that a Conservation Officer be funded as a local government position, and this was achieved

McCoys Valley, showing typical native montane forest of *Metrosideros collina*, with rich pteridophyte ground layer, epiphytic ferns and bryophytes, and the typically leaning stems of the trees.  
Dr Steve Waldren



in 1997 when Jay Warren was appointed to the post. In 1999, with help from Colin Clubbe and colleagues at Royal Botanic Gardens, Kew, Jay attended a Darwin Initiative-funded programme at RBG Kew to provide training in practical plant conservation.

The latest pieces in the conservation jigsaw fell into place in early 2003 with funding from the UK Foreign & Commonwealth Office to investigate methods to remove *Syzygium jambos* and reinstate native forest species, while minimising the potential effects of soil erosion. At the same time, Fauna and Flora International provided funding to undertake recovery work on critically endangered plants, and the Irish Research Council for Science and Technology provided a research fellowship for Noeleen Smyth.

In the meantime Carol had relocated a specimen of the *Abutilon*, and Jay and Carol successfully propagated this from cuttings, proudly displayed to Noeleen and Steve when they visited in July 2003. We also found that a trial translocation of the endemic giant fern *Angiopteris chauliodonta* undertaken by Naomi and Steve in 1997 was successful, with 26 young plants established in Jack Willems Valley from 40 transplanted stipules (fleshy outgrowths of the stipe base, containing an axillary bud). We also found a young plant of a *Myrsine* species in McCoy's Valley, and in December cuttings were successfully rooted at Trinity College Botanic Garden. Further work is needed to see if this taxon is the same as *M. hosakae*, endemic to nearby Henderson Island, or whether the Pitcairn material represents a distinct taxon.

Perhaps the most exciting event was the construction of the island nursery, which will provide a facility to propagate both threatened native plants and plants that are of economic benefit to the islanders. For example, we plan to introduce a range of *Avocado* cultivars grafted onto standard stocks, and these will greatly increase the avocado season on the island. Noeleen's practical horticultural training can be put to use in training islanders with grafting techniques. The nursery is also being used to raise stock that will be planted into experimental plots cleared of *Syzygium*, as well as propagation of critically threatened species. A series of 20 plots have so far been surveyed, and these will be cleared of *Syzygium* once stock for replanting has been propagated and grown on.



A *Haloragis* species, locally frequent on the south coast of Pitcairn, though not recorded prior to 1997. It has not yet been seen in flower, so has not been fully identified to species.  
Dr Steve Waldren

Almost the whole community of the island is working with Noeleen on this plot survey and clearance, providing a useful source of income locally in addition to undertaking practical conservation.

We have devised a strategy for the recovery of critically endangered species which involves firstly securing the existing genepool by vegetative propagation, followed by an assessment of genetic variation, and then controlled breeding to try and maximise diversity. Ultimately we hope that this might include a study of the relative effects of inbreeding and outbreeding depression. Many problems remain to be studied, not least the taxonomic identity of taxa such as the *Myrsine* and *Lastreopsis*. We found that several of the *Coprosma* surveyed in 1997 could not be refound in 2003; no trace remained of the largest plant that blew over in 1997, and the solitary male from that time had recently died. However, we located several other specimens and, intriguingly, found that some plants that were 'female' in 1997 now appeared to be exclusively 'male'. Molecular markers will again be used to confirm or refute whether we have relocated exactly the same individuals, but we collected the fruit from one individual growing at the base of a radio mast guy wire in 1997, and we are certain that the same specimen was producing only male flowers in 2003.

Clearly, there is still much to learn, including the most effective means of invasive species control. But so far we are extremely optimistic about the approach taken, which involves a genuine partnership between the local community with their practical skills, and the baseline information that the scientific team from Dublin can provide.

Working together, we can make a real contribution to practical plant conservation, and the approach taken on Pitcairn may serve as a model for conservation on other islands.



An undescribed species of *Peperomia* from the a very restricted area of the southern coast. Recent molecular analyses suggest it is closely related to *P. hendersonensis* of nearby Henderson Island, and the more widespread *P. pallida*. We hope to publish a formal description of this species shortly.  
Dr Steve Waldren

**Dr Steve Waldren\***, **Dr Naomi Kingston<sup>1</sup>**,  
**Noeleen Smyth\***, **Jay Warren<sup>2</sup>** & **Carol Warren<sup>3</sup>**  
\*Department of Botany, Trinity College, Dublin  
<sup>1</sup>National Parks and Wildlife Service, Dublin  
<sup>2</sup>Conservation Officer, Pitcairn Island,  
<sup>3</sup>Pitcairn Island

# Publications reports

Some recent *English Nature Research Reports* of plant and fungi interest include:

No. 492, *Creolophus (Hericium) cirrhatus*, *Hericium erinaceus* & *H. coralloides* in England.

No. 503, Lichen survey of selected Breckland SSSIs, 2002.

No. 528, The implications of climate change for the conservation of Beech woodlands and associated flora in the UK.

No. 540, Report on the marsh honey fungus *Armillaria ectypa*, a UK BAP species.

No. 541, Report on hazel gloves *Hypocreopsis rhododendri*, a UK BAP ascomycete fungus (with reference to willow glove *Hypocreopsis lichenoides*).

These are available free from: Enquiry Service, English Nature.

## Leaflets

The Fungus Conservation Forum has published a leaflet entitled *Grassland gems: managing lawns and pastures for fungi* which provides sound management advice for the conservation of these fungi, many of which are particularly attractive.

Plantlife has produced a leaflet for the Back from the Brink management series entitled *Ciliate strap-lichen: Gift of the Gulf Stream*. This lichen is a rare species classified as Endangered and listed in Schedule 8 of the Wildlife and Countryside Act, and which reaches the northern limits of its distribution in the British Isles. Another leaflet in this Plantlife series is *Looking after rare mosses and liverworts in coastal dune slacks*, which provides useful management advice for the conservation of these plants, several of which are threatened in Britain and Europe.



## Management handbooks

Two important management handbooks have been recently published by FACT, the Forum for the Application of Conservation Techniques, with the assistance of English Nature:

*The Scrub Management Handbook: Guidance on the management of scrub on nature conservation sites.*

*The Herbicide Handbook: Guidance on the use of herbicides on nature conservation sites.*



The handbooks are available for downloading on English Nature's website, [www.english-nature.org.uk](http://www.english-nature.org.uk), and the website also gives details for obtaining paper copies, price £30 for both and £15 for the Herbicide Handbook only.

Another management handbook, this time concerning heathlands, has been produced by Nigel Symes and John Day of the RSPB:

*A practical guide to the restoration and management of Lowland Heathland.*

This handbook provides a reference for the planning, implementation and monitoring of the management of lowland heathland, and presents the latest methods to do the job efficiently. The inclusion of case studies is a valuable addition to meet the aims of the book.



# Books

## *Arable plants - a field guide*

This English Nature and WILDGuides book by Phil Wilson and Miles King contains information on over 100 species of Britain's rare arable plants, each covered in full colour with a photograph or illustration. It describes the development of agriculture in Britain from the Neolithic Age and discusses modern threats and opportunities like genetic modification, plus:

- A descriptive identification account with reference to similar species
- A distribution map
- Flowering and germination period chart
- Notes on habitat, soil type and special management requirements

For details contact Wildguides;  
Tel 07818 403678,  
e-mail [sales@wildguides.co.uk](mailto:sales@wildguides.co.uk)  
[www.fieldguide.arableplants](http://www.fieldguide.arableplants)

## *New Isle of Wight Flora*

A new Flora has been published for the Isle of Wight by Dovecote Press, with the authors comprising Colin Pope, Lorna Snow & David Allen. The book provides an authoritative account of the current and historic status and distribution of the vascular plants, bryophytes, lichens and stoneworts, plus information concerning plant folklore, habitats, climate, geology, vegetation history and the history of botany on the island. The Isle of Wight is home to a number of rare species including narrow-leaved lungwort, Martin's ramping-fumitory, early gentian and wood calamint.

## *Heathland*

This informative book written by James Parry and published by the National Trust in their Living Landscapes series focuses on the cultural aspects of lowland heathlands. The book includes relevant descriptions of the habitat and its wildlife, its geographical distribution and management issues, the history of heathland industries and the resources that have been obtained from heathlands over the centuries: plants (heather, gorse, bracken), food (honey, rabbits, sheep) and minerals (gravels, sands).



John Davis illustration.

The last chapter analyses the present situation, where some remaining heathlands are still in sub-optimal conditions due to decades of neglect. The author then takes an optimistic look to the future based on a renewed interest by the public, the help of the funding bodies, such as the Heritage Lottery Fund, and changes in legislation which will hopefully secure the future of this habitat. The book is profusely illustrated with beautiful photographs, many of them from the early 20th century and fine watercolours by artist John Davis.

## *Flora of the Fells: celebrating Cumbria's mountain landscapes*

This attractive short book produced by the Flora of the Fells project explores the relationships between the famous scenery of the Lake District and the Pennine uplands and their distinctive flora. A key aim of the book is to increase people's enjoyment and understanding of the upland countryside by highlighting the flora and how the plants have survived there since the last ice age. A key message is that although Cumbria has a remarkable range of flora much needs to be done to continue to protect and enhance it. The book contains numerous excellent colour photographs and illustrations. The Flora of the Fells website is: [www.floraofthefells.com](http://www.floraofthefells.com)

## *Fungi*

A short book in the "Naturally Scottish" series by Scottish Natural Heritage written by Roy Watling and Stephen Ward, providing an introduction to the life cycles, habitats and conservation of fungi in Scotland. Illustrated with a range of fine colour photographs.

# People

## Honours:

Honours in the botanical world include David Pearman and Stella Turk, both awarded MBEs; and Dr Jane Smart awarded an OBE.

## On the move:

Plantlife International's address is now:  
14 Rolleston Street  
Salisbury  
Wiltshire  
SP1 1DX  
Tel: 01722 342730  
E-mail:  
enquiries@plantlife.org.uk

Flora Locale's address is now:  
Denford Manor  
Hungerford  
Berkshire  
RG17 0UN  
Tel: 01488 689035  
E-mail:  
info@floralocale.org

Primrose.  
Dr Chris Gibson/English Nature



## Wildlife CD-Rom - *Gardening with wildlife in mind*

Books about wildlife gardening are, happily, common enough these days but what about using new technology to help people select plants to attract birds, insects and other animals into their gardens? The idea wasn't new. Jill Hamilton's *Flora for fauna* CD did something along these lines more than 10 years ago, with the aid, one must add, of a generous grant from English Nature. But the ambitions of *Flora for fauna* were pretty well confined to butterflies and their food plants. Imagine, instead, a database linking **all** desirable garden creatures to the plants, native or otherwise, which might draw them in to a garden. This was the initial goal of the project which began in 2000, in Lewes.

Its horizons have shrunk a little over the last three years and the original plan for 1,200 entries has been reduced by a third. There are now 500 plants and 300 'creatures', with hyperlinks for almost all of the species described, to the plants (or animals or both) with which each is ecologically linked. Click on sparrowhawk and it will take you to goldfinch (and of course other birds). From goldfinch you can browse to sunflower and thence to linnets, tuberous thistle or *Cirsium tuberosum* if you prefer to search that way. This in turn might lead you to *Bombus lapidarius* or some other bee and then to other bee-pollinated plants and on, endlessly, elsewhere. Each species has its own screen, with a text of up to 200 words and a very high quality photograph.

In the case of plants, some basic horticultural information is provided, as far as possible by way of symbols. This covers preferred soil type, aspect, height, growing habit, flowering colour and period and so on. Animals are linked to the plants that feed or shelter them as well as, where appropriate, to the other animals on which they prey or for which they are themselves prey.

The most remarkable aspect of the CD is the huge debt its successful production owes to the efforts of a truly vast number of English Nature staff. For once, the cliché 'too numerous to mention' is apposite since almost 100 people helped with writing or improving the text, editing, proof-reading and critically, supplying their own



photographs for no fee. Being involved in this venture has been at various stages, exciting, frightening, worrying, stimulating, exhausting and frustrating but never for one moment dull. It's certainly the most memorable project in which I have participated in 25 years with English Nature/Nature Conservancy Council.

The CD costs £9.99 (plus £1.50 p&p) and is available from The Plant Press, 10 Market Street, Lewes, BN7 2LU or e-mail John Stockdale, john@plantpress.com or call 01273 476151.

**Steve Berry**  
People and Nature Officer  
External Relations Team

Bogbean. Dr Chris Gibson/English Nature



# Botanical network

A contact situated in each English Nature Area Team willing to deal with plant issues.

## **Beds, Cambs and Northants**

Zak Hawkes

## **Cheshire to Lancashire**

Deborah Rusbridge

## **Cornwall and Isles of Scilly**

Andrew McDouall

## **Cumbria**

Jacqui Ogden and Ian Slater

## **Devon**

Dave Appleton and

Simon Dunsford

## **Dorset**

Jonathan Cox

## **Eastern Area team**

Steve Clifton

## **Essex, Herts and London**

Dr Chris Gibson

## **London office**

Alex Machin and

Rachel Cooke

## **Hants and Isle of Wight**

Catherine Chatters

## **Herefordshire and**

## **Worcestershire**

David Heaver

## **Humber to Pennines**

Brian Davies

## **Kent**

Phil Williams

## **Norfolk**

Peter Lambley

## **North and East Yorkshire -**

## **York office**

Susan Wilson

## **Leyburn office**

Colin Newlands

## **North Mercia**

Chris Walker

## **Northumbria**

David Mitchell

## **Peak District and Derbyshire**

Audra Hurst

## **Somerset and**

## **Gloucestershire**

Stephen Parker

## **Suffolk**

Nick Sibbett

## **Sussex and Surrey**

Michael Knight

## **Thames and Chilterns**

Ron Porley

## **Wiltshire**

Katie Lloyd

## **Biodiversity Unit**

### **Senior Biodiversity Officer**

Peter Brotherton

### **Senior Biodiversity**

### **Information Officer**

David Switzer

### **Biodiversity Officer**

Gavin Measures

### **England Local Biodiversity**

### **Action Coordinator**

### **(Defra, Bristol)**

Alison Barnes

### **Maritime Biodiversity**

### **Coordinator**

Angela Moffat

### **Biodiversity Support Officer**

Claire Brittain

## Conservation Land Management *A Magazine for Land Managers*

Appropriate management of the habitats in which they grow is essential to the survival of all rare plants. It is not surprising then that getting things done on the ground is the aim of all plant Biodiversity Action Plans. Land managers therefore have an important role to play in plant conservation, but they need up to date information. To help provide this English Nature publishes a quarterly magazine which is designed with the land manager in mind.

Conservation Land Management draws on the practical experience of writers from across the British Isles and beyond. Articles focus on the wide range of land management issues in conservation, including habitat management and restoration, the control of problem species, grazing animals and machinery. Additional information, including details of costs and materials, is presented in easy-to-follow text boxes and diagrams, with

full-colour illustrations to set the scene. Each issue has a range of regular features containing listings of events and new publications, product updates, reports and topical comment.

Co-ordinated by a team of land management experts from English Nature working in partnership with the conservation networks, FACT and EUROSITE, Conservation Land Management brings together a wealth of practical experience. At just £14 (individual rate) for a year's subscription it also represents superb value for money!

To subscribe contact –  
British Wildlife Publishing, tel: 01256 760663



# Contacts

The Lowlands, Uplands and Biodiversity teams at English Nature have combined to form the Terrestrial Wildlife Team which includes species and habitats specialists and is managed by Dr Richard Wright.

## **Botanical Unit**

Botanical expertise in English Nature is distributed around England with particular people specialising in key species, geographical areas and/or habitat types.

## **Peterborough**

### **Dr Jill Sutcliffe**

Botanical Manager –  
co-ordinator

### **Dr Stewart Clarke**

Environmental Impacts  
Team, Freshwater –  
aquatic species including  
charophytes

## **Colchester**

### **Carl Borges - Fungi**

*(Currently on sabbatical)*

## **Kendal**

**Ian Taylor** - Vascular plants,  
ferns and conifers; North  
and Midlands areas and  
Uplands and woodland  
species; orchid species;  
Schedule 8 licensing of  
vascular plants.

## **Newbury**

**Ron Porley** - Vascular plants,  
south and south eastern  
areas and grassland species;  
bryophytes – mosses and  
liverworts; Schedule 8  
licensing of non-vascular  
plants

## **Norwich**

**Peter Lambley** - Lichens

## **Taunton**

**Simon Leach** - Vascular  
plants, south west area  
and coastal species

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### **An apology**

In *Flora English Nature* winter 2002, photo captions on page 3 for northern yellowcress and six-stamined waterwort were transposed. Apologies to all, particularly to the photographer Liz McDonnell.



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## Course and conferences

### **Workshop on lichens and the changing air pollution environment in Britain**

Lichens are well known as indicators of air pollution. Work in the early 1970s showed that it was possible to use lichens as biomonitors to measure average winter levels of sulphur dioxide. A scale using lichens growing on trees was developed by Francis Rose and David Hawksworth which enabled the levels of air pollution to be mapped in areas where there were no measuring gauges. However, in the last two decades of the twentieth century levels of sulphur dioxide dropped dramatically as a result of the change from coal burning to gas powered stations and the introduction of clean air areas in the urban centres. Lichens are responding by moving back into the cities to such an extent that over 32 lichens were recorded on trees in Regent's Park in 2003 when 20 years ago the total would have been in single figures.

However, just as lichens have been reclaiming the cities there is some evidence that the lichen flora is either not recovering in many parts of the countryside or that new lichen communities are replacing well established ones. The reasons for this are not entirely clear but appear to relate to high levels of nitrogen in its various forms of ammonia, ammonium and perhaps nitrous oxides. This is a phenomenon which has also been observed in other parts of western Europe. Whilst many lichen communities escaped the worst effects of the high sulphur dioxide levels especially in western Britain there is now a concern that they may be affected by these pollutants. As the UK including England still has very good examples of some of the most threatened lichen communities in Europe notably those in parklands and woodlands we have an international responsibility to conserve the habitats in which they occur.

For this reason English Nature contributed a grant to the British Lichen Society to enable it to run a workshop on the changing pollution environment in Britain. This was held from 24 to 27 February at the Field Studies Council Centre at Nettlecombe in Somerset and organised by

Participants of the workshop examining the lichen flora of a roadside tree.  
Peter Lambley/English Nature



Pat Wolseley, the Secretary of the Society and also Research Associate at the Natural History Museum. There were 32 participants from Britain, France, the Netherlands, Germany and Italy. Papers were read over two days with a field excursion on the third to the Institute for Grassland and Environmental Research at North Wyke in Devon. There were sessions on the changing lichen flora, the pollution environment, monitoring and conserving lichen communities. It was clear that we are dealing with a complex situation where in part the effects of sulphur dioxide were masking the effects of other pollutants and that we were in a very dynamic situation. There is still considerable uncertainty about the relative importance of nitrogen oxides from car exhausts and other sources compared with ammonia and ammonium. Nevertheless the workshop pooled together the experiences of key workers from different countries and backgrounds and suggested areas for future research and action. In due course the proceedings of the workshop will be published as an English Nature Research Report.

The whole workshop took place in a very friendly and informal atmosphere, but was also very constructive and stimulating. It also showed what could be achieved through the partnership between a small specialist society which supplied the expertise and contacts and English Nature which contributed the funds to enable the workshop to take place. Together we identified a conservation issue and sought answers to a poorly understood conservation problem.

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