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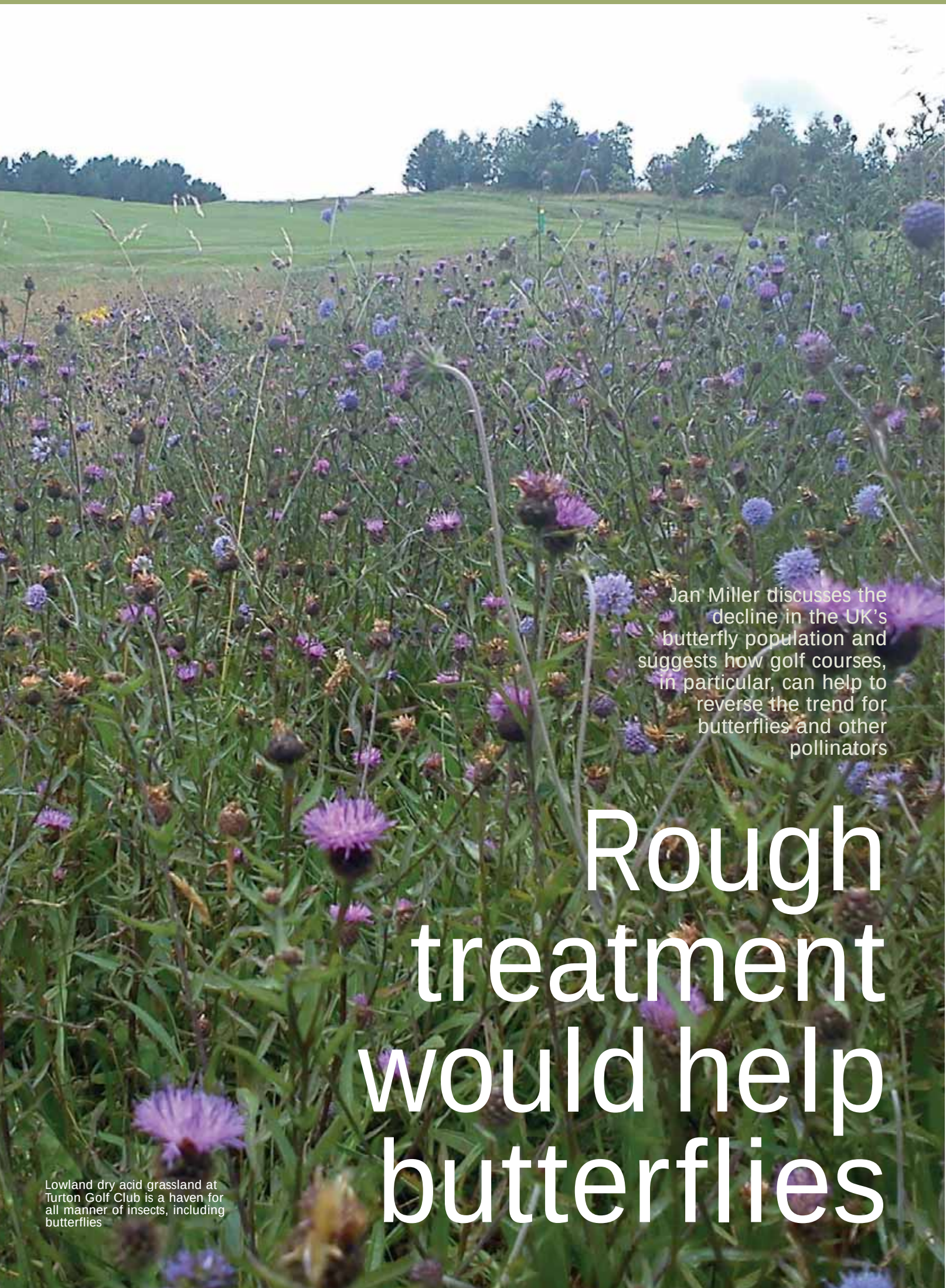

Jan Miller discusses the decline in the UK's butterfly population and suggests how golf courses, in particular, can help to reverse the trend for butterflies and other pollinators

Rough treatment would help butterflies

Lowland dry acid grassland at Turton Golf Club is a haven for all manner of insects, including butterflies

"Many butterflies cannot fly more than a few miles from where they emerge, and are also very picky eaters as 'children'"

When I lived in Manchester in the 1980s, we once had an elderly Yorkshireman come to speak to us at my local natural history club. The Reverend C. E. Shaw (childhood mentor of celebrated gardener Roy Lancaster), calling himself 'thou t'wold vicar', was short and stout, in a dishevelled old stained rumpled black suit and brought along a younger man as his assistant to operate the slide projector.

T'wold vicar stood at the front of the room and lectured us in his broad accent, punctuated every few minutes by an ear-piercing whistle that was the signal for the next slide. The slides were all scuffed and scratched, as if they had been stored loose on the floorboards under the bed, but through this comical gloom emerged hundreds of beautiful photographs of wild orchids, gathered from the length and breadth of Britain over many years. And the amazing thing to me was that an awful lot of these wild, rare flowers he had found on golf courses.

Thus began my interest in golf courses as possible havens of wildlife. When I became more involved in wildlife conservation in later years I began to wonder 'why golf courses?' Perhaps it is because they have been carved out of old farmland that had not been touched for years and the lack of high nitrogen fertiliser (which encourages coarse grasses and weeds to dominate) and just being left alone for many years has meant they are a remnant of our ancient countryside, like the road verges and churchyards. Our intensively farmed green fields are now mostly a desert for insects and all the wildlife that depends on them.

As you probably know, we have lost 94% of our old wildflower meadows in Britain since the war; and insects like butterflies and bees are also dying out at an alarming rate. 72% of British butterfly species decreased in distribution between 1970 and 2004; habitat specialists have decreased by 93% and wider countryside specialists by 56%.

An example of a habitat specialist is the High Brown Fritillary, was once common in woodlands across England and Wales, is now the UK's most endangered butterfly and subject of much conservation effort.

But, declines have not been restricted to specialists. The Wall Brown, a butterfly of farmland, countryside and coast has undergone collapse of its distribution in central and southern England. The UK Butterfly Monitoring Scheme (recording butterflies by the national charity Butterfly Conservation and the Centre for Ecology and Hydrology) shows a long-term trend (since 1976) of an 81% decrease in numbers.

A few familiar garden species have also declined, most notably the Small Tortoiseshell, which has decreased two thirds in numbers in UK since 1976.

However, many other 'garden' species have bucked the general trend; the Peacock, Comma and Speckled Wood have all increased their range and distribution. This is almost certainly in response to global warming. Butterflies are very sensitive indicators of climate change and scientists are tracking their movements carefully.

It may sound like a positive message, but if they move north and the habitat is not there for them to breed they will simply die out. We all know about garden shrubs like Buddleja being a very good nectar source for butterflies, many bees and other insects in the latter half of the summer; but these insects need other things in their habitat to enable them to breed and continue.

Many cannot fly more than a few miles from where they emerge, and butterflies are also very picky eaters as 'children'. The caterpillars often can only feed on one particular species of wild plant; if the female cannot find the right species within their flight distance they will simply not lay eggs that survive. Many of our native butterfly caterpillars actually feed on wild grasses like Yorkshire Fog and Cock's foot.

Of course, many birds and bats depend on both the caterpillars and adults of butterflies and moths as food for themselves and their young.

Bees need two things - forage plants and nesting sites. Forage plants include wildflowers like clover and Bird's foot Trefoil, (which are also important nectar and larval food for some butterfly caterpillars and moths - in turn themselves food for bats and birds), and can easily be included in the rough grassland surrounding golf greens. Nest sites for bees need to be very fine, well-drained semi-bare areas of soil or sand, as many wild bees dig breeding burrows in the ground. Honeybees do not, of course - but there are some 250 other species of wild bees, including bumblebees and solitary bees, that have been shown by a recent scientific study to be more important to the pollination of our food crops than honeybees.

David Blake, an ecological consultant says; "If I can make a plea for the landscape scale paradigm, please

The High Brown Fritillary is now the UK's most endangered species

The Wall Brown has undergone a collapse in its distribution

The once common Small Tortoiseshell has seen its numbers decrease by two thirds

The population of the once common Small Copper has declined by 90%

In the south of England, the Brown Argus has started to feed on cultivated Geranium

A Meadow Brown sharing a thistle with a Honey Bee

encourage golf course managers to take the wider countryside into account. Golf courses can be highly inhospitable to wildlife, both in the way they are designed and the way in which they are managed. However, this can be ameliorated greatly by taking into account the surrounding landscape: for example Rushmore Golf Club, on the Dorset/Wiltshire border, retained a parkland/wood pasture landscape when they converted parkland and farmland into a course. I wish they were more tolerant of deadwood in the trees, but they do have dead hulks on the ground."

"Another very well known location for international competitions in Surrey wanted to put up owl boxes for barn owls, but were not prepared to provide rough grassland habitat for foraging (barn owls need to hunt for small rodents in long undisturbed grassland). Therefore, they got no barn owls, but some tawny owls and lots of squirrels in the boxes."

Lanhydrock Golf Course in Cornwall is surrounded by good red deer habitat. Red deer come onto the course in the autumn, leaving deep hoof prints in the greens into which small white balls drop. Clearly this is not acceptable on the greens - but as the UK deer population is burgeoning at present, can we think of constructive way to encourage them to stay in the woodland and roughs?

Courses should be providing linkages and nodes of habitat so that they increase the ecological connectivity of the landscape.

The design and treatment of habitats should be sensitive to the surrounding area and take into account species that will use the course.

Pest control needs to be designed in, not applied later.

John Dobson of Make Natural Ltd. Ecological Services adds; "I have conducted ecological surveys on innumerable 'green spaces', including many golf courses where I have witnessed a number of examples of site management where it has struck me that there might be some room for ecological improvement.

It has been a tendency for some years for golf courses to remove roughs in order to 'speed up the game'. This means, in practice, encouraging a greater throughput of golfers, leading to a subsequent increase in club revenues. That might be a particularly difficult trend to reverse, and the demand for the inclusion of significant roughs in a course would, I think, have to come from golfers themselves. I am not a golfer but, if I was, I imagine that I might regard the rough as an integral part of the game, along with sand-traps, ditches and trees.

Where they are present, roughs offer significant opportunities for habitat creation and enhancements. In the ecologically better examples, long-term rotational cutting is already practised. This leads, on the one hand, to various degrees of roughs, from 'tiger roughs' (where the grass is long enough to conceal a tiger; a circumstance uncommon in the UK) to light roughs. On the other hand, this practice can give rise to structural mosaics of grassland habitats of different heights, which may additionally include areas left uncut over winter. Such structural mosaics may support diverse and valuable invertebrate communities, regardless of whether they are botanically unremarkable.

In some cases, the only significant areas of rough grassland are those left growing around the bases of larger trees growing in the open. Obviously, it would be ecologically beneficial to extend and enhance this practice.

A striking example of ecologically poor practice I have witnessed on a number of occasions results from cutting grass and

Case Study 1

Royal Cinque Ports

Royal Cinque Ports Golf Course, near Deal in Kent, has a Higher Land Stewardship agreement with Natural England, and maintenance of native roughs is a major part of the work they undertake.

The entire area covered by the course has SSSI status. The native species include fescues, bents, meadow grasses and Crested Dogstail, although ryegrass and Yorkshire Fog have crept in and gained a good foothold in places. Some of the low lying, damp areas contain wild Orchids which have seen their habitat shrinking due to invasion by buckthorn, brambles and nettles etc. These dune slacks will be cleared of undesirable species and then scraped with the digger bucket back down to water table level to encourage the native species back.

In the past, the roughs were grazed or burnt to control coarse grass species but, in more recent years, they have been largely neglected. Many areas were mown, but the clippings were left to rot down, allowing the invasion of many undesirable grass types and weeds. The nutrition levels are well above what would be expected for native dune grassland.

The club has now embarked on a programme of renovation in the long rough areas for the benefit of wildlife and members alike.

The inclusion of a Weidenmann Super 500 flail collector in their fleet of machinery has enabled them to begin sward refinement by mowing and collecting the clippings. Since acquiring the machine a few months ago, the greenkeeping team have cleaned out around seven hectares of native rough, working through a prioritised list of areas as part of their winter programme.

Any areas where a loss of grass cover has taken place, through machine scalping or die-back, will have fescue seed broadcast over the top and then the area will be worked with grass harrows as growing conditions improve. The plan is to do more areas but, coming into spring, activity in the roughs will be reduced to allow ground nesting birds to settle and avoid disturbing insects.

As this is the first year the club are undertaking serious work, it is hoped that the upcoming season will show some progress in the maintained areas. It will be several years until the sward has the qualities they are aiming for and the future may well see trials of the herbicide Rescue to further improve species content by further reducing populations of pasture grasses.

The club is fortunate enough to have an area of natural Marram coverage within

Birds Foot Trefoil and Red Clover are easy to incorporate into rough areas that will provide an important food source for butterflies and bees

other light vegetation on the banks of streams and ditches. In these cases, a rotary mower has been used to allow access and cutting of the bank (which may be inclined) right up to the stream edge. The cuttings are not captured and end up filling-up the watercourse, smothering the habitat and presumably eutrophying the water in the longer term.

The issue of apparently lax application of the selective herbicides used routinely on golf courses and other sports grounds, and the subsequent effects on water bodies and other adjacent habitats is, of course, well-known.

Whilst surveying all manner of sites, and when the opportunity arises, I often take the opportunity to chat with site managers and owners. In doing so, I definitely don't take the prescriptive approach which I have seen others employ. In the vast majority of instances (including sports grounds and shooting grounds), I have encountered positive and interested attitudes to the site's wildlife, and have encountered a positive and interested response during such discussions on the site's wildlife and habitats."

T'wold vicar would hopefully approve of the efforts being made nationwide to improve the fortunes of our butterflies.

Jan Miller is a freelance writer on wildlife conservation and the environment.

She is the author of 'Gardening for Butterflies, bees and other beneficial insects; a how to guide'.

Email: jan@7wells.org

its boundaries which can be used as a donor site for transplanting to other areas of the course. A vegetation classification map, along with a map of dune heights, is being utilised to pick out the best areas to establish new Marram communities before transplanting occurs.

Weeds such as Ragwort and Dock are kept under control by handweeding the roughs. A small proportion of the Ragwort is left alone in certain areas as a food source for butterfly and moth larvae.

Case Study 2

Watch more than birdies at St Andrews

Golfers and spectators are being encouraged to enjoy nature, as well as the golf, with a guide to the wildlife and habitats of the world famous Old Course. Produced by The Royal & Ancient, with support from Scottish Natural Heritage (SNH), the Scottish Golf Environment Group, St Andrews Links Trust, the Scottish Golf Union and the Fife Coast and Countryside Trust, the booklet is a guide to the birds, animals, insects and plants that might be seen while watching the championship. It also explains about the habitats and careful management of the Old Course, and the other courses found at the Home of Golf, highlighting the important contribution that golf courses can make to biodiversity.

Renowned worldwide for the quality and character of its golf courses and its beautiful setting, the St Andrews area is also nationally and internationally important for its wildlife and habitats.

The Links and surrounding area are home to a Site of Special Scientific Interest, a Special Area of Conservation, a Special Protection Area for birds and a Ramsar site or wetland of international importance.

Birds which might be seen on the course include goldfinches, skylarks, linnets and owls. Native plants such as lady's bedstraw and northern marsh orchids thrive in the rough grassland and are home to insects, voles and shrews which in turn feed stoats and kestrels.

Along with many other golf courses around the country, the Old Course is managed for nature as well as golf. Coastal erosion is a threat to the courses at St Andrews and the booklet explains how an environmentally friendly approach, recharging the dunes with sand, and using marram grass and wooden fences to encourage dune stabilisation, was preferred.

As well as being behind this booklet, the Scottish Golf Environment Group offers Scotland's golf courses free advice on managing for wildlife and encouraging environmental best practice. Funded by the Scottish Golf Union, The R&A and SNH, the group covers such things as waste management, sustainable drainage and energy conservation as well as other topics.

Katherine Leys of Scottish Natural Heritage said: "It is particularly welcome to see golfing and environmental bodies working closely together on conservation practices. Scotland is really leading the way in the world of golf and the environment. The traditional management of Scottish links courses can create a challenging golfing environment, but it can also conserve some of the rarest and most fragile wildlife."

The R&A's director of golf course management, Steve Isaac, added: "This is the third time The R&A has produced an environmental booklet for St Andrews and, having covered the general wildlife value in 2000 and the St Andrews Links Trust's environmental management plan in 2005, it seemed fitting to focus on habitat management.The R&A demonstrates an excellent working relationship between golf and environmental organisations and highlights the benefits that golf courses can bring to us all through sustainable management."