

SANCTUARY

THE MINISTRY OF DEFENCE CONSERVATION MAGAZINE

Number 39 • 2010



The Roman Villa on the Rifle Range

Time Team discoveries at Langport

Seeing the Wood for the Trees

Forestry on the MOD Estate

Hitting the target

SSSI Condition update

SANCTUARY

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Cover image credit

Winner of Conservation Group
Photography Competition
Broad-bodied chaser dragonfly
© Bob Kennedy

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Sanctuary is an annual online publication about conservation of the natural and historic environment on the defence estate. It illustrates how the Ministry of Defence (MOD) is undertaking its responsibility for stewardship of the estate in the UK and overseas through its policies and their subsequent implementation. It is designed for a wide audience, from the general public to the people who work for us or volunteer as members of the MOD Conservation Groups.

It is produced for the MOD by Defence Estates.

Conservation Group Photography Competition



Old Gate at Royal Military Academy Sandhurst © Isobel Mackie

We have had an excellent response from the MOD Conservation Groups vying for the chance for their photograph to appear on the front cover and we would like to thank everyone who entered. After much deliberation the board felt that the broad-bodied chaser dragonfly taken by Bob Kennedy, Pippingford Park Conservation Group, captured the dragonfly in all its elegance perfectly and was this years ideal choice for the front cover.

The runner up was the boxing hares, which can be seen on the back page, taken by Martin Lewis, Shoeburyness Conservation

Group. This was a very difficult action shot to take, which also lent itself to a cover image. Highly commended was the photograph of Old Gates at Royal Military Academy Sandhurst (RMAS), taken by Isobel Mackie, RMAS Conservation Group (which can be seen above). This image portrayed the artistic and eerie presence, leaving much to your imagination as to what lies within.

As this has been such a success we shall be running the competition again next year, so keep your cameras at the ready for the ideal image!

Foreword by Phil Harding

Growing up in Wiltshire the military has formed part of everyday life; as a child the sound of artillery fire shook the foundations of the house where I lived when the wind was in the right direction. When I became an archaeologist I became aware of the immense wealth and variety of monuments preserved on Salisbury Plain, as a Wiltshire man I regarded it as my Plain, and was frustrated by not being able to visit the area. Fortunately the dream to see this has now been fulfilled; my 'day job' with Wessex Archaeology has made it possible for me not only to see the monuments across the Defence Training Estate Salisbury Plain but also to contribute to their long term management through condition surveys. The implemented recommendations ensure the long term preservation of these sites. Some of the issues familiar to me through the surveys have been highlighted in the pages of Sanctuary, including the relocation of badgers (Issue 37, pages 38–9).

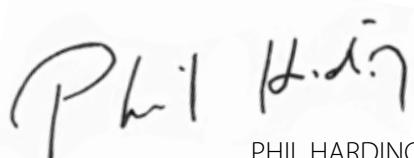
Spreading the word of the MOD's genuine concern for management of the delicate balance of the environment and heritage, while maintaining the need to train a modern military machine, is an important part of the work. Channel 4's Time Team have played their part, collaborating with MOD archaeologists on six occasions, undertaking work that not only assists long term management but also provides new information on previously unexamined, sometimes unlocated monuments. Some of these stories have become incorporated subsequently in Sanctuary including the evaluation excavations at Haslar Naval Hospital (Issue 37, pages 34–7) and the most recent fruits of this relationship occurred at Langport Range in Somerset where part of a Roman Villa and mosaic were excavated, (this issue pages 27–9). The results will ensure the long term preservation of this site.

It is reassuring to learn through Sanctuary that it is not only in the UK that the MOD takes the management of historic features seriously. Heritage work is undertaken in other parts of the world as the article in this issue (pages 58–9) illustrates, showing how the MOD integrates operational requirements with cultural heritage at RAF Akrotiri in Cyprus.

Similarly readers will be made aware in the following pages that the sensitive issues of environmental management extend beyond archaeology. Small teams of dedicated staff together with numerous conservation groups, assisted by an army of volunteers, continue to play a valuable role in promoting the cause of environmental stewardship and sustainable development on the defence estate. Their efforts promise to conserve for future generations not only some of the most outstanding archaeological monuments in the UK but also secure habitats for flora and fauna – all within the confines of fully operational, military training areas.



Phil Harding © Neil Emmanuel, Videotext Communications



PHIL HARDING

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The Sanctuary Awards

The aim of the Sanctuary Awards is to recognise and encourage group and individual efforts that benefit wildlife, archaeology, environmental improvement (for example waste or energy projects) or community awareness of conservation on or within land and property that the MOD owns or uses in the UK or overseas.

The 2010 Awards were divided into four categories: **Environmental Project**, **Heritage Project**, **Sustainability Project** and **Individual Achievement**. The winners of each category are considered for the overall winner and receive the coveted **Silver Otter** for one year.

The Sanctuary Award Board

The Sanctuary Award Board for 2010 were for Defence Estates Martin Coulson and Pippa Morrison, Strategy & Policy Directorate; Ian Barnes, Environmental Advisory Service; and Alan Mayes, Secretariat. We would like to pass on our thanks to Marcus Yeo, Chief Executive of the Joint Nature Conservation Council who acted as the external moderator and approved the Award Board's recommendations.

SUSTAINABILITY AWARD **WINNER**

Garrison Kitchen Garden and Blandford Camp Community Memorial Orchard

Both projects were started in October 2009 with the aim to provide service families with a unique opportunity to grow their own produce. Blandford Camp is a 485 hectare site, with about 180 hectares, including 500 married quarters, inside the wire. There is plenty of space, but SFA garden perimeters are very small and the topsoil is shallow and of poor quality. On about an acre of land, created by relocating a football pitch, a volunteer group from across the Camp has created 30 plots for members of the Camp community to grow their own fruit, vegetables and flowers. Each plot is ten metres by eight metres, with four raised beds, a shed and communal access to water. The area is post and rail fenced with wind break netting and a growing beech hedge around the perimeter. Due to the success of the gardens it has inspired a sister project – the Blandford Camp Community Memorial Orchard.



The allotments © Maj Lynn Roddy



The team, Maj Roddy first on the left © Crown

The Award Board was enormously impressed by the achievement of the Blandford Camp team. The involvement of Service families, the wide support from the local community and the excellent outcome is a 'trailblazer' for the community growing spaces in the MOD. There was unanimous agreement that the Blandford Kitchen Garden project was an outstanding achievement and a very worthy winner of not only the Sustainability award but also the Silver Otter. The Board would like to give special recognition to Major Lynn Roddy, Royal Signals, who was the project leader. To find out more about this project please see the article on pages 52–53.



Now we're really going green © Maj Lynn Roddy

THE SANCTUARY AWARDS

SUSTAINABILITY AWARD RUNNER UP



Peeled and pointed timber products generated from the estate © Landmarc

Landmarc Sustainable Forest Operation

This project has delivered an innovative and sustainable, in-house timber solution at DTE Otterburn in-line with recent changes to MOD sustainable timber requirements. The solution offers reduced costs and enhanced military training facilities in a flexible, scalable package that can be implemented nationally across the Defence Training Estate. The Board were impressed in the way this project has developed the processes for the

production of posts and other timber products. It is an excellent example of sustainable development. The award recognises the way that the Landmarc team has reduced the carbon footprint of the establishment and note that it is already a model for similar establishments with suitable woodland resources. To find out more about this project please see the article on pages 44–45.

SUSTAINABILITY AWARD HIGHLY COMMENDED

Duke of York's Military School Wind Turbine



Wind turbine with school in background © Crown

This project is a first, it is the largest and the first grid connected wind turbine on the defence estate. The students learn about their wind turbine through a dedicated educational package, which is linked to the school curriculum and is able to use real data for analysis. The project can be used to inform and educate MOD staff about wind energy developments on defence estate land, the process and planning issues to overcome.

The Award Board recognised that this project was difficult to put together, with challenges ranging from planning consent to the funding. The outcome is excellent in that it not only reduces carbon emissions but provides the school with a useful educational resource. To find out more about this project please see the article on pages 54–55.

SUSTAINABILITY AWARD HIGHLY COMMENDED

Catterick Garrison Biofuel Project

This project involves converting waste cooking oil from the Army kitchens into biofuel which is being used to fuel a Carillion Enterprise (C-E) vehicle. The idea was initially identified during an environmental review of C-E activities. Given the environmental and economic impacts of waste cooking oil, it was agreed that the potential benefits could be threefold; saving money, improving resource efficiency and reducing carbon emissions.



Garrison Commander Nick Millen, accompanied by C-E Managing Director Tom Robinson and DE representative Mark Grant. DE launch the biofuel train at Catterick © Crown

So far the trial has used somewhere in the region of 100 litres per month of used cooking oil that would otherwise have gone to landfill and with an estimated saving for MOD of £2,000 per year. The Renewable Fuel Agency advises that Used Cooking Oil (UCO) typically offers a lifecycle greenhouse gas saving of 85%.

The Award Board were impressed by the initiative shown by the C-E team and applaud the outcome of vehicle emission reduction.

HERITAGE PROJECT AWARD **WINNER**

Trench Renovation Project (RAF Halton)



The team © Crown

This project started in July 2009 when a network of World War One training trenches was discovered. Wartime trenches within England remain relatively rare and as a result RAF Halton seized the opportunity to discover evidence of army training, preserve this heritage and create a new educational and engagement resource.

Paintstaking work by a team of volunteers including commissioned and non-commissioned officers, Servicemen Awaiting Trade Training, arborist and a historian has been undertaken to preserve the 'better' trenches and to excavate the 'worst' ones, before constructing trenches in accordance with contemporaneous War Office construction regulations. There are over 100 metres of the 'new' Trench system which are

linked to the preserved system, providing a fascinating comparison between 'now' and 'then'.

The trenches, which consist of third, second and front line are over two metres deep and have been supported and hardened with planks or wood, corrugated metal and sandbags, just as they were on the Western Front during the Great War.

The Board was impressed by the enormous care that the RAF Halton team had taken to bring this First World War heritage to a state where it can be used to support the ethos of the Services, both as a memorial and an educational resource. The team and all the volunteers are to be congratulated on their efforts.



Panoramic view of the trenches © Crown

HERITAGE PROJECT AWARD **RUNNER UP**

RAF Northolt Officers Mess

This project aimed to retain the original features of the Mess and ensure that it would continue to be part of the RAF's heritage. The Grade II* Listed Officers Mess at RAF Northolt has recently been refurbished as part of Project MoDEL, a major estate consolidation and redevelopment programme, delivering three key outputs: disposal of six surplus sites in Greater London, construction and refurbishment of an integrated fit-for-purpose

'Anchor site' at RAF Northolt and re-location of approximately 40 units (1800 people) to/within Northolt. It is a significant achievement at a time of resource constraint.

The Board were impressed that it will provide modern facilities for the enhanced Air Station but also provide continuity and reflect the achievements and sacrifices of the Battle of Britain aircrews based here during World War 2.



RAF Northolt – Project MoDEL team in the refurbished Officers Mess © Crown

THE SANCTUARY AWARDS

ENVIRONMENTAL PROJECT AWARD **WINNER**

Pirbright Deer Grazing

The Pirbright Deer Grazing Project started with discussions over Sites of Special Scientific Interest (SSSI) condition targets, grazing as a management mechanism and Wildlife Trust Partnerships. The challenge was to remove scrub and re-establish the species-rich heathland. The solution had to achieve this within a particular challenge of the danger area of the Pirbright Ranges.

The proposal that wild deer will graze and provide a self sustaining 'maintenance vehicle' was fraught with problems, due to unexploded



One of the stunning heathland views within the ranges © James Adler



The first deer calf born on the ranges. It has been tagged to study its progress © James Adler

ordnance issues and no access allowed into the range, however a project team from Defence Estates and the Surrey Wildlife Trust was established. Nearly 13 kilometres of fencing was upgraded to make it deer proof whilst still catering for badgers and other small mammals and the work has had to be fitted in around a very busy operational shooting programme.

A major milestone was reached with the purchase of the first 20 deer which were released into the site in March 2010. There will still be much to do not the least of which is the ongoing management of the deer

herd but the fact that the project has become a reality has already resulted in Natural England upgrading the condition of the SSSI.

The Award Board were intrigued and delighted by this highly original approach to the improvement of the SSSI land which forms part of the Thames Basin Heaths. The efforts of the small team of dedicated environmental and animal specialists who led this effort were very impressive, and demonstrates the value of excellent partnerships.



Deer in paddocks, one of them sporting a GPS collar © James Adler

ENVIRONMENTAL PROJECT AWARD **HIGHLY COMMENDED**

Jurassic Shark Project

This is an international project with the aim of encouraging sustainable management and conservation of sharks (and other marine life) in the Eastern Pacific. Sharks are tagged thus allowing shark movements to be tracked and corridors to be mapped.

As a series of military expeditions the project aims to develop the kind of leadership, teamwork, courage and cooperation that

is vital to operational capability. Beyond that, Exercise Jurassic Shark expeditions expose military personnel to a unique conservation project that offers the opportunity to publicise the plight of shark populations in general.

The Board were intrigued by this project to tag sharks to add to the research base on these fish. It is an exceptional piece of work, and shows the truly international approach to



Roca Partida Group photograph © Crown

the conservation work of MOD personnel. The effort and enterprise is highly commended.

ENVIRONMENTAL AWARD RUNNER UP

Foxglove Covert Community Wetland Creation

As part of the continued development of Foxglove Covert, a decision was taken by the Management Team to seek funding for the construction of a wetland to enhance the mosaic of habitats on the reserve. The selected area was moorland that had previously been a tank training area. It was heavily gorse covered, rutted and gouged from years of military use. With endless hours of assistance from volunteers, a local agricultural college, disabled groups and students with learning difficulties, soldiers and school children, the gorse was cleared. It was recognised from the outset that fundraising would be necessary to complete the project.

The Award Board wishes to recognise this enormous achievement by the volunteers to develop the habitats and educational benefit



The new wetland © Crown

of Foxglove Covert. The scale of operation – all funded from the project's partners – is truly immense. Foxglove Covert is undoubtedly a premier environmental and educational resource in the North East of England.

ENVIRONMENTAL PROJECT AWARD
HIGHLY COMMENDED**RAF Woodvale & Freshfield SSSI Works**

The aim of the project was to help reinstate and reverse the heath decline at RAF Woodvale, situated on the Sefton Coast in North West England. Due to historic land management practices, the fixed dune and dune heath environment is in danger of being overrun by the spread and presence of scrub/tree cover and invasive weed species and there is a significant risk that the dune heath will be lost forever.

The Board wishes to commend the MOD staff and volunteers who have enhanced the remnant of a Site of Special Scientific Interest with help from the Wildlife Trust. This is a good example of small scale work that achieves real benefits for the environment. To find out more about this project please see the article on pages 20–21.

INDIVIDUAL ACHIEVEMENT AWARD WINNER

Mr Terry Moore

Mr Terry Moore has a small farm and a small tenancy on part of Otmoor, itself part of the flood plain situated to the north east of Oxford. Most of Otmoor is owned by the MOD and utilised by Defence Training Estates as a live firing range. The area is designated a Site of Special Scientific Interest (SSSI) and is treasured by local conservationists for its potential for birds, flora (particularly the fen violet) and butterflies.

Mr Moore cares passionately about Otmoor which he has grazed with cows for decades. He has also been the principal contributor to conservation works on the Moor, utilising his own equipment and time to do an enormous amount of work. Weed wiping has been effective and provided food and nesting sites for birds, ditching has improved water flow and the life cycle benefits of grazing animals are clearly evident. There is

now a slow but recognisable acceptance, and acknowledgement, by the statutory bodies and others that traditional farming methods, focused by Mr Moore for Otmoor are in the best interests of the Moor. His often lonely stand is being vindicated and there is an acceptance that traditional methods are not incompatible with modern conservation aims. He has a vast knowledge and experience of managing land and an unflagging belief in its importance for future generations.

His personal ambition to achieve SSSI favourable condition despite the impact of construction works and the recent changes to drainage patterns has been outstanding. The Board were impressed that he used traditional farming methods on the wet grassland and demonstrated that this approach can outstrip the outcomes of other forms of intervention. His achievements –



Mr Terry Moore, Otmoor Farm © Crown

and this has taken many years – have been recognised by Oxford University as a model of environmental management.



Maintaining the balance

Public access on the defence estate

Historically the MOD estate was often regarded as 'out of bounds' for public access and recreation. Over the past few years Sanctuary has highlighted a number of projects which have helped to break down this misconception. Richard Brooks, Senior Access and Recreation Advisor for Defence Estates takes this opportunity to reflect on a decade of a presumption in favour of public access.

"The MOD estate allows for a large amount and range of public access provision". Whenever I used to use this statement as an introduction to access opportunities on the defence estate it used to raise eyebrows with any audience. However, ten years on from the MOD's initial declaration of a presumption in favour of public access it would appear that our estate is well recognised as an asset to be enjoyed by the public.

Caveats clearly remain – there will always be parts of the estate that remain restricted because of the nature of the military activity undertaken or for public safety reasons. Additionally, considerations for our tenants, conservation, heritage, forestry and other land management activities can also impact upon access opportunities but there has clearly been a change in attitude to enable safe and appropriate access where possible.

The emphasis over the last decade has been on ensuring that the public has information to hand on what opportunities exist and when. The mantra relating to public access that has developed within the MOD over this time is 'Certainty, Clarity, Consistency'.

Certainty is about ensuring that public access and recreation are recognised as an integral part of our estate management. Open access and linear routes must be managed, maintained and made available, when possible, to fulfil our policy. The public need to be certain where and when access is allowable but equally the military need to

Mountain biking at RAF Flylingdale © Crown

be aware of where and when the public are likely to be on the estate. This allows for systems to be put in place which minimise any conflict between MOD's requirements and public access. Often the two need not be totally separated, and service personnel and the public can share a space with each taking into account the other's need in a responsible and sensible manner. There are, of course, times and places where separation is required for safety or operational reasons. The physical provision of routes, access



Friendly greeting exchanged as paths cross on Dartmoor © Crown

points and an understanding from both public and military of each other's activity give a certainty of access to the estate.

Clarity refers to information provision. It must be clear to any visitor to our estate where access is allowable. It is pointless having access provision if the public are unsighted as to its existence. Over the past decade there has been a drive to remove misleading notices and to ensure that access routes are clearly signed. A large number of new on-site information and interpretation boards have been placed across the estate highlighting not only access opportunities but also military, historic and ecological points of interests. Since the publication of the first 'Walks on MOD Land' booklet in 2000 the MOD has tried to improve on its off-site access information as well as working towards clear signage and on-site information. The MOD access website (www.access.mod.uk) contains information on the estate and the access opportunities within it. It also links the public to telephone numbers and further



Interpretation panel Battlesbury hill fort Salisbury Plain © Crown

information is as consistent as possible across the whole of our UK estate. The MOD has produced clear policy to drive a consistent approach to public access and recreation. This policy gives direction to land managers and Commanding Officers on how to manage

information more freely available but the MOD has also engaged on some major access projects providing new and exciting access opportunities. Often in partnership with National Parks, local authorities and other organisations, we are becoming part of the recognised network of access opportunity providers.

The mantra relating to public access within the MOD is Certainty, Clarity, Consistency

websites where up-to-date information can be found on live firing times for many ranges which are open to the public when not live. Improvements in advance notification have been made and this information is now more readily available adding value to the public's enjoyment of the estate.

A number of the most visited training areas have also produced their own specific access information. Otterburn and Dartmoor Training Areas, both in National Parks, have been the focus of access-related information projects with the production of leaflets, websites and on-site interpretation.

Consistency is very important. We recognise the fact that people enjoy access right across our estate and not just on one site – they could be visiting Tregantle in Cornwall one week and Cape Wrath in Scotland the next. We need to ensure that access delivery and

access. Since 2004 a team of access and recreation specialists has provided policy, legal and best practice advice to these managers assisting them towards the over-arching presumption in favour of public access.

These specialists liaise with the main access organisations such as the Ramblers, British Horse Society, British Mountaineering Council and the Open Spaces Society. They also liaise with government bodies with responsibility for public access such as Defra, Natural England, Countryside Council for Wales and Scottish Natural Heritage to improve consistency of approach to access across the estate. Better relationships with all of these organisations have developed and this has produced a better appreciation of each other's demands which has led to a reasoned and sensible discussion of key issues. Access and recreation provision has improved dramatically since 2000. Not only is better

These improvements in access management over the last decade have better enabled the public to enjoy the MOD's estate. There are some spectacular landscapes and habitats to enjoy but it must always be remembered that managing access on MOD land is about achieving a balance between access demand and the primary purpose of these areas – the military requirement. Balancing this will always be difficult, particularly at a time when our training areas are under particular operational training pressures. Military activity has to have primacy, but as we move into the second decade of the policy of presumption in favour of public access we will continue to promote responsible attitudes to access wherever and whenever this is feasible. ■

Richard Brooks
DE Senior Access and Recreation Advisor

Further information

For further details on public access to the defence estate and links to those sites mentioned above go to www.access.mod.uk

Public access on the defence estate in Scotland



As the demand for access and recreation on the defence estate develops the newly appointed Access Advisor for Scotland introduces himself and his role:

Prior to joining Defence Estates in late 2009, I worked for eight years at Loch Lomond & the Trossachs National Park as a Countryside Ranger, and as a result I have been involved in access work since the inception of the Land Reform (Scotland) Act 2003 (LR(S)A). Before that, I was a Serviceman in the Royal Air Force for over 13 years. Hopefully this mixture of military and access backgrounds provides a good platform for taking on this often challenging role.

Part of my remit is ensuring that the MOD is fulfilling its responsibilities under LR(S)A as a land manager. Part 1 of LR(S)A gives everyone statutory access rights to most land and inland water in Scotland. However, the law is clear that people only have these rights if they exercise them responsibly and respect other people's privacy, safety and livelihoods, and Scotland's environment. Equally, land managers have to manage their land and water responsibly in relation to access rights. These access rights do not apply to operational military bases and installations such as airfields. However, on other land and water managed by the MOD there is a presumption in favour of recreational access, wherever this is compatible with the primary military purpose.

Pentland Hills Training Area in winter © Scott Ashworth

In the present climate, with many troops carrying out intensive training prior to deployment to Afghanistan, many defence training areas are being heavily used. It falls within my remit to try and ensure that during periods when these sites are not being used by the military that there are ample opportunities for the public to exercise their access rights responsibly. One of the ways this is undertaken is by writing or revising the public access and recreation components of the Integrated Rural Management Plans for each site. These management plans are then used as the tool for managing all aspects of the rural estate.

Scotland has different legislation for rights of way to England and Wales and until recently records of rights of way on the MOD estate in Scotland were poor. However the Scottish Rights of Way and Access Society (Scotways)

has kindly provided DE with a digital copy of the National Catalogue of Rights of Way. This has enabled us to overlay rights of way data on top of our own maps of the defence estate which has been very useful as we write the management plans. For the first time we have an overview of which areas of defence land contain existing rights of way, and we can use this information as we assess how to balance public access with the operational capabilities of each site.

Another element of my role has been representing the MOD's interests in the final stages of the Core Path Planning Process that has been taking place in Scotland for the last three years. Under LR(S)A each access authority in Scotland, be it a local authority or a National Park Authority, has a duty to draw up a plan for a system of paths (Core Paths), many of which are new routes, sufficient for the purpose of giving the public reasonable access throughout their area. Several access authorities proposed routes in their draft Core Path Plans that crossed areas of MOD land. Some of these were deemed unsuitable by the MOD for operational reasons and the proposals were withdrawn or modified after consultation, while others were seen to have no major impact on the effectiveness of the sites and were accepted as new strategic routes.

The defence estate in Scotland provides excellent opportunities for the public to access in some of the most beautiful, remote and unspoiled parts of the UK. With careful management of the many demands on the estate, these access opportunities will continue to be made available to the public. ■

Scott Ashworth
DE Access and Recreation Advisor Scotland



Access track in Garelochhead © Crown

Mention trees and woodlands to many people and they will automatically think of habitats for birds, bats and a plethora of other creatures. They may also think of tree safety, shading in their back garden or a nice walk with the dog. Mention forestry and the same people may think of large areas of clear felled woodland and the general desecration of a once lovely woodland with what look like machines straight out of a science fiction film. What they may not think of are the many benefits that forestry delivers across the defence estate and the many ways in which the forestry team achieves these benefits. This may come as a bit of a shock to many, traditionally foresters are notoriously shy and normally shun the limelight.

The time has come however for everyone to embrace forestry, if not foresters, because in this ever changing world in which we live, forestry has the opportunity to change and influence all our lives. Just have a look around at your surroundings where you're reading this article.

Chances are you'll be surrounded by wood in a variety of guises, in your desk or in your shelves, then have a look out the window, again, chances are you'll see a tree or if you're lucky a woodland, most people have a natural affinity to woodland, you can thank our tree dwelling ancestors for that! Then consider the possibility that even the heat from the radiators may be produced by wood fuel.

You see forestry isn't just about providing a haven for wildlife, this is one facet of course, but forestry is so much more. It provides:

- robust sustainable military training features (conifer plantations for example provide year round cover for training);
- social and community benefits in many guises;

Seeing the wood for the trees Forestry on the defence estate



Biomass boiler © Crown

- access to a sustainable material for construction;
- fuel and a plethora of other uses.

The MOD are committed to meeting key government targets aimed at reducing our

carbon footprint, moving towards a low carbon society and utilising renewable energy sources. Trees are well placed to deliver these benefits because they are truly sustainable, if managed correctly. This is where the productive element of our

UPDATE



Productive woodland and military training © J Kalkowski

woodlands comes into its own, but also where most concern is voiced over the management of woodlands.

It's the continued sustainable management of our woodlands that will be able to assist in mitigating the affects of climate change. In Bovington, Dorset and in many other areas biomass boilers are making this link between

woodland management and renewable heat supply. To foresters utilising our well managed woodlands, the addition of a market to provide heat which is truly sustainable in every sense is great news. Fuel wood has always been a staple of woodland output, usually in the form of logs; biomass (usually in the form of wood chips) is exactly the same thing just on a bigger scale and the continuing rise in fuel prices offers potential for this market.

Of course the more trees we have the more carbon is taken out of the atmosphere (sequestered) when they are growing, which leads to more renewable material, which in turn feeds into more sustainable woodland management. More benefits for our core aim of military training in being able to use a more diverse estate and more opportunities for wildlife and society as a whole. All recent research points to the need for more trees in the UK, which has one of the lowest woodland covers in Europe. Responding to this challenge the MOD is undertaking a study to identify how many more trees it can plant on its estate. The objective for this study is the

right trees in the right place. This will include native and coppice woodlands and conifers, all sited sensitively and for the correct reasons.

Conifers continue to play an integral part on our woodland management, not only to meet our military training requirements, but also offers the opportunities to generate revenue. Sustainable income generation is important facet of proactive woodland management and conifers will have a place in more of MOD woodlands across the estate. Indeed some of our rarest or threatened species are closely associated with production forestry, just so long as it is carried out sensitively and as a part of long-term forestry plans. In Northern England and Scotland the sustainable management of large swathes of conifer woodland provides not only sustainable income for the department, but also associated wildlife benefits, rural employment and support for secondary wood processing businesses.

At Defence Training Estate Warcop in Cumbria the DE regional foresters have finished this year's planting and are looking eagerly



School children enjoying planting their trees
© J Kalkowski

forward to the next planting season. New native woodland has been created in conjunction with the North Pennines Area of Outstanding Natural Beauty Partnership and we are working more and more with industry to deliver all the benefits that forestry offers. Volunteers and schoolchildren have helped to create not just a vital military asset but a vital habitat link into the rich and biodiverse landscape. The future use of this new woodland was reinforced to the children when as planting was underway tracer fire was seen in the distance! The role that woodlands play in military training was then explained to the children who took great delight in helping by planting trees.

Further north at DTE Otterburn in Northumberland DE regional foresters are demonstrating to military users of the estate that utilising our own timber is a cost effective way to reduce purchasing costs. Woodlands have the potential to not only provide fuel, construction timber and large scale volumes to markets but also to provide day to day items such as fence posts, strainers, post and rail. More information on this can be found on pages 44 to 45. As we continue to strive towards best practice one benchmark process for this is the independent certification of the stewardship of our woodlands, this is an industry and government recognised accreditation and is an aspiration for MOD foresters to achieve as we have done at our site in Otterburn. This demonstrates to all that we are managing our woodlands for all the multiple benefits it creates.

Forestry is not just about managing our woodlands however, single trees or amenity trees as they are sometimes known fall within the forestry remit and also need management. Specialist staff within the forestry profession advise on arboriculture aspects of management, this may range from tree reports to individual tree management and replacement.

Some of the most contentious issues surround individual tree management. Strict guidelines ensure that on such a large estate we provide a safe and measured approach to tree surgery to fully manage the risk associated with large living organisms. Of course they are living and their situation is constantly changing, so

a rigorous recording system ensures these changes are monitored throughout the life of the tree. While our woodland cover maybe sparse in comparison to other countries, our stock of ancient trees, under MOD management responsibility, is well renowned and highly regarded and our management is aimed at maintaining this rich natural resource. You may have seen one before, usually gnarled and twisted, old and decaying and invariably big! On the MOD estate we have a large number of these leviathans and they need our help. The MOD recognises the cultural and biodiversity values of these trees and is working with the Woodland Trust to ensure they are recorded and protected for many years to come. Just

imagining what a tree with that much historical knowledge would have to say is mind boggling, and that's a relatively recent introduction in terms of ancient trees!

Jon Watson
Senior Estate Surveyor (Forestry)

Further information

For more information about how to become involved with the ancient tree hunt please contact the Woodland Trust WWW. ancient-tree-hunt.org.uk



Ancient tree © J Butler

Hitting the target

SSSI condition update



Cattle at Ash Ranges © Crown

In spring 2010, the MOD hit the target of getting more than 95% of the MOD's Sites of Special Scientific Interest (SSSI) in England into 'favourable' or 'unfavourable recovering' condition, and is on track for success in Scotland, Wales and Northern Ireland. This is a great achievement, and reflects an enormous combined effort from Defence Estates and wider MOD staff, our contractors, our tenants and statutory nature conservation bodies, working together to deliver what few believed was possible ten years ago. However, the job is not over yet, and the next decade will hopefully see continued efforts to complete the restoration works on our larger sites such as Salisbury Plain, and to maintain the areas that have been restored.

SSSIs¹ are the UK's network of nationally important sites for wildlife, geology and geomorphology. They have been described by English Nature (EN) as 'the jewels of England's natural heritage'². The MOD has management responsibility for 71,558 hectares of SSSIs in England, which is 7% of the total English SSSI area, and 40% of the total MOD Estate in England. Most of these SSSIs are also considered to be internationally

important, and are designated as Special Protection Areas, Special Areas of Conservation and/or Ramsar sites.

The protection of SSSIs was transformed in 2000 by amendments to the Wildlife & Countryside Act. The statutory nature conservation agencies were given greater powers; owners, occupiers and the public were given greater responsibilities; and stronger penalties were introduced. The amendments placed a duty on all public bodies, including the MOD, to take reasonable steps to further the conservation and enhancement of the flora, fauna, geological or geomorphological features of SSSIs.

The government also announced a Public Service Agreement target to bring 95% of SSSIs into 'favourable' condition by 2010. At that time, only 37% of our English SSSIs were reported as 'favourable' or recovering, though large areas hadn't yet been assessed. While some habitats were maintained as a by-product of managing the estate for military training, many areas had been neglected, and it was possible that some of our SSSI holdings would be assessed as

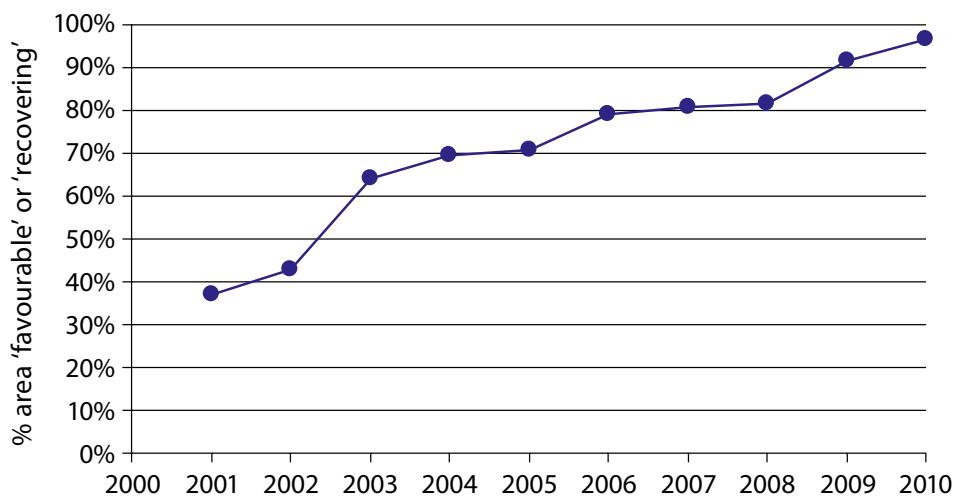
damaged or destroyed by military training. We weren't sure which SSSIs the MOD had management responsibility for, or the issues that were causing 'unfavourable' condition, and had frequent debates with EN over how 'favourable' condition should be defined on our sites.

In 2003, the first national round of SSSI condition assessments was completed. We were pleased to discover MOD was above the national average. Working with EN, we set out all of our SSSI 'management units', the issues, and the measures required to get units into 'favourable' condition, and launched the MOD SSSI Condition Improvement Programme to coordinate and monitor progress. Many of the issues were the same as those facing other landowners, predominantly high cover of scrub and conifers on grasslands, heathlands and moorlands, infestations of rhododendron and other alien species, as well as non-military land-use impacts such

¹ Or Areas of Special Scientific Interest (ASSI) in Northern Ireland

² English Nature <http://www.publications.parliament.uk/pa/cm200304/cmselect/cmenvfru/475/47504.htm#n2>

MOD England SSSI condition



as overgrazing, inappropriate drainage ditches, and loss of intertidal habitats due to coastal squeeze. The main issues arising from military training were constraints on what management could be achieved, with mechanical scrub clearance and fencing limited by risks of unexploded ordnance and a widespread view that grazing infrastructure and livestock would be constrained due to the operational use on the training areas.

Some restoration projects were already in progress, including the National Lottery funded 'Tomorrows Heathland Heritage' Projects in Dorset, Hampshire and Surrey; the EC LIFE project on Salisbury Plain Training Area and Porton Down; and 'Rural Elements of the Estate Strategy' (REES) projects funded by the Army Training Estate.

Between 2004 and 2005 we were able to undertake significant scrub clearance and plantation removal works, planned and overseen by DE foresters and ecologists and delivered by Landmarc Support Services and Debut (South West) Ltd. At the same time there was a great drive by DE Estates and Environmental Advisors to encourage existing agricultural tenants to take up the new Entry Level Scheme and Higher Level Stewardship. Also, after some successful pilot schemes and demonstration projects, there was a move to register and advertise huge swathes of previously unmanaged grasslands and heathlands for new tenancies and grazing licenses.

A key success of this programme has been the improvement to military training through the clearance of scrub and self-sown conifers. On many training areas increased vegetation was beginning to limit infantry and vehicle manoeuvres, and open grasslands, heathlands and moorlands offered better environments for essential Iraq or Afghanistan predeployment training.

Over the past five years the programme has been greatly aided by the successful application of agri-environment schemes, and by flexible contractors. Due to the demand for military training areas, on most range danger areas we have to schedule works in the short 'shut-down' periods at Christmas and Bank Holidays. Even with working weekends there are limits to what can be achieved, and so it will take many years to complete improvement works on some sites. Therefore in 2009 the MOD entered a 'Joint Partnering Agreement' (JPA) with Natural England, in which all SSSI units



Heathland restoration at Longmoor © Crown

with an agreed and committed programme of works could be considered to be in 'recovering' condition.

Through the JPA the MOD has committed to many more years of habitat restoration works, and to ongoing maintenance once restoration is complete. It will be very difficult to maintain funding levels in these times of austerity and pressure on government budgets, but the MOD recognises that maintaining our SSISI's is a statutory duty. Therefore we will once again look to our partners to help us find ever more cost-effective ways to look after these nationally important sites, to ensure that the gains made over the last decade are not a wasted effort, and to ensure that these 'jewels in the crown' can form the foundation for rebuilding biodiversity in the wider countryside. ■

Stuart Otway

DE Senior Environmental Advisor
(Natural Environment)

Pippa Morrison

DE Sustainable Development Policy Advisor

Acknowledgements

The MOD SSSI programme in England has been a major partnership project, made possible by the involvement and commitment of many people across the MOD, our contractors and tenants, NE, CCW, SNH, DOENI and members of the MOD Conservation Groups.



Cattle at Pondtail © Crown

Case studies DTE Otterburn and RAF Spadeadam

At DTE Otterburn areas of blanket bog include the Otterburn Mires SSSI and parts of the Harbottle Moors and Simonside Hills SSIs. Some of these peatlands have evocative names such as Foulplay Knowe and Bloody Moss and support a range of specialist plants such as *Sphagnum* mosses, sundew, cranberry and cotton grasses. The mires are also important for invertebrates including dragonflies and the large heath butterfly.

Some of the Otterburn Mires were previously assessed as being in 'unfavourable' condition due to overgrazing, drainage and damage from vehicles. In the past, in common with much of upland England, Otterburn Training Area was grazed by too many livestock encouraged by agricultural subsidies. Wet areas of heath and blanket bog were also routinely drained with a regular pattern of ditches known as grips to boost agricultural production. A programme of SSSI restoration has begun blocking up these mire grips and the numbers of grazing livestock is being reduced under agri-environment schemes.

As part of the SSSI improvement works a programme of grip blocking has been undertaken at RAF Spadeadam, Cumbria.



Drain management intervention in action
© Victoria Alexander

Here mires were mostly drained and planted with conifers as part of the vast Border Forests of Kielder, Wark and Spadeadam managed by the Forestry Commission (FC). Working in partnership with the FC, restoration has also involved grip blocking along with the removal of coniferous trees.

Although driven by the requirement to improve SSSI condition, converting open drains to areas dominated by peat-forming vegetation, grip blocking has other environmental benefits, including aiding the water retaining functions of the peatlands, reducing flooding risk in watercourses downstream, and restoring the carbon storing capacity of the peat, helping combat climate change.

Grip blocking has mainly involved plastic piling dams which raise the water table, re-wetting the peat. Alternative techniques include re-profiling ditch sides and creating peat dams with specially modified excavators,



Dams at Whitestone mire © Crown

or creating peat and vegetation plugs within the grips. At Prior Lancy mire, part of RAF Spadeadam, it was felt that vegetation colonisation was not proceeding satisfactorily due to the large size of the grips, so the expanses of open water were blocked with bales of cut heather.

Now all the mires on the defence estate are in 'favourable' or 'unfavourable recovering' condition, as a result of the management works that have been carried out, but there is still more to do before all units are considered 'favourable.'

Dr Moira Owen
DE Natural Environment Advisor



Section of drain full of water with plastic piling dams © Dr Moira Owen

Hitting the target **The Scottish context**

In Scotland SSSI condition assessment is based on features rather than 'units' of different land ownership. A feature is defined as flora, fauna or geological which is one of the qualifying interests of the SSSI. One of the difficulties of this system is identifying if a feature is in the control of an individual landowner. As part of its site condition monitoring (SCM) programme, Scottish Natural Heritage established a major landowners group, project board which includes a DE representative and plan to achieve the targets.

SNH area officers and the DE Scottish Environment Liaison Team worked through

each of the estates Scottish SSSIs, identifying the features for which MOD has responsibility, and the features not present on the estate or which were not in MOD control, such as sea bird populations.

The MOD Scottish estate covers 24,000 hectares; net results of the programme to date have been:

- Of the 224 features initially screened; 164 have been identified on MOD estate in Scotland, of which:
 - 135 are in 'favourable'/'unfavourable recovering' condition;
 - Of the remaining 29 features, nine have been identified where further

management is required; the other 20 features are beyond the control of the MOD;

- SSSI features in recovering condition have increased from 68% to 95%;
- Achieved at very little cost to DE;
- Prioritised funding for remaining SSSI improvement and restoration tasks.

The next stages of the SCM programme are reviewing MOD Natura and Ramsar sites and a web based SSSI information system for landowners. ■

David West
DE Environmental Advisor

Case study DTE Tain Air Weapons Range

DTE Tain is a bombing range on the Dornoch Firth near Inverness. Much of the site is designated as Morrich Moor SSSI for saltmarsh, sand dune (dune heathland), geomorphology, vascular plants, various breeding bird species, and flies. The majority of the features are in 'favourable' condition, although there have been significant management issues with regard to the dune heathland. The site's Integrated Rural Management Plan identified two key issues which needed addressing to bring this feature into management.

The first issue was the high levels of unexploded ordnance, which limits management options. The preferred management option (taking account of military requirements, health and safety, conservation objectives and cost) is a muirburn (controlled burning) regime. Working closely with SNH, DE arranged for the 'Aardvark' mine clearance vehicle to cut trial fire breaks. The trials were successful and with the fire breaks in place muirburn can now be carried out. This will encourage heather re-growth and improve the age structure.

The second issue was the need for a long term scrub management plan. One of the

SSSI features is that the site holds 10% of UK coastal juniper, the scrub plan will remove gorse, willow, birch and broom whilst retaining and enhancing the juniper and encouraging seed production. The plan was produced last year and is now in the process of being implemented by DE. ■

David West
DE Environmental Advisor



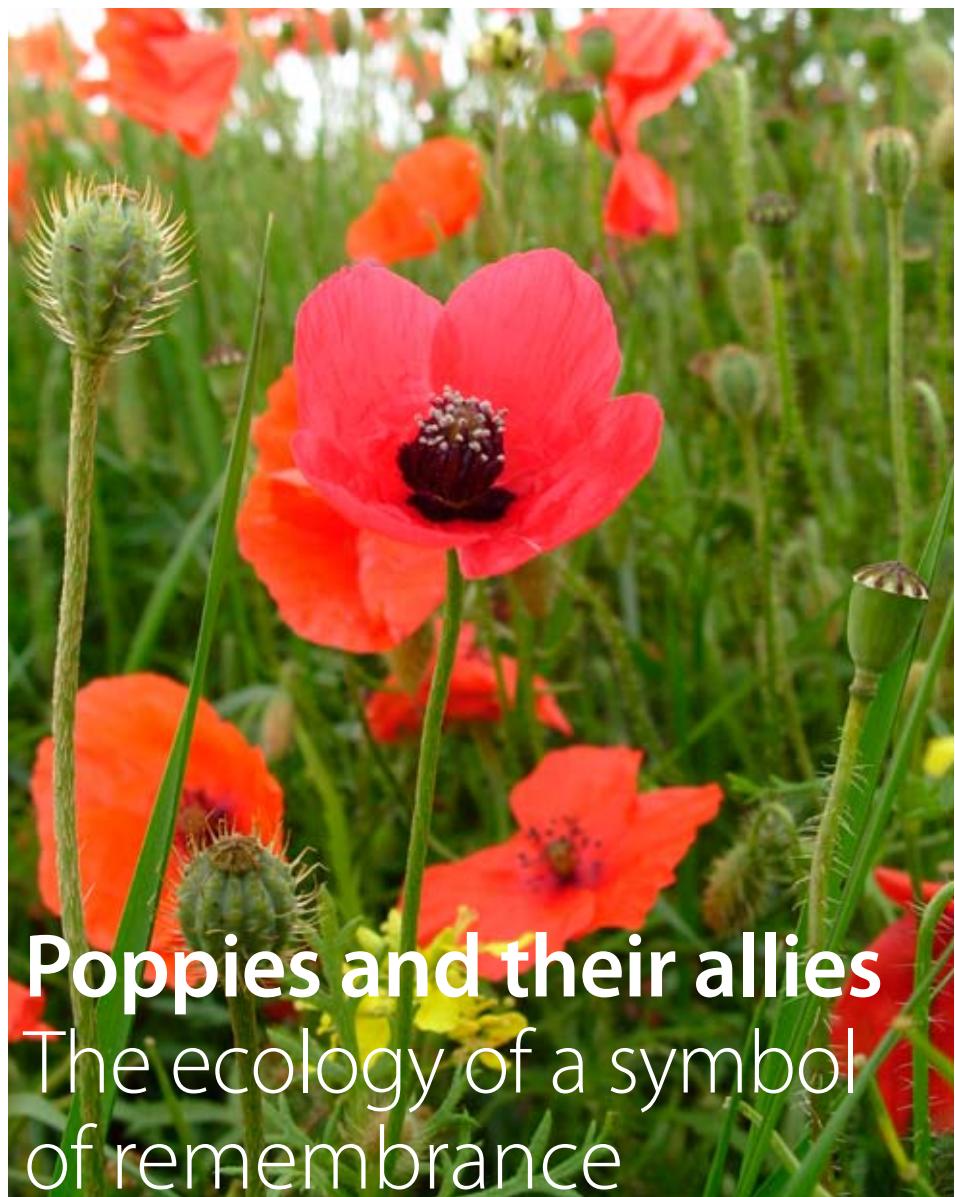
Above and top: Aardvark on DTE Tain © Crown

Poppies are our emblem for remembering those that have fallen in battle. They were chosen because of their profusion over First World War battlefields where heavy bombardments and trampling created ideal conditions for what is a plant of disturbed ground. They are particularly a plant of lime and nutrient rich soils and grow well across northern France and Belgium on the chalky soils where much of the trench warfare took place; much as we have across Salisbury Plain the military's largest training area in the United Kingdom.

The links between the training on Salisbury Plain and the First World War battle fields have been investigated and discussed in detail by my colleagues in previous articles in Sanctuary. In the early decades of the 20th century the farming across northern Europe was largely low intensity in nature with little in the way of use of artificial chemicals and certainly not herbicides. So the training trenches on Salisbury Plain would have been covered in arable plants like poppies during the warm summer months of the 1914–18 war just as they were in France and Belgium.



Pheasant's eye *Adonis annua* © Crown



Rough poppy *Papaver* © Crown

To see poppies in such profusion today is relatively unusual as they fall easy prey to modern herbicides but with a little relaxation or error on the farmers part, not getting his rate of herbicide application correct as he starts his list of management tasks on each crop we may see his first headland come to life in the summer with a line of poppies.

So what do poppies like and what is their ecology? Basically all plants can be allocated a range of characteristics which describe their ecological strategy. Whether they can cope with environmental stress or can compete with other species or do neither, and only grow where they have no competition for nutrients, water and warmth.

Our poppies are the latter – they like an easy life, but these conditions are rare and most of the time there is little space for such plants. To survive these conditions they have seed which sits in the soil waiting for the good times.

Even up to the 1970s you could find good sites for a whole range of these specialist plants. They are all associated with growing crops like barley, wheat and peas which actually have similar requirements to plants like the poppy at least if you want to harvest a crop from them. In historical organic farming many of these colourful plants would have been hoed out but this was and is an inefficient strategy. At least some plants would have survived to

flower and replenish the seed-bank. But not with modern herbicides, over time there is an attrition of the seed bank until you can get a 'clean' tilth in which to grow your crops.

Ironically on Defence Training Estate Salisbury Plain much of the training area was under cultivation historically prior to MOD purchasing the land and much of this was before the use of herbicides was widespread. So much of what is now grassland has an arable plant seed bank in the soil last disturbed anything from 40 to 140 years ago.

This means that any disturbance to these relatively young grasslands could release now rare plants to grow and flower. We know from creating cultivated plots these grasslands release some real gems. Most plots have a range of 'commoner' arable plants like

this crop seems to have transferred the seeds of one of our specialities around his farm. If you disturb any ground that was once in his ownership you may be lucky enough to find the very beautiful pheasant's eye. It has intensely red petals and orange anthers and is one of our rarest arable plants, which in the past was picked and sold commercially. It is in fact closely related to the buttercups. We re-discovered it after directing a military exercise which involved 'digging-in' a vehicle onto an area of grassland close to where there were some old records for the species. Unfortunately we couldn't maintain this area as it was in designated chalk grassland! Later after some road improvements nearby we again had a fantastic showing of the pheasant's-eye and have since maintained a cultivated plot so it can flower every year.

Often these species may only occur on certain parts of the Plain

the diminutive dwarf spurge, common fumitory and small toadflax plus usually common poppy, along with some plants that were a major bane of farmers lives in the past like charlock. This latter plant which is closely related to oil-seed rape produces high volumes of seed which is perfect for birds like the linnet. On these cultivated plots initially there is a mass release of nutrients and a few of the more fast growing are able to dominate the plant community.

However as time goes on and with repeated cultivations the nutrient levels drop and we start to find the smaller, specialist and more unusual species. Often the distribution of these species is localised and may only occur on certain parts of the Plain. So for example we only find red-hemp nettle, a red data book species, on the West of the Plain and especially in areas that were cultivated around Imber Village. These turn up especially where heavy military vehicles disturb track edges. On the northern part of east Salisbury Plain we find dense-flowered fumitory, a rarer cousin of the common fumitory.

In one case we know on a farm close to Durrington the farmer did grow sainfoin as a hay crop for many years. His management of

On a range of these more diverse plots we also get a close relative of the common poppy which can tolerate slightly lower nutrients the rough poppy. This is perhaps the most attractive of the poppies having a smaller flower but a much deeper and richer red and in a mass flowering an even more striking visual impact.

Most species of plant are distinctive and can be identified because they look different. However some can hide themselves in small numbers in amongst close relatives. It was on one of these occasions that I had been on a visit to a site in Cornwall notified as a Site of Special Scientific Interest for its rare arable plants. I was shown night-flowering catchfly which is a close relative of the roadside red campion. On certain plots on Salisbury Plain we have abundant white campion and I had failed to notice if there were any of the closely related night-flowering catchfly. However no sooner had I returned from visiting Cornwall I checked the plots which had abundant white campion. I duly found two sites for night-flowering catchfly.

This story is important because in subsequent years I paid more attention to the plot with night-flowering catchfly. It was always only

present in small numbers but on one occasion I discovered a new species of plant. It was clearly a relative of the woundwort family but I couldn't find it illustrated in any British flower book. I asked around close friends who were professional botanists and no one was familiar with it. I eventually tracked down a description of a potential candidate for the species in a European flora.



Yellow woundwort © Crown

It turned out to be a species called *Stachys annua*, or pale-yellow woundwort. It was a plant that had last been recorded in Wiltshire in the 1930s but was another one of those species that had been a common arable plant especially in the South-east of England.

So had pale-yellow woundwort actually been common on and around Salisbury Plain? At the time the soldiers of the Commonwealth were training on Salisbury Plain ready to go and fight in Northern Europe, did they take with them the familiar sights of plants now largely unknown to us as well as those of the poppies of the chalk lands? We'll probably never know but it remains of great interest to speculate on what an amazing countryside we had in the early years of the 20th century and what those soldiers left behind. ■

Dominic Ash
DE Natural Environment Advisor

RAF Woodvale is situated on the Sefton Coast in the North West of England. Just 200 hectares of dune heath survive in Britain and 50 hectares can still be found on the Sefton Coast. So important is this area that a large percentage has been designated as a Site of Special Scientific Interest (SSSI) and a Special Area for Conservation (SAC).

RAF Woodvale contains approximately 6.4 hectares of SSSI land and Defence Estates (DE) have produced a 5-year plan to bring the SSSI to a 'favourable' or 'unfavourable recovering' condition. The current condition of the SSSI within RAF Woodvale is 'unfavourable recovering' condition.

The SSSI is home to a variety of rare and endangered flora and fauna. More than 250 plant species have been recorded within the SSSI and include heath grass, heath rush, bird's-foot and heath bedstraw all of which give way to the more dominant gorse, heather, sand sedge, wavy hair-grass and sheep's fescue. Mammals such as short tailed field voles, shrews, stoats, weasels, foxes and

Restoring areas of dune heath at RAF Woodvale

the occasional red squirrel can be found along with common lizards and the declining sand lizard. The site is also host to a varied number of birds with over 75 different species that include; woodcock, blackcap, nesting buzzards, chiffchaff and willow warbler. Over 100 species of invertebrates have been identified including northern dune tiger beetle, emperor moth, grass eggar, Portland moth and white colon.

My involvement in the project at RAF Woodvale began in 2008 when CarillionEnterprise (C-E) helped to initiate a joint site meeting with the RAF, DE, English Nature and Lancashire Wildlife Trust (LWT). This meeting was primarily to discuss maintenance requirements within the SSSI and in particular the MOD element. This presented the opportunity for DE and its stakeholders to review the DE 5-year action plan.

Due to historic land management practices, the fixed dune and dune heath environment is in danger of being over run by the spread and presence of scrub/tree cover and invasive

weed species. There is a significant risk that the dune heath will be lost forever and will no longer support those species that survive within this rare and fragile habitat.

To help reinstate and reverse the heath decline a number of management strategies had been identified and these included; the removal of scrub encroachment through mechanical and manual cutting practices and the removal of 90% of less mature trees. In the summer months chemical treatment will be applied to prevent stumps regenerating and a new stock fence and gates have been installed within a small section of the site to link the area with the current grazing regime carried out by LWT. An area of firm bare sand with sunlit horizontal slopes is to be instated within the summer months of 2010 and this is to provide a habitat for the declining sand lizard.

The SSSI is home to a variety of rare and endangered flora and fauna

At the request of Natural England, all works within the SSSI had to be carried out between November and February to ensure no disturbance to breeding birds. The initial works, which started in December 2009, were impeded by heavy snow, but were soon back on track and met the agreed completion target dates.

Through conversations with LWT at the initial SSSI meeting, I was surprised and thrilled to hear how successful their re-instatement of the heath had been on the adjacent and former MOD land. LWT have been clearing overgrown birch, poplar, and scrub within the



Before the gorse clearance © Peter Malburn



Community project with LWT © Peter Malburn

area now known as Freshfield to allow ground-cover flora to regenerate and bring the site back into a favourable condition. They indicated that there was still much more work to be done and collaboration with C-E would be appreciated. This got me thinking as to how DE and C-E could join forces to help LWT to preserve the whole SSSI and enhance its ecological value for future generations.

Through the Carillion Natural Habitat Fund (CNHF), which is used to support local Wildlife Trust projects, £5,000 was secured for the LWT Freshfield Dune Heath Project. The funding was used for the removal of overgrown gorse and the installation of a new stock fence to allow grazing. A further £1,000, direct from C-E, was secured for the Formby Red Squirrel Sanctuary. LWT manage the Formby Red Squirrel Sanctuary, which also adjoins RAF Woodvale. The sanctuary is one of the last few strongholds for the red squirrel in this area but recently they have had two thirds of their population wiped out by the squirrel pox. The funding will be used to help create a larger buffer zone around the squirrel refuge and to help keep the zone clear of greys.

In addition to the project funding C-E and DE joined forces to provide some much-needed manpower to the project. A community project was arranged on 18 February 2010 at Freshfield, which coincided with the LWT 'Bring a Friend Volunteering Day' awareness campaign. The day involved various activities aimed at supporting the overall conservation objective. RAF Woodvale's Station Commander, Squadron Leader Howard Carby, supported the day by volunteering the services of



After the gorse clearance © Peter Malburn

personnel from Liverpool University Air Squadron, who assisted C-E staff, family members, sub-contractors and other members of LWT volunteers. LWT aim to provide an article about the day in their Lapwing Magazine, to promote the works as a joint initiative between C-E, RAF Woodvale and the LWT. On the day all those involved

had the opportunity to learn more about the environment they were working within, how they can help in the future and what benefits the work they carried out will bring. ■

Peter Malburn
RPC Midlands Area Sustainability Coordinator, CarillionEnterprise



RAF Woodvale after works complete © Peter Malburn

Bird surveying on Strensall Common

History of bird surveying on Strensall Common

The area known as Strensall Common is part of the defence training estate northeast of York covering 660 hectares and when not required for training purposes it has been a popular place for bird recording and other natural history pursuits for many decades.

The habitat is primarily lowland wet and dry heath with scattered birch and scrub and occasional clumps of pine, and scattered ponds. The southern part is mainly acid grassland with mown areas on the firing ranges. It is an internationally important lowland heath and is recognised as a Site of Special Scientific Interest (SSSI) and a Special Area for Conservation (SAC) under the EC Habitats Directive on account of its nationally important insects and plants. For these reasons it is managed as an important part of the MOD's remit to maintain and enhance existing sites of conservation value on the defence estate, wherever possible.

For many years, annual bird surveys using MOD and local volunteers from the Strensall Defence Estate Conservation Group have taken place and recorded the species seen and made counts of the more important species. The early standard survey method for surveyors was to walk a set route and mark sightings on a map, from which totals could be calculated and a yearly summary produced. In



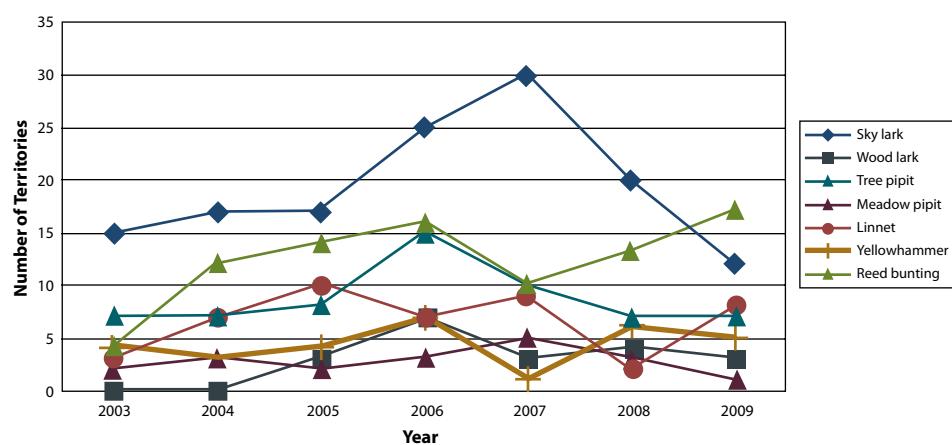
Strensall Common birches © Peter Reed

2005, the introduction of the British Trust for Ornithology (BTO) 'BirdTrack' computer system resulted in the requirement for a more formal recording method so that records could be compared more easily between MOD sites,

and also contribute to future national statistics on bird numbers and breeding trends. Counts were changed to the recording of bird numbers per Ordnance Survey one kilometre by one kilometre grid and records of breeding evidence using a series of BTO codes were introduced. The latter are different codes such as 'bird in suitable habitat', 'singing', 'territorial behaviour', 'bird carrying food' etc. These can then be allocated later, to 'possible', 'probable' or 'confirmed' breeding status records for each 'square' and then counted and added to the 'BirdTrack' database. This system means that for the National Bird Atlas Survey, which runs between 2007–2011, our records are directly incorporated into this national survey, as well as being used for local and national MOD purposes.

These changes have meant that, for comparability purposes over the years, we have had to make some adjustments by going back to the original figures, but we now have records of the number of

Number of territories for seven bird species on Strensall Common 2003–2009



territories on a consistent basis for the seven years 2003–2009, which can be plotted to show trends on an annual basis (see graph). This has been done for seven species which are of interest because they are either Schedule 1 protected species or 'Amber listed' Biodiversity Action Plan species. It can be seen that yellowhammer, linnet, tree pipit and meadow pipit have generally maintained their numbers, and reed bunting has increased from four to approximately 17 territories. Skylark, although having a steep rise in 2006 and 2007, also had similar numbers as in 2003. Curlew and snipe (not shown), which favour wetter areas, have been stable at around three or four territories most years and reed and sedge warblers have also remained constant at around two or three territories.

One of the major changes over the 2003–2009 period is the increase of stonechats where, although occasionally found in the past, in 2003 two territories were found and breeding proven; by 2008 seven pairs were producing up to two broods each, with many fledged juveniles. This appears to be part of a general local and national trend of this species, due to habitat and possible climate changes.



Stonechat © Nigel Stewart

The discovery of the nightjar in 2004 was the first record here since the early 1980s and technically is within the City of York! Further sightings and hearing of the familiar 'churring' song have been recorded since, and even occasionally on the Common itself, so hopes of re-establishment are high.

Passing migrants also use Strensall Common and the grassy slopes of the ranges often produce wheatear during the spring, and wood warbler, whinchat and redstarts have also occasionally been recorded. Another

feature of Strensall Common is the interesting 'butt-ponds', produced when material was dug to create the ranges' protective rifle butts. These ponds have now grown up and have a flourishing colony of black-headed gulls, sedge and reed warblers and reed buntings. As with other areas of the country, increased sightings have been made recently of red kites, buzzard and hobby visiting or flying over the Common.

Monitoring of these changing bird populations is an important part of the work of the local Strensall Common Conservation Group, which is made up of MOD staff from the various sections, the local tenant farmer, Natural England, the parish council and various natural history specialists. The management is determined by MOD needs with nature conservation and environmental enhancement of the heathland as an important component, with bird surveys a yearly but vital and enjoyable activity. These would not be possible however, without the eager and enthusiastic volunteers who carry them out, and without whom this article would not have been possible! ■

Peter Reed

Conservation Group Member

The author lives in Strensall and has been birding the area since moving to Yorkshire in 1996. He is a member of the local Conservation Group and has organised the Strensall Common bird surveys since 2003. He is assistant recorder for the York Ornithological Club.

Records are directly incorporated into this national survey, as well as being used for MOD purposes

Another species that has increased greatly is the woodlark, which was first recorded breeding in 2005 and increased to seven territories in 2006 and now is around three territories. It prefers very short grass or mossy bare areas such those which had been cleared as part of the English Nature/Heritage Lottery Fund 'Restoring the Heaths of the Vale of York' project, or areas deliberately burnt as part of grassland management. An area of 14 hectares of conifers managed by the Forestry Commission adjacent to Strensall Common has also been recently cleared as part of this project and this has also had at least one pair of woodlark, plus stonechat and nightjars.



Strensall Common pond © Peter Reed

Dragonflies in focus on Strensall Common

On 24 April 2008, with the aid of Chris Packham, the British Dragonfly Society (BDS) launched the Dragonflies in Focus project at the Natural History Museum in London. The aim of the project was to update the known distribution of British dragonfly and damselfly species over a five year period, culminating in the publication of a new national atlas in 2013. The timing of emergence and the distribution of a number of species is changing. Some appear to be moving northwards and this could well be an indication of climate change. In addition new species are becoming established in Britain as demonstrated by the recent discovery of willow emerald damselfly *Lestes viridis* in Suffolk. The information provided by such an atlas will aid the future conservation of dragonflies and their habitats.

Strensall Common lies within my recording area but until the launch of the project I knew little of the dragonflies that could be found there. In the winter of 2007/8 a chance email alerted me to the fact the area would be worthy of investigation and knowing Julian Small, the Natural England



Black darter immature female © Keith Gittens

representative to the conservation group, I contacted him to try and identify the best areas to investigate.

A dragonfly's life cycle is inextricably linked to water, the larval stage spending on average one or two years developing and feeding below the surface before finally crawling up a plant stem to emerge as an adult. The change from larva to adult is different to that of a butterfly and is known as incomplete metamorphosis, there is no pupal stage. This link with water would mean that my efforts would be focused around the various pools and ditches that can be found on the common.

Dragonflies are an ancient order of insects that have been in existence for 300 million years, all belong to the order *Odonata* meaning 'toothed ones'. The majority can be divided in to two suborders: the robust fast flying true dragonflies *Anisoptera* and the much more dainty damselflies *Zygoptera*. The adults are the attack helicopters of the insect world. Their two pairs of wings have strong flight muscles allowing them to hover as well as fly in any direction. With the aid of

large composite eyes, which are highly sensitive to movement, they spend much of their time chasing and catching their diet of other flying insects.

A lot of the pools on the common are shallow, making them ideal for dragonflies. The water warms up quickly and they tend to be fish free, reducing larval predation. As the area is mainly lowland heath, the pools also tend to be peaty in nature and so favour species that are tolerant of more acidic conditions. In total 13 species have been recorded during my visits. This compares to around 40 breeding species for the whole of Britain, covering all still and flowing water habitats.

Visits in May and June produced some of the first species to emerge. These included the large red damselfly *Pyrrhosoma nymphula* and four-spotted chaser dragonfly *Libellula quadrimaculata*, both common and widespread throughout Britain. The latter often occurs in quite large numbers at a site and as its name suggests can be seen chasing over the water, clashing with other males and trying to catch a female.

Mating is a complicated affair. The pair must form what is known as the wheel position and then, depending on the species, they will stay coupled like this for a few seconds or a few hours. Afterwards the female will egg lay directly in to water or aquatic vegetation. In contrast to the larvae, adults live for a relatively short time. The unlucky ones may be predated at emergence and so never take to the air, at most they will live for two months.

Other damselflies to have been recorded include: azure damselfly *Coenagrion puella*, common blue damselfly *Enallagma cyathigerum*, blue-tailed damselfly *Ischnura elegans* and emerald damselfly *Lestes sponsa*. The emerald damselfly is the last to emerge. A striking metallic green, this species likes to perch amongst the stands of rushes to be found in some of the pools on the common.

In August 2009 an organised visit to the common by several members of the BDS proved highly successful. We were lucky enough to visit on a non-firing day so were able to explore the restricted zone in addition to the open access areas. This meant we could investigate a wider range of water bodies and as a result recorded the highest number of species for a single visit. At this time of year species such as black darter *Sympetrum danae* and common hawker *Aeshna juncea* are at their peak. It seemed like black darters were everywhere and we estimated over 1,000 individuals were seen on the day. At every step you appeared to be flushing adults out of the vegetation. Darters are relatively small dragonflies and tend to

have a more sedentary behaviour than the larger hawkers, resting on vegetation before darting in to the air to catch their prey.

While the common appears to hold nothing rare in dragonfly species, some occur in very good numbers and as such is an important site for these fascinating insects. The remaining dragonfly species recorded during my visits were southern hawker *Aeshna cyanea*, brown hawker *Aeshna grandis*, common darter *Sympetrum striolatum* and ruddy darter *Sympetrum sanguineum*. There may well be one or two others I have not discovered. Ruddy darter is a species that has been expanding its range north and westward from southeast England and is now a regular breeder in Yorkshire.

As 2010 is the middle year of the project and there is a lot of data still to gather I am sure other areas of MOD land have something to contribute to this atlas. Anyone wishing to get involved in the project or know of sites that may lie unrecorded please contact the BDS, there may well be some exciting finds. I will certainly be back on Strensall Common over the coming summers. ■

Keith Gittens

Northeast Yorkshire (VC62) Recorder
British Dragonfly Society

The author is a keen amateur naturalist whose fascination with dragonflies started about ten years ago. As well recording for the BDS he has broad interest in our flora and fauna and its conservation.



Strensall Common © Keith Gittens

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Claire Install, Conservation Officer,
British Dragonfly Society
Claire.Install@naturalengland.org.uk



Mating large red damselflies © Keith Gittens

Websites

British Dragonfly Society –
www.dragonflysoc.org.uk

Yorkshire Branch of the BDS –
yorkshiredragonflies.org.uk

Here Carl Mayers from Defence Science and Technology Laboratory (Dstl) and Tim Wilkins, Plantlife Species Recovery Coordinator explains how the new juniper project at Porton Down will help preserve and grow the juniper for years to come.

The Dstl and MOD civilian scientists, who have estimated that 20% of the UK's juniper bushes are at their Porton Down site near Salisbury, have started a project to grow thousands of new juniper bushes to preserve this native plant.

Juniper is one of only three native British conifers and was one of the first plant species to recolonise Britain after the last ice age. Its aromatic berries are often used in cooking and for making gin. Carl Mayers is leading the project at Porton Down and states how the juniper plays an important part in the ecology of our site. Unusually we have two age groups of juniper here – one 100 years old that was well established before the growth in rabbit population, and the second, 50 years old, that was able to get a footing during the myxomatosis outbreak of the 1950s and 60s. At all other times the rabbits, who particularly enjoy juniper, have kept any new plants at bay.

Junipers have a natural lifespan of around 100 years so Dstl is now working with Plantlife because if we don't do something



Juniper on Porton Down © Dstl

now, the juniper on our range will be extinct in 50 years.

The project includes collecting berries, checking seed fertility, processing seeds and storing for planting later in the year. Some of the seeds will then be sown on the Porton Down range and protected during germination using cages to keep rabbits and voles away. In addition a polytunnel will hopefully be installed to grow cuttings and other seedlings prior to planting out. Over the winter a full survey will be completed to establish existing juniper bush numbers and select the best locations for new plantings.

As well as growing thousands of new juniper bushes from seeds and cuttings, our field research will help to understand better the decline in juniper numbers across Britain – is it just due to rabbits or are there other factors such as climate change? The project has more than 70 volunteer supporters including staff at Dstl and members of the local community. The first part of the project, collecting berries, took place mid November and resulted in more than 32,000 seeds being gathered from the Porton Down range.

Tim Wilkins, Plantlife Species Recovery Coordinator, who has been involved on the project says "Porton Down is a fantastic site for juniper, supporting the largest population of

bushes in southern England, but even here there is an acute lack of seedlings and it is only a matter of time before bushes die through old age. We are delighted to be working with the Dstl to help save juniper at Porton Down and especially grateful for all the help from volunteers." Without action now, juniper faces extinction across much of lowland England by 2060. The loss of juniper would represent more than the loss of a single species: it supports more than 40 species of insect and fungus that cannot survive without it. The Plantlife project is trialling new management techniques to stimulate juniper regeneration across the chalk and limestone country of lowland England. By sowing seed beneath specially designed mammal-proof shelters, we hope to show that Porton juniper can regenerate with a little assistance.

Porton Down is one of 26 sites across England where Plantlife will be trialling this and other techniques. The Plantlife project is funded by Natural England's Countdown 2010 initiative and Biffaward, a grant scheme for projects which enhance communities and biodiversity. ■

Carl Mayers
Defence Science and Technology Laboratory

Tim Wilkins
Plantlife Species Recovery Coordinator



Left–Right Lena Ward, Dstl fellow; Lionel Kelleway, presenter of BBC Radio 4 The Living World; Dr. Carl Mayers, leader of the Dstl Porton Down Juniper conservation © Dstl

The Roman villa on the rifle range



In 1861 two antiquarians uncovered walls and a Roman mosaic beside a road junction known as Sam's Cross near Low Ham in Somerset. The two excavators, Monckton and Fry, collected a number of objects from the site, including Roman pottery, tiles, coins and a bangle that are now in Taunton Museum. They made careful sketches of the mosaic and the walls they encountered. Unfortunately they failed to say where exactly they had made their wonderful discoveries so the site was lost again and was forgotten as other villas revealed their secrets and their treasures. One reason for the lack of research may have been the fact that the land east of Sam's Cross falls within the Danger Area of the Langport Rifle Range.

The uncovered mosaic floor © Martin Brown

Forgotten by everyone except the range Deputy Commandant, Tom Marlow, that is! When the fields near Sam's Cross were ploughed he began to collect the pottery and tile that came to the surface, much of it Roman. Subsequent documentary research rediscovered Monckton and Fry's original notes, suggesting a villa in the area. Happily, no *tesserae* – the stone and ceramic cubes used to make mosaics – were found. This meant that if the villa was on the range at least its floors had not been disturbed by ploughing. Following a successful bid to the Rural Elements of the Estate Strategy (REES) budget to fund further investigation Stratascan, specialists in archaeological geophysics, carried out a magnetometer survey of the field where Tom had found the Roman pottery. The survey results clearly showed the classic outline of a Roman villa with two ranges of rooms looking south and east. There really were Romans on the range and Monckton's lost villa had been rediscovered, thanks to Tom's sharp eyes and the appliance of science.

The next step would be to carry out limited digging on the site to give an assessment of the villa including the condition of remains, how well they survived, what their archaeological potential might be and what some of the survey results that were less easily interpreted might actually be. These questions are crucial to the effective management of any archaeological site because importance, survival, potential, nature and extent of remains will always affect the management regime. Due to financial constraints some creative thinking became the order of the day. DE archaeologist Martin Brown advises on the heritage aspects of the site, so he invited Channel 4's Time Team to investigate the villa as one of their sites.

Time Team has explained our archaeological heritage to millions. Working with them gives access to expert archaeologists, researchers and technicians, as well as input from the leaders in a particular aspect of archaeology. Langport is of particular interest to Mick Aston, who lives in Somerset and has a long-standing passion for the county's archaeology. He is currently working on its villas.

Meanwhile, experts on mosaics were poised, waiting to hear if Monckton really had seen the floor he had drawn. In addition to drawing in such expertise, DE is able to use the programme to further demonstrate its commitment to maintaining the heritage of the defence estate, whilst providing effective skill at arms training for troops. And all at zero cost!

The basic story was the search for the lost villa but it included more complicated debates. Although one plot line was to search for the mosaic, the other was to seek a date for the end of the villa.

Whether Langport's villa continued in use is a crucial question for researchers in this period and made a hook for the television narrative. For DE the search for the villa and the investigation of other features would provide key management information.

Following further geophysical survey ("geofizz!") excavation began and the foundations of walls began to appear. The archaeologists began their painstaking work in front of the cameras. Lots of pottery was uncovered, as well as a number of low-denomination copper coins and a dolphin-shaped brooch. The pottery showed that

Time Team has explained our archaeological heritage to millions

Popular history says that the Romans left in AD410 and the Dark Ages descended. In reality things are more complicated because it seems that the Roman way of life, if not direct rule from Italy, continued well into the 5th century and the villas of Somerset seem to show this through dateable objects including particular styles of pottery.

the villa was buying goods from kilns in Oxfordshire and Hampshire, as well as nearby sources. They had also imported glossy red Samian ware from southern France, which was something like the Crown Derby of its day. Meanwhile, examination of the walls showed that there had been various phases of construction at the villa,



"I have a cunning plan!" © Martin Brown



The team excavating © Martin Brown

as well as evidence of robbing of stone after the villa's abandonment. The walls also revealed one of the site's surprises, the skeleton of a baby! It is not unusual to find burials of infants under floors and walls in Roman sites and the villa contained human remains in the southern range. They were recorded and left where they were laid 1,800 years ago. It is unclear why the Romans did this, maybe it was to keep the spirits of the children within the safety of the home.

In the midst of all the excitement a fragment of mosaic was uncovered. It was of similar pattern to Monckton's picture but much less well-preserved. Was it possible that the mosaic had been destroyed in the 120 years since its discovery? Happily, destruction seemed to have happened a long time before MOD took the site over! Even better was the discovery of the Monckton mosaic!

Fortunately the plough had never gone quite as deep as the level of the small *tesserae*, or cubes that make the patterns so it survived well. Two panels were revealed, the larger was geometric, made of black and white cubes but a second included both blue and white stone, as well as red terracotta tesserae. The polychrome panel comprised motifs including geometric forms, leaf shapes and twisted *guilloche* designs. Holes in the mosaic by the walls suggested that stone pillars had been robbed out, while another, apparently in the entrance to the room that contained the monochrome pavement, has been suggested

as the base for a statue. The ideas of mosaics, columns and statues suggest that this was one of the finest rooms in the villa and certainly nothing else as good was seen during the dig. Maybe this was the family dining room, or a main reception room where the owner sought to impress his associates and neighbours with his opulent, Roman style of life.

When the mosaic was laid the owner would have no idea that Roman rule in Britain would end. When it did, the elite hung on to the trappings of *Romanitas*. To find out whether Langport was one of those villas, and how Time Team coped with weather



Tony Robinson and Phil Harding discussing the find
© Martin Brown

that would have chilled a toga-clad Roman to the core, readers will have to watch the 2011 season of Time Team on Channel 4. What is certain is that years of MOD ownership have not harmed the villa and that, thanks to Time Team, we now know much more about it, so that we can better manage it to ensure that it is not lost again and that it stays as well preserved as it is today! Who knows, we may even be able to invite more archaeologists down to tell us more about the Roman villa on the Rifle Range! ■

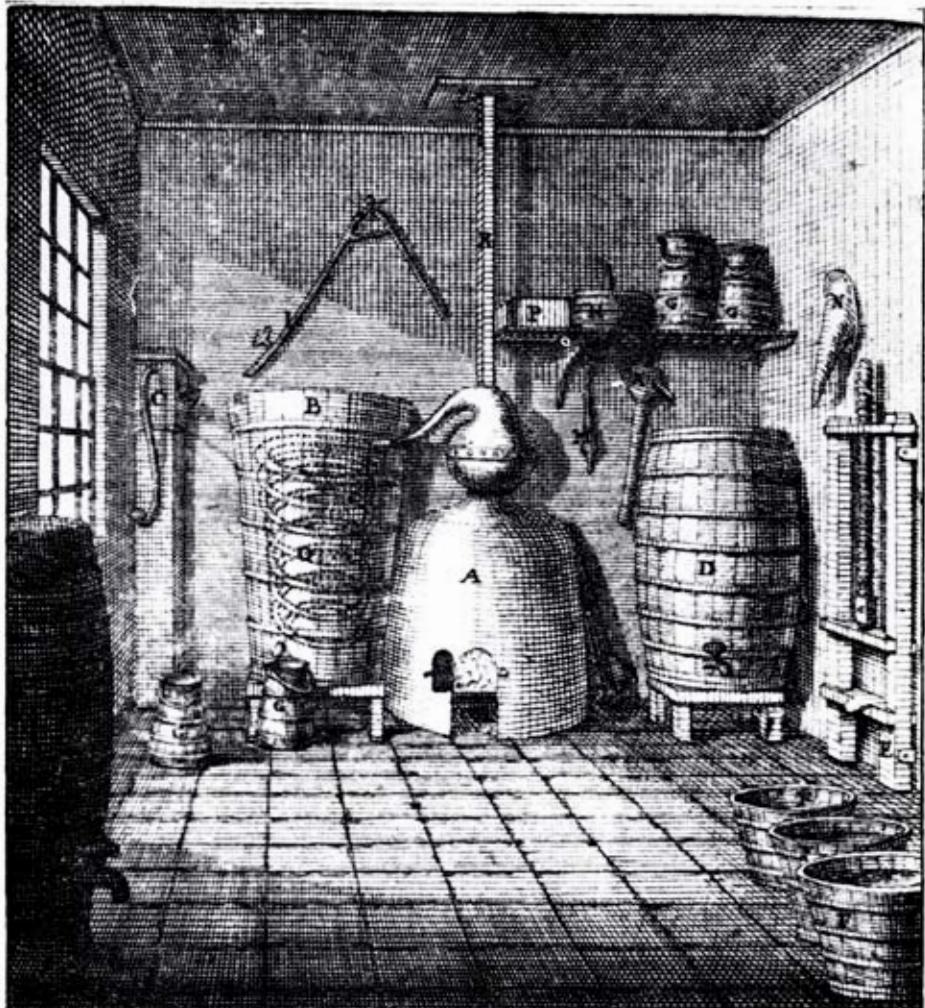
Martin Brown FSA MIFA
DE Archaeological Advisor



Digging in action © Martin Brown

Make mine a double

Whisky stills on Otterburn Range



A. The still	L. A Pewter Grane
B. The Worm tub	M. A Pewter Salencia
C. The Pump	N. Hippocrateis bag or Flannel
D. Water tub	Slicue
E. A Press	O. Poker Fire-shovel Cete-rake
FFF. Tubs to hold the goods	P. A Box of Bungs.
GGGC. Canvans of different size	Q. The Worm within the Worm-tub
H. A Wood Funnel with a iron nosel	marked with prick'd lines
I. A large glass to put the Fains or after-runnings	R. A Piece of Wood to keep down the Head of the still to prevent flying of
K. Tin pump	

INTERIOR OF A DISTILLERY.
From *The Compleat Body of Distilling*, 1738.

Besides being one of the largest training areas in the country, the Otterburn Ranges, Northumberland are also home to 75 scheduled monuments, five listed buildings and literally hundreds of archaeological sites recorded on the National Park Authority Historic Environment Register. The sites include Prehistoric burial remains, Roman camps and more recent military features such as the WWI practice trenches at Silloans and several bunkers. However, there is one class of monument, situated in the remote Coquet Valley in the northern part of the training area, which provides a rare insight into some of the less-than-legitimate activities of certain members of this isolated community.

In the 18th century, as is possibly the case today, the inhabitants of Coquetdale, were partial to a drop of the hard stuff. Gin was the drink of choice in the towns and cities but in the remote rural areas close to the Scottish border the favoured tipple at this time was whisky. But in 1751, with one eye on criminal behaviour and the other on revenues, the government of the day introduced the Tippling Act. The Act was designed to end the proliferation of cheap and poor quality liquor by regulating distillers' licences, prohibiting small-scale distillation and imposing heavy duties on spirits. In order to meet the cost of the Napoleonic Wars between 1788–1815, the tax on spirits was increased seven times, an action, which amongst other things, served to encourage widespread smuggling and evasion.

A considerable amount of whisky was smuggled across the border from Scotland, where the duty remained low. Some smugglers were more enterprising and set up their own stone-built illicit stills alongside the fast-flowing burns in the more remote valleys of Upper Coquetdale. Local legend has it that one of the most daring of all the whisky smugglers was a 'gentleman' called

themselves. One particular establishment gained some notoriety. In the cult classic film 'An American Werewolf in London' two hapless tourists walk into a pub called 'The Slaughtered Lamb'. Weird and wonderful though this may sound, it is more than matched by a real-life pub that once stood in the remotest part of the Coquet Valley; the splendidly-named Slimefoot Whisky House.

hostelry some time in the first half of the 18th century, thus indicating that the Slimefoot was still in business at this date. By 1825 however, it is recorded that 'here formerly stood a whisky house'.

The stills and the whisky houses have long since ceased operating, but that does not mean that they have completely disappeared. Wall footings close to the Midhope Burn near Batailshiel are thought to be the remains of an illicit still and the same is the case for footings at Wholehope and Blindburn. So far the precise location of the Slimefoot Whisky House has evaded detection but a programme of research and survey by members of the Coquet Community Archaeology project may soon bring them closer to finding the site... and I for one wouldn't want to 'scotch' their enthusiasm for the hunt. ■

The smugglers were so confident of escaping detection that they carried on their illegal trade quite openly in broad daylight

Black Rory who is reputed to have had six stills, all but one of which is on the training area. Unfortunately, there are no biographical details about Black Rory or his colleague 'Whisky' Jack. Whether in fact they ever existed is a matter of conjecture and it may be that they were a deliberate figment of peoples' imagination, in order to throw the scent off the real smugglers, the local shepherds and farmers themselves.

But in Coquetdale the arm of the law did not perhaps extend long enough nor were the eyes of customs officials as beady as they ought to have been. The smugglers were so confident of escaping detection that they carried on their illegal trade quite openly in broad daylight. Once the illicit whisky was distilled it was smuggled in stone jars and occasionally coffins. At other times, to fool the gaugers (excise officers) it went by the evocative names of 'grey hens', 'new milk' or 'knives and forks'. Poor communication routes up the valley made the task of detecting illicit stills very difficult for the gauger. Some gaugers were prepared to turn a blind eye to these clandestine activities, rather than make the difficult trip. One even blamed high waters for his inability to capture the culprits. 'Stopp'd wi' witters' (flooding) was a frequent entry in his official diary.

If Black Rory was the supplier, there was no shortage of demand amongst the locals who were not averse to the occasional drink

This whisky house was located at the confluence of the Trowes Burn and River Coquet and gained such a notorious reputation for drinking and gambling that its customers were threatened with eternal damnation by the Archdeacon of Northumberland, Dr Sharp. Sharp was also Rector of Rothbury from 1720 to 1758, and it would be reasonable to assign his visit to the

Phil Abramson
DE Archaeological Advisor

Beryl Charlton
Local historian and member of the archaeology and historic environment working group of Otterburn Conservation Group



The Wrath Pack



Defending the Past (DtP) is a joint project between Defence Estates, DTE Scotland and the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) designed to strengthen ties between the Cape Wrath Training Centre and the local community.

The aim is to introduce the heritage of Cape Wrath to the local community, particularly the school pupils of Kinlochbervie High School and Durness Primary School, in the north of Scotland. However, whilst cultural heritage and environmental initiatives are often of benefit to the wider community, it is sometimes difficult to demonstrate how they contribute towards training and operational requirements or have a positive impact at the individual level. The DtP team were conscious that the project needed to address both these requirements and looked at various options which would fit the bill... and finally came up with a cunning plan.

The DtP team decided to produce a deck of cards – but a deck of cards with a difference... ‘The Wrath Pack’ to use its unofficial name (thanks to Maj (Retd) David Halpin, Commandant of Cape Wrath Training Centre, for this flash of inspiration!). Soldiers the whole

Flora & Fauna: Stag on Cape Wrath by Tony Jackson (Ranger at Cape Wrath Military Training Centre, lives in Durness)

world over fill in their time by pulling out a pack of cards for a quick game of poker or pontoon. So, at the same time as dreaming of that elusive full house, why not catch a glimpse of the history and natural beauty of Cape Wrath?

In a no-nonsense, straightforward way the cards provide soldiers with a free and simple way of passing the time whilst in theatre, on training or in barracks. At the same time they send the message that MOD is a steward of the historic and natural environment.

To set the ball rolling a photographic competition with four themes was organised: Archaeology; Flora and Fauna; Sea and Coast; Mountain and Moor. A panel of judges from DE and RCAHMS decided the winning shots. Over 230 entries were received during the month of the competition. The standard was not high... it was superlative, making the judging an agonising process.

The ‘Wrath Pack’ was launched at the end of August this year to coincide with an exhibition about the DtP project which will be hosted by Loch Croispol Bookshop in Durness. Packs will be given to service men and women who come to the Cape Wrath Training Centre.

The winning entries are as follows:



Architecture & Archaeology: Detail of Balnakeil Church, Durness. Founded in 722 by St. Maelrubha, the present building dates from 1619, by David Graham (from Carnwath)



Sea & Coast: Sandwood Bay by Peter Green (now living in Halifax, Nova Scotia after living in Edinburgh. Photo taken on his farewell tour of Scotland)

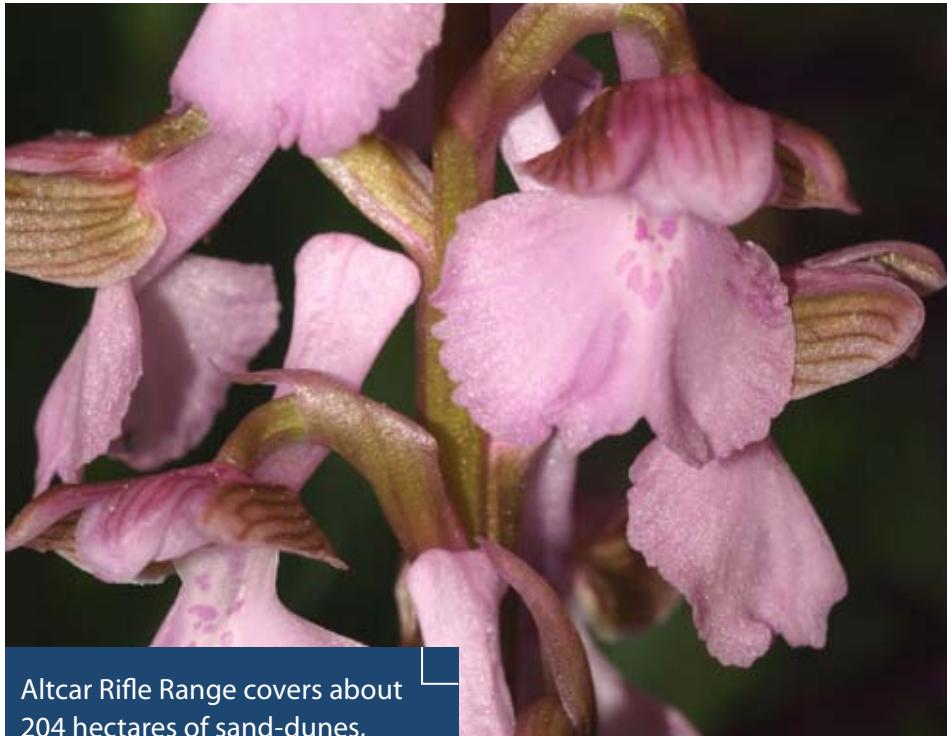


Mountain & Moor: Autumn Sun behind Cranstackie and Beinn Spionaigh with Foinaven in the distance by Matthew Thomas (north coast of Scotland)

Support for the cards has been gratefully received from HLF, DE and the Sutherland Partnership’s Environmental Fund. Similar packs have been produced for Salisbury Plain by DE Environmental Advisory Service and for Afghanistan and Iraq by the US Department of Defense.

Phil Abramson
DE Archaeological Advisor

Wild flowers of Altcar Rifle Range



Orchis morio © PH Smith

Altcar Rifle Range covers about 204 hectares of sand-dunes, grassland and planted woodland on the Sefton Coast between Crosby and Formby. It is owned by the Reserve Forces and Cadets Association for the North West of England & the Isle of Man, public access being restricted for security reasons. The estate originated as land reclaimed from the sea in the early 19th century; it proved too wet for agriculture and was purchased as a Rifle Range as early as 1860.

Although its prime use is for military training, Altcar has become increasingly renowned for its wildlife, leading to part of the area being designated as a Site of Special Scientific Interest and Special Area of Conservation. An Altcar Conservation Group, representing local conservation bodies, naturalists and the military authorities was formed in the 1980s to reflect and pursue this interest.

The extraordinary botanical richness of the estate first came to the attention of local recorders in the mid-1980s when rare orchids began to be found on the ranges. Particularly unexpected was the appearance of the beautiful green-winged orchid *Anacamptis morio*, first found in 1985 as a new species for the Sefton Coast. Thirty flower-spikes were counted. The following year a more detailed survey found 517 spikes, many having been damaged by mowing. This led to the mowing regime being modified so that the orchids could flower and set seed each year. As a result the population of green-winged orchids has increased dramatically. The current total of over 20,000 plants is thought to be the largest colony of this nationally declining, 'near threatened' species in northern England.

Other wild orchids have also colonised the ranges, dunes and woodlands, with at least 12 species present. There is an abundance of marsh-orchids *Dactylorhiza* about 25,000 spikes, including at least four species, several

sub-species and a great variety of hybrids. A 2008 survey found 1600 plants of the Nationally Rare dune helleborine *Epipactis dunensis* and 70 of its relative, the Nationally Scarce green-flowered helleborine *E. phyllanthes*. The common twayblade *Neottia ovata* is increasing annually, 1,500 being counted on 'I' range in 2009.

Many other regionally and nationally notable wild flowers have been found on the estate. Examples include smooth cat's-ear *Hypochaeris glabra*, flat-sedge *Blysmus compressus* and corn spurrey *Spergula arvensis*, which are listed as 'vulnerable', while sticky stork's-bill *Erodium lebelii* is 'nationally scarce', though actually quite common on the Sefton sand-dunes. Species of Conservation Importance in North West England include the diminutive adder's-tongue fern *Ophioglossum vulgare*, brown sedge *Carex disticha*, bog pimpernel *Anagallis tenella*, grass-of-Parnassus *Parnassia palustris* and marsh arrow-grass *Triglochin palustris*, all of which live in wet places.

Not as rare, but perhaps even more attractive, are up to 1,800 cowslips *Primula veris* that put on a great show each spring, followed by ragged robin *Lychnis flos-cuculi*, which joins the June marsh-orchids in stunning pink drifts.

This variety, as well as being of great significance from a wildlife conservation standpoint, provides a visual treat for the many interested members of the public who take part in several guided walks around the estate each spring and summer. By fine-tuning the management of the ranges, it is hoped that this wonderful floristic richness will survive for future generations to enjoy. ■

Dr Philip H. Smith is a retired ecology lecturer and a founder member of the Altcar Conservation Group. He is the author of a 2009 book 'The Sands of Time Revisited. An introduction to the sand-dunes of the Sefton Coast'.

Steven Cross is also a long-time member of the Altcar Conservation Group, works at World Museum Liverpool and spends much of his spare time recording the flora and fauna of the Altcar estate.

Monitoring coastal erosion

Castlemartin Range Pembrokeshire

"One feature cannot fail to strike a stranger; the coast-line [of Pembrokeshire] especially towards the south-west is girt with earthworks; well nigh every windswept promontory has its camp..." (E. Laws writing on Pembrokeshire Earthworks in 1880)



Flimston Bay Camp © Crown

Remote sensing and the Iron Age coastal promontory forts of the Castlemartin Ranges, Pembrokeshire, South-West Wales.

Situated upon the dramatic limestone sea cliffs that edge the Castlemartin Ranges are the promontory forts of Linney Head and Flimston Bay, occupied over 2,000 years ago during the Iron Age. Linney Head lies deep within the danger area of the range and exhibits some of the clearest evidence of phasing seen in any promontory fort; whilst the dramatic setting of Flimston and the fact that the fort's interior is dominated by a deep and treacherous blow hole known as the 'Cauldron', makes this one of the most spectacular promontory forts in Wales.

As any walker along the Pembrokeshire Coast Path will know, Linney and Flimston are just two of many forts along this coastline; indeed over half of the 106 coastal promontory forts known in Wales are located in the County. These are some of the most impressive monuments in Wales, yet also the most threatened. Their location leaves them continuously exposed to erosion by the sea and weather systems, and current and historical aerial photography clearly show

sporadic collapses of sections of the interiors and defences. Recording the speed and impact of this erosion has become a priority for archaeologists, but as so few have been accurately surveyed it has been virtually impossible to assess the rates of the erosion.

the character and condition of these threatened sites.

Linney and Flimston were among a sample of Pembrokeshire forts chosen for analysis. It was hoped that the results would provide

Only a combination of LiDAR, aerial photography and Ordnance Survey mapping provides a rounded 'remote' view of the site

In light of this the Royal Commission on the Ancient and Historical Monuments of Wales and the Dyfed Archaeological Trust have recently undertaken a project, sponsored by Cadw, the historic environment service of the Welsh Assembly Government, to test the use of remote sensing data for accurately mapping cliff-edge loss, and for producing archaeological plans that accurately show

archaeologists with a quicker way of obtaining data than the traditional methodology of detailed ground survey, an often time consuming task which – in terms of cliff-edge monitoring – can also be potentially dangerous.

In essence remote sensing is a method of survey whereby data is gathered without

actual contact with the object or area under investigation. For this coastal project airborne remote sensing data, Light Detection and Ranging (LiDAR), was used in conjunction with historic and recent aerial photography and Ordnance Survey mapping.

LiDAR uses a pulsed laser beam to measure the height of the ground surface and other features from an aircraft; basically, laser scanning from the air. Two-metre resolution data was obtained under license from the Environment Agency and processed in a Geographic Information System (GIS). This enabled digital terrain models to be produced, which could then be manipulated and viewed in a virtual environment; even the height and direction of the sun could be changed in the computer, allowing previously unrecorded features to be discovered.

Historic and modern vertical and oblique photographs (dating back to 1946), housed in the National Monuments Record of Wales were also analysed. Vertical air photographs were useful as they could be accurately geo-referenced allowing close comparison with the LiDAR data, whilst recent colour oblique aerial photographs, although not geo-referenced, have the advantage of being very detailed and taken in conditions ideal for recording archaeological features. Using this data in combination with historic and modern Ordnance Survey mapping, archaeological plans were produced for the promontory forts. These were then taken out on site for verification and amendment. The essential control for this work was a measured ground survey, using a Global Positioning System (GPS).

The results of the project were very interesting. In terms of accurately monitoring cliff-loss and erosion, the remote sensing data and Ordnance Survey mapping at the resolution and scale used, was not good enough. The cliff-edge shown by the two metre resolution LiDAR for Linney Head Camp was simply not accurate enough, when compared with the ground GPS survey, to be useful as a record of the monument. Higher resolution LiDAR data may begin to achieve better accuracy, however, the very high cost of this method of survey relative to most archaeological budgets would make this prohibitive for all but the most special of cases. Thus for the time being, the job of

providing accurate baseline data for future monitoring is best done using traditional methods of measured ground survey. In terms of accurately mapping and interpreting archaeological sites, the project has shown that no single remote sensing data source is good enough. Only a combination of LiDAR, aerial photography and Ordnance Survey mapping provides a rounded 'remote' view of the site, while a site visit is always necessary to check the subtleties of survival and site interpretation that cannot be decided in the office. For important monuments and those under threat, detailed ground survey is an essential task and the only way to develop a detailed understanding of often very complex monuments.

In summary the project has been a valuable way to develop expertise in the use of LiDAR and comparative aerial, map and GIS datasets, to begin to chart cliff-loss and coastal erosion at archaeological sites. It has shown a clear way forward for the future integration of LiDAR data in archaeological projects, but has produced evidence to show that more traditional methodologies for field survey and site recording remain essential components

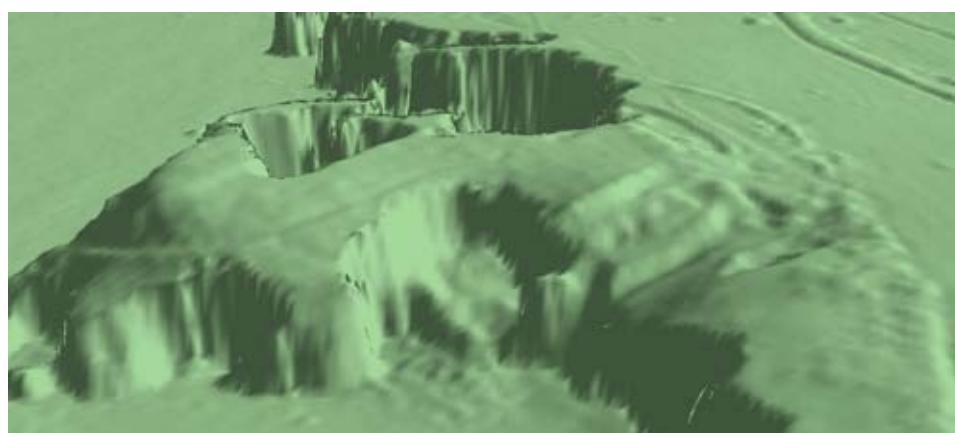
of coastal archaeological monitoring at the present time. The findings of the project will ensure that the impressive prehistoric coastal sites of the Castlemartin Range will remain in the Pembrokeshire landscape for centuries – or millennia – to come. ■

Louise Barker and Toby Driver (The Royal Commission); **Ken Murphy** and **Marion Page** (Dyfed Archaeological Trust).

The authors are grateful to the Commandant and staff of the DTE Castlemartin and the National Trust for allowing access to the sites surveyed, and to officers of the Pembrokeshire Coast National Park, particularly Polly Groom, for assistance with the site surveys.

Further information

For more information on Linney Head Camp and Flimston Bay Camp, visit Coflein, the on-line database for the National Monuments Record of Wales
www.coflein.gov.uk



Flimston Bay Camp LiDAR © Environment Agency



Undertaking GPS survey © Crown

A combined approach to sustainable heathland management

Pippingford Park Training Area

The 340 hectare Pippingford Park Training Area, part of Defence Training Estate South East (DTE SE), is situated right in the centre of Ashdown Forest, East Sussex within the High Weald.

Ashdown Forest is a mixture of woodland and heathland that has evolved over time in response to historic land use. Ashdown Forest was originally enclosed for deer hunting in the 14th century by King Edward II and common grazing maintained the open heath.



Autumn mist in the valleys © Bob Kennedy

The Forest, as it lies within south-eastern lowland Britain, represents a very significant sanctuary for wildlife, which is reflected in the Site of Special Scientific Interest (SSSI), Special Area of Conservation and Special Protected Area (SPA) designations. The area also significantly contributes to the landscape character of the High Weald Area of Outstanding Natural Beauty (AONB), another designation which reflects the areas intrinsic beauty and celebrates the historical influences that have shaped this countryside (despite being described by William Cobbett in 1822 as "...verily the most villainously ugly spot I ever saw in England").

Pippingford Park Training Area is part hired estate and part MOD freehold. The freehold area was purchased from the Pippingford Estate in the 1950s following extensive military use of the land during the Second World War. The owners of the estate were, and still are, the Morriss family. DE currently works closely with the Morriss' to ensure the management of land maintains and enhances the wildlife and historical features that make the area so important. This management rarely conflicts with the present military land use of providing infantry and foundation training and the diverse habitats provide variation for the users.

The whole area has a rich human history dating back centuries and historical features are abundant within Pippingford Park. To the north east of the park the remains of iron-age fortification and Roman settlement are evident, in the centre of the largest block of heath an unusual circular earthwork is found, in the woodlands old charcoal hearths are visible and throughout the area there are old boundary banks and ancient trees. The High Weald was a primary area for iron production for over 2,000 years and the lakes at Pippingford Park were an important site for the industry once water power was harnessed in the 14th and 15th centuries. Much of the woodland present today was planted to meet the demand for fire wood, essential for the smelting of iron ore found in the area. Extensive pillow mounds (artificial warrens constructed for rabbit farming) are also present on the heathland as a reminder of past practices.

In 2006 Natural England's predecessor, English Nature, carried out a routine survey and deemed that the condition of a 100 hectares section of heathland was starting to decline, mainly due to the presence of purple moor grass *Molinia caerulea*. Previous mechanical management of the heathland was at the time considered successful, however over several years the build up of grasses in this lowland heath reached the point where grazing was identified as the only solution to this issue due to the uneven and in places boggy ground. As a result, in 2007 a grazing trial using Exmoor ponies on a small parcel of heathland was implemented, sanctioned by the Commander DTE SE and the Crowborough Camp Commandant.

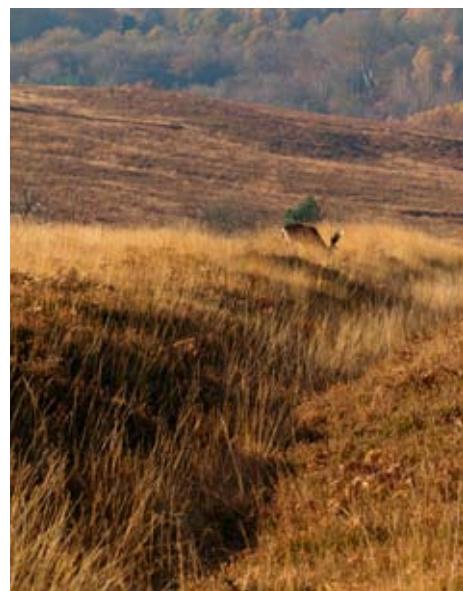
The trial showed that the ponies did not substantively disrupt military training and it was therefore agreed to take the project to the next level. Lengthy discussions between Natural England, Richard Morriss (who is also the MOD freehold agricultural licensee) and DE took place until finally a draft plan was approved. This plan was a major component of a successful application for a Higher Level Stewardship (HLS) Agreement which commenced in 2008. The first work carried out under this agreement was a final helicopter spray of the bracken. Then the large task of fencing and installation of gates and cattle grids began. A combined approach was again put in place as Landmarc's rural team undertook works on the freehold land (through utilisation of MOD SSSI Improvement



Marsh Gentian © Bob Kennedy

funding) and Richard Morriss installed gates and associated fencing at the lakes on the western boundary of the area. The Pippingford Park Conservation Group raised concerns regarding the stock fencing and the potential issue of fallow deer becoming entangled and thus troop crossing points were placed where heavily used deer tracks were evident in an attempt to prevent problems.

The site was thus prepared and in early 2009, following collaboration between Richard Morriss and Monty Larkin of the Sussex Pony Grazing and Conservation Trust, a string of 31 Exmoor ponies were turned out. The Trust's Exmoor ponies are an important conservation grazing tool in the wider county of Sussex where they graze invasive tor grass on the South Downs in winter months and are turned out onto the Sussex heaths in summer. It was hoped that using ponies on Pippingford Park would also create a micro diversity different to other areas of the Forest that are grazed by sheep and cattle. The impact of the herd on the heathland within a short period of time has been



Pillow Mound © Bob Kennedy



Pony herd – first steps © Bob Kennedy

positive and the SSSI is now deemed to be in recovering condition. The positive impact of the agricultural licence and the HLS on the condition of the area was further enhanced by a programme of mechanical birch and rhododendron removal carried out by Richard Morriss. Birch clearance included a significant block adjacent to the southern lakes to reinstate the heathland running to the waters edge with the aim of protecting this rare habitat from irreversible change. Bird and dragonfly surveys are underway to gauge the effect of these works.

The scheme has not been without difficulties. One pony went missing and after much searching was unfortunately found dead in a large hidden gully whilst another pony arrived on his own accord. The pony had joined the Pippingford animals from another herd run by Monty Larkin on the adjacent Old Lodge Nature Reserve, and has remained ever since. Troop shelters within the grazing area have received unwanted attention from the herd as a location for shelter (gaining access when possible) and as a convenient scratching structure with resulting damage to down pipes. It was always recognised that teething problems would occur and lessons are being continually learnt. To aid stock handling and husbandry, negotiations between stakeholders are currently underway to agree the construction of a corral. Although the proposed structure is relatively basic, the location of the corral will be crucial, as the

animals must be driven to it with the least stress and without unnecessary complications.

Individual ponies are being monitored to ensure they do not become too 'attached' to military personnel and vehicles. The hard winter experienced in 2009/10 meant that a certain amount of supplementary feeding was necessary and this may exacerbate the potential problem of the ponies associating vehicles with fodder. Standing orders for soldiers to ensure excess pack lunches are not distributed to the animals are in place and the Lands Warden, Bob Kennedy, keeps a vigilant eye on proceedings. The hard winter has also resulted in the stripping of bark off gorse bushes and trees (possibly through a combined effort of the ponies and fallow deer) and some vegetation may require protection to prevent possible disruption to wildlife such as Dartford warblers *Sylvia undata*, a designated species of the SPA.

Stocking levels and the timing of grazing will need to be re-assessed in 2010 by Natural England and will take into account all the positives and negatives at this early stage of the project. This process will continue for several years until the true sustainable level is found. The grazing project was and continues to be an excellent example of stakeholder cooperation and despite some setbacks and initial problems, the condition of the heathland is expected to improve markedly over the coming years.

The possibility of extending grazing to smaller parcels of unenclosed land within the training area will also be investigated and the 2009 summer visit of the Conservation Group to the Ashdown Forest close-herded Hebridean sheep project gave all those present food for thought. The Forest shepherd Louise Amos and her assistant Susanna, ably demonstrated the potential of such a system.

As for the HLS at Pippingford, the grazing is just one part of this multi-objective agreement which transcends ownership boundaries. The wider estate is also rich in environmental features that support a varied biodiversity. This year, projects will look to further improve the management of the lakeside vegetation to support nationally important dragonfly populations. The woodland priority has been identified as removing the invasive rhododendron and bamboo and to manage large heathy glades for invertebrates. In addition, the protection of the rich historic environment is being prioritised and a survey is to be commissioned in 2010 to document and plan the management of further historical features. Thus improvements to the natural and historic landscape at Pippingford Park are set to continue. ■

Jane Robertson, Natural England
Richard Goslett, DE Estates Surveyor

Mercury rising The story of the southern damselfly on the Lulworth Ranges

On the Lulworth ranges, Dorset, a colony of one of Europe's rarest damselflies – the southern damselfly – continues to survive, oblivious to the booms of the big guns and the military exercises. The RSPB's DHP Ecological Services has worked with the MOD to monitor and protect the colony since 2002.

Rare and declining...

The southern damselfly *Coenagrion mercuriale*, in the UK, is on the northern edge of its global range. The species has a western Mediterranean distribution, from Italy to Portugal and northwestern Africa, north to Germany and east to the Czech Republic. However, it has either disappeared from or is in danger of disappearing from seven countries in Europe. It is therefore one of the rarest European damselflies and is protected by UK and European law.

In the UK, its distribution has declined by 30% since 1960. Even so, it is estimated that up to 25% of the world's population is found in the UK. The main colonies are in the New Forest, Devon, Pembrokeshire and Dorset. One of the key Dorset colonies is on the Lulworth Ranges at Povington.

Habitat and habits

Southern damselfly has very particular habitat requirements. In Dorset, it is found living in mires on heathland, which are fed by alkaline water. (Most heathland mires are acidic.) It likes shallow, gently flowing water with patches of floating pondweeds and some taller plants along the edges. Not surprisingly then, there are very few sites which provide these conditions! In addition, it has to be said that the southern damselfly is a bit of a

weedy insect, reluctant to travel more than 500 metres and only exceptionally up to three kilometres. Many travel no more than 25 metres in their brief life. For these reasons, colonies are very vulnerable to extinction.

This is certainly true of the colony on the Lulworth Ranges. It is dependent on water pumped out of lagoons at a nearby mineral extraction site. The water then flows through a valley creating wet, mire areas. Without this source of water, the mire is in danger of drying out completely, although a few small natural seepages also feed it. It is also at least three kilometres away from the next nearest colony.

Work at Lulworth

The RSPB has surveyed the site since 2002, when a peak of 113 males was seen. Since then, numbers have fluctuated, depending upon the state of the habitat. The water



Southern damselflies mating © Iain Perkins

tends to continually create deeper, faster-flowing channels for itself, reducing the suitability of the habitat. The RSPB and the MOD have therefore regularly undertaken work to dam the stream, using heather bales, to encourage the water to spread out and flow away in shallow rills and seepages. In addition, in 2001/2 and in 2006 the RSPB's DHP Ecological Services removed areas of willows, which were shading the stream, to create the open, sunny conditions that suit dragonflies and damselflies.

Latest update

In 2009, the MOD found that the water had again collected into a channel and re-dammed it. Natural England commissioned DHP Ecological Services to repeat a survey and to assess the habitat and potential for further creation. Our survey showed that the colony is still present and that the damming work by the MOD had successfully rescued the existing habitat. Many other species of dragonflies and damselflies were seen, showing that the work has not just benefitted the southern damselfly.

The survey identified an area of potential new habitat, where natural springs seem to provide a constant flow. A large amount of willow scrub would need to be cleared in order to make the area suitable and some damming and filling in of the main channel would be necessary to allow the stream to spread out in the small valley. It is hoped that this work can go ahead in the next year or so.

Sarah Alsbury

Operations Manager DHP Ecological Services

DHP Ecological Services

DHP carries out surveys, practical habitat management work, management plans etc for a wide range of clients. For further information please contact:

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Rare pond life revealed behind the wire at Lulworth Ranges



Povington Pond © Dorset Ecology

Eleven ponds across Lulworth Ranges in Dorset have been surveyed as part of an exciting project intended to safeguard one of the UK's foremost regions for pond biodiversity. The two-year Purbeck Important Ponds Project (PIPP) was launched in January 2009. Led by Dorset Wildlife Trust, the project, funded by Biffaward, the Environment Agency and the Dorset Area of Outstanding Natural Beauty (AONB), aims to identify 'Flagship' ponds throughout the Purbecks by surveying the best 30 ponds for plants and invertebrates as well as creating or restoring 40 ponds.

The Purbeck region is best known for the series of limestone ridges, which form the famous Jurassic coast but away from the cliffs and beaches Lulworth Ranges includes a fantastic mosaic of other habitats including ancient semi-natural woodland, unimproved grassland and heathland. Ponds on heathland can be very rich habitats for wildlife particularly dragonflies, plants and specialist invertebrates.

They tend to be acidic from the underlying sands and gravels and free-draining, often to such an extent that they dry up completely.

The eleven ponds surveyed across Povington Heath were visited between May and July 2009 and the results were a rich assemblage of both plants and animals, with 10 of the 11 ponds identified by the project being found to have rare beetles as well as four other nationally scarce species. The highlights of the surveys included:

- the first record for Dorset of the nationally scarce caddis *Tricholeiochiton fagesii*, which builds a transparent case around itself (it has only been found in eight other sites across the whole country);
- the threatened medicinal leech;
- rare plants including pillwort (an aquatic fern);
- rare beetles, including the water beetles *Graptodytes flavipes* and *Hydrovatus clypealis*;
- two nationally scarce dragonfly species – the small red damselfly and the downy emerald;
- raft spider.

Caddis *Tricholeiochiton fagesii* © Dorset EcologyWater beetle *Graptodytes flavipes* © R Aquilina

Three of the ponds were small, shallow and temporary and may have been created by the movements of tracked armoured vehicles in the past. These had typical heathland plants such as floating club-rush, many-stemmed spike-rush, bulbous rush, marsh St Johns wort, bog pondweed and the stonewort *Nitella translucens*. They held a Red Data Book (RDB) species water beetle *Graptodytes flavipes* (RDB2), the notable small red damselfly, *Ceragrion tenellum* and a number of notable water beetles as well as a tiny notable water cricket, *Microvelia pygmaea*, which is only two millimetres long.

The other ponds investigated were larger, permanent and deeper. Mare pond is within a conifer plantation and it was rich in floating club-rush, marsh St Johns wort, amphibious bistort and bulrush.

Military training appears to have no detrimental impact on the ponds at Lulworth whatsoever

This pond turned out to be very special as it held two RDB water beetles, *Graptodytes flavipes* and *Hydrovatus clypealis*, the small red damselfly and *Tricholeiochiton fagesii*, a caddis fly that has never been recorded in Dorset before and has only been found in eight other sites across the whole country.

Simpson's pond was deep, steep sided and surrounded by a mire of floating *Sphagnum* held together by sweet gale roots. On top of this, it holds the RDB3 medicinal leech. In addition to the species mentioned already this pond had four other notable water beetles and an RDB2 rove beetle, *Stenus kiesenwetteri*, which lives on the *Sphagnum* hunting for prey. Hunting on the water surface is the large raft spider *Dolomedes fimbriatus*.

All the other ponds held one or more of these rare species, but worthy of mention is the pond at West Holme Heath which was only created in 1995 and it now holds a good selection of the usual heathland pond plants but also a huge population of pillwort, *Pilularia globularia*, a rare aquatic fern and a liverwort pitted frillwort, *Fossumbronia foveolata*, in the margins. Downy emerald,

a notable dragonfly, was also found here. The surveys have reiterated how special heathland ponds can be for rare species across many groups – beetles, dragonflies, bugs, caddis flies, leeches and lower plants. It also highlights some of the features that characterise ponds on MOD sites and make them important wildlife habitats.

MOD ponds tend to have very good water quality. Whether they are stream or ground water fed they are often within unpolluted catchments with a lack of intensive agriculture, artificial drainage, runoff, dumping or poaching by livestock. The surrounding habitats can themselves provide important features for non-aquatic species associated with ponds, such as dragonflies that will forage and roost across heathland, scrub and grassland. These habitats also provide a buffering effect from

pollution and disturbance. Restrictions on public access mean that none of the ponds that were surveyed at Lulworth had been artificially stocked with fish and there was no fly tipping or swimming dogs to disturb wildlife or create turbid conditions. These clean, undisturbed ponds set within semi-natural habitats are typical of the larger MOD training areas.

Military training appears to have no detrimental impact on the ponds at Lulworth



Medicinal leech © Bryan Edwards

whatsoever. Indeed a history of tracked vehicle activity and artillery firing has left a network of scrapes, ditches and ruts that form ephemeral pools, which themselves provide habitat. The real threat to these in the long term could be a lack of regular disturbance as tracked vehicles are now confined to hard tracks. ■

Robert Aquilina
Dorset Wildlife Trust

Oliver Howells
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Purbeck Important Ponds Project

Further information

For more information about the Purbeck Important Ponds Project, visit www.dorsetwildlifetrust.org.uk/purbeck_ponds.html



Mare Pond © Bryan Edwards

Living with Holbeam Marsh

Before Holbeam Marsh became a live firing range it had a long history notably beginning with salt production in a time when salt was king. The mounds of spoil earth can still be seen today be it several miles inland at Gedney Dyke and Holbeam Bank. The Romans built banks around this part of the fens. If it was to tame the fens or the local inhabitants we will never know, but places today bear the name Roman Bank to bear witness to Roman engineering. In more recent times the fishermen fowlers were the hardy breed making a living off the marshes, and they worked hard to keep their independence. It must be remembered that the marshes are England's last wilderness even today and are listed as a SSSI and a Special Protection Area, to quote just two. The last piece of land to be enclosed was about 1840.

The RAF first came to Holbeam Marsh in 1928 and has had a presence there ever since. Today it is part of the local community and works with all the other bodies that have an interest in the wellbeing of the Wash ranging from wildfowlers through to Natural England and the Parish Council. The problems of disturbance from aircraft, be it fixed wing or helicopter are discussed to prevent problems. The movement of targets or the building of roads across the marsh to maintain targets and remove ordnance is agreed with the relevant bodies prior to any work. The range is much sought after and



Curlew © Bob Glover

aircrews from Europe as well as the RAF use the range five days a week and Tuesday and Thursday nights.

The range lies on the west bank of the Wash in Lincolnshire between Boston and Kings Lynn. Holbeam is a mature salt marsh with permanent pasture, samphire zone and intertidal mud. The higher marsh consists of mainly coarse grass with sea lavender here and there. The samphire zone stretches from the permanent pasture to the mud, the main plant life is more seaweed than grass with samphire the main plant accompanied by aster, sea parsley, sea plantain, spartina grass. If you come to hunt you will find a few other marsh plants in that zone as well. The intertidal mud at first looks barren but closer examination will show eel grass, or zostera and *enteromorpha* species such as green seaweed, which is food to the dark-bellied Brent goose and the widgeon. Worm casts can be found of both red and black lugworm with the odd rag worm turning up here and there.

Closer in on the samphire zone there are small shrimp and fish fry in most of the pools and creeks as this is one of the seas' nurseries. Green shore crabs are common around this zone as well as dabs, eels and mullet are the main fish to be found in the waters flooding the marsh and sometimes sea bass. There is always a large colony of grey seals, which can be seen hauled out of the water basking on most days. Like all wild places there is always a chance of seeing something unusual and for me it was a twelve foot basking shark trapped in three feet of water waiting for the tide to turn and release it. The next day it had gone never to be seen again.

To be privileged to sit out at sunrise or sunset and watch the birdlife either going to roost or going to feed can be very rewarding. Gulls, ducks, geese, waders, raptors, too many to count and so many species to count some days and another day you would think the place was devoid of life, but that is typical of a salt marsh.



Gulls nest © Graham Wall

The most common waterfowl in winter is the dark-bellied Brent goose, which comes from Siberia. It nests further north than any other goose on the high Arctic and as one can imagine its breeding success can be a bit erratic. These have been a protected species since 1953 as is the shelduck and much later the curlew and redshank. The widgeon is another migrant from Russia, which sits far out on the sands in daytime and comes in to feed at night sometimes flying in packs of eight hundred to a thousand. Teal are another regular winter visitor and these will-o-the-wisp ducks are very unpredictable, here today and gone tomorrow. Teal breed throughout Europe and are as restless as the wind, with their shrill piping whistle sometimes all you might hear. The pintail duck is the greyhound of the marsh, fast and swift, it is called the northern pintail as it breeds in Iceland, British Isles, northern Scandinavia, Russia, Siberia, Alaska, Canada and west Greenland. The mallard are resident all year round and breed on the marsh in the early spring. The most

notable nest that was found was behind the post holding up the target on the gunnery range. It was said at the time, the safest place on the marsh. The duck sat tight with cannon shells ripping into the ground a few feet away. The eggs hatched and the brood was reared.

Pinkfeet geese have returned to the range in recent years and are beginning to build up to good numbers. They arrive in November and stay until the New Year depending on the local food supply. These geese are the most spectacular of all the fowl; and to watch as their chevrons fly in to feed in the morning calling to each other excites something in the people of the fens and even beyond. If the freshwater marshes of Norfolk freeze up at the end of winter the European whitefront goose may turn up on the saltmarshes and it is not unusual for them to turn up on the range. They have a distinctive call but also talk quietly to each other with a 'HE-HE' sound that gives them the name of the laughing goose. The prize of all the waterfowl is the whooper swan as it flies inland at dawn calling as it goes; the white ghost of the marsh with a call that is as eerie a sound that one can hear – it sends a shiver down your spine.

The redshank is the only wader that is resident all year round. Its main problem is that it falls prey to the mink in the breeding season. The grey and golden plover, lapwing, curlew, oystercatcher, dunlin, sanderling, turnstone, knot, stints and both the godwits are either with us for the winter months or passing over to warmer climates.



Intertidal zone with grey seal © Graham Wall

The small birds like linnet, buntings and larks that spend the winter on the marsh feeding on the long grasses fall prey to the sparrow hawk and hen harrier; these also feed on some of the small waders. For all the raptors that hunt the marsh, be it short-eared owl, barn owl, sparrow hawk, marsh or hen harrier, the peregrine falcon is the most impressive of them all and can sometimes be seen hunting at the north end of the range.

Due to the geography of the range the aircraft flight lines blend well with bird life. The waterfowl have by and large, either come or gone by the time the aircraft appear. Most of the waders are feeding to build up their reserves and take very little notice of fast jets. Those waders that do not tolerate aircraft use the north end of the range as this is the largest part of the range with little overfly and so a good balance is achieved overall. The wildfowlers class the mud as a non shooting zone, so this part of the range is usually undisturbed seven days a week.

While some of the information from this article has been taken from the books listed below, the vast majority of it stems from 40 years of observation and experience on the marshes. ■

Graham Wall
Conservation Group Member

Reference

Wildfowl in Great Britain 2nd Edition
Wildfowl of the World



Redshank winter plumage © David Cary

Managing woodland for sustainability



Landmarc are the Defence Estates Strategic Commercial Partner who are responsible for providing and developing safe and sustainable training facilities in order to enable Defence users to generate the required military capability within resources. Landmarc is responsible for everything from provision of temporary barrack accommodation and ensuring soldiers are fed, to keeping tenant farms and environmentally-protected areas in good condition.

With over 12,140 hectares of woodland across the Defence Training Estate (DTE) and around 38 miles of new timber fencing to erect annually, Landmarc Support Services Limited has developed two initiatives to bring timber sourcing in-house and therefore improve its sustainability in-line with recent changes to MOD sustainable timber requirements. The solutions offer reduced costs and enhanced military training facilities in a flexible, scalable package.

Across the DTE, a considerable amount of timber is used on the rural estate for maintenance purposes. The bulk of this timber is required for stock fencing posts, rails, gates and troop crossing areas. Landmarc's annual timber fencing post procurement equates to over 22,000 fencing stakes, 1,300 strainers and gateposts and 3,000 rails.

As way of combating the inadvertent purchase of illegally sourced or unsustainable

timber, the UK Government changed its timber procurement policy in April 2009. All central Government departments and their contractors may now only source and procure legally sourced and sustainable (FSC or PEFC) timber and timber related products.

With DTE occupying some very remote sites, this created the challenge of paying a local premium for some products, or securing more competitive prices but facing increased transport costs. To overcome this Landmarc established a national supply chain network which has driven down the cost of timber products to pre policy-change date.

Until recently very little of DTE-grown woodland has been utilised for estate maintenance. Now, Landmarc is producing, utilising and restocking timber in-house with its sustainable forestry operations at both DTE Otterburn and the Stanford Training Area (STANTA) at DTE East.

Peeled and pointed fencing stakes © Landmarc

The advantages for using estate grown timber are numerous:

Sustainable solutions. By removing the reliance on foreign imports, in-house timber operations are helping combat the inadvertent purchase of illegally sourced or unsustainable timber and reducing carbon footprint and other environmental impacts associated with long-distance.

Improved woodland management. As part of a long term management plan sustainable timber operations drive the thinning of the woodland improving condition and retention and ultimately leading to a stronger and more valuable crop.

Enhanced military training. Prior to thinning many plantations were impenetrable. Once thinned the plantations are well used, particularly in winter when effective cover is in short supply. The resultant woodland is also much more windfirm and fire resistant.

■ **Increased staff awareness** of the need for the sustainable use of all of our resources, and improved well being through associated job satisfaction, motivation and empowerment.

DTE East – timber processing using a Woodmizer mobile band saw

At DTE East, prior to introduction of sustainable timber practices, good quality logs from estate-grown trees were being sold and removed on lorries by timber merchants through one gate, whilst imported wood products for estate use were being delivered on more lorries through another gate. The situation was anything but sustainable and the rural team, now led by Rural Estate Manager Steve Cross, embarked upon a programme to improve the quality of the woodland and create sawn wood products for use on the estate.

The first step has been the purchase of a Woodmizer LT20 mobile band saw. This enables effective thinning and extracting of woodland on the estate by Landmarc employees leading to improved woodland



A plantation after thinning. The process increases the training value of the woodland and creates a stronger, safer and more valuable timber crop © Landmarc



DTE Otterburn's Stewartsheils Forest consists of 430 hectares of mixed pole stage, Sitka Spruce plantations © Landmarc

management, increased crop quality and value and improved military access for training purposes.

Areas of woodland that have been thinned to produce useable timber material are the Corsican Pine plantations in Lynford Forest and the Western Red Cedar at Madhouse plantation. The Corsican Pine trees have been converted into rails for estate fencing purposes and the Western Red Cedar – which is naturally durable – has been converted into boards perfect for external small constructional purposes. This has been much appreciated by visiting military engineer units which have recently used the product to construct a troop shelter and a porta-loo screen. Thus the programme is not only reducing cost, increasing sustainability and improving training facilities but also increasing the training value for troops.

DTE Otterburn – sustainable fencing material production

In managing DTE Otterburn over 10,000 items of fencing posts, stakes and rails along with 80 tonnes of woodchip are utilised each year.

Areas of Otterburn's woodland are completely dominated by regenerating Sitka Spruce to such a density that it is impossible to penetrate which makes it of no value for military training. To combat this, rural workers at DTE Otterburn led by Rural Estate Manager Martin Dodd and DE regional forester Keith Anderson embarked on an extensive programme of thinning the canopy and chipping cut material.

Timber thinned from the many plantations across the estate is then converted into a wide variety of fencing and timber products.

The quality and quantity of timber products generated from the estate enables DTE Otterburn to maintain its 30 kilometres of fencing in an entirely self-sustained and environmentally friendly operation.

Some of the stakes are being used to fence the many new planting sites on DTE Otterburn, hence nurturing the next cycle of timber to be produced from the site. The timber produced from the thinning programme that is not suitable for conversion into fencing stakes and rails is chipped and used to fill shell holes on training area. In the past wood chip has been bought-in to fill the craters, but now the estate grown off-cut wood is used. This means the whole tree is utilised on site saving money and carbon along the way.

This woodland management is aiding conservation efforts on the training area. Ideal conditions for Black Grouse and a range of other species are being created. Selective clearance has led to the regeneration of birch, rowan, alder, hawthorn, broom and a ground layer of long-dormant heather reappearing rapidly. ■

Ross Guyton

Landmarc Support Services Limited
Woodland Management &
Arboricultural Advisor

Forces housing goes green

MODern Housing Solutions

Green issues dominate our personal lives, as well as the media – barely a day passes without hearing or reading debates on global warming affecting our weather patterns or the impact we are having on the world. And whilst many of us personally strive to recycle, cut down on our fuel emissions and carefully consider the impact of our lifestyles on the environment, some businesses are also doing their bit to make a difference.

DE and MODern Housing Solutions (MHS) are committed to providing sustainable services and minimising the impact of their operations on local communities and the natural environment. Working in partnership with the supply chain to provide housing maintenance and repairs to 45,000 Service family homes in England and Wales, as well as a programme of upgrades.

On behalf of DE, MHS aims to:

- Promote sustainable sourcing of products and materials.
- Prevent pollution and monitor the reduction of any adverse operational impact on the environment and the local community.
- Demonstrate efficiency in the use of energy, water and materials whilst also minimising waste and re-using and recycling wherever possible.
- Train its staff, suppliers and contractors to be aware of relevant environmental issues and ensure effective management of their environmental impact.
- Seek to influence the environmental impact of its final constructed product through enhanced specification and design.
- Work in partnership to promote the adoption of best practice environmental



Bat boxes © Paul Lupton

management techniques to deliver high quality products and services.

- Develop objectives supported by detailed targets to manage all potentially significant environmental aspects.
- Instigate and maintain a two way dialogue with all who have an interest in our business; our staff; suppliers; customers; investors; shareholders; appropriate authorities; local communities and other organisations to identify key environmental issues and to seek innovative solutions and appropriate alternatives.

So what examples are there of DE and MHS' environmental policy working in practice?

Conservation

Looking after the natural habitat is an important aspect of any environmental policy. Lately, this has concentrated on conserving an endangered (and legally protected) mammal – the bat. Of the 16 species found

in the UK, the pipistrelle and brown long eared bats seem to favour properties of the type found on the MOD housing estate.

Bat surveys undertaken by specialist ecologists have found bats and/or their roosts on a number of current and future projects, including those at Abingdon, Bulford, RAF Halton, RAF Leeming and RAF Cranwell. Some require works to be completed under a licence issued by Natural England, the regulatory authority.

Before a licence can be granted we have to demonstrate that there is an overriding requirement to take place, that there is no alternative to disturbing the bat roost and that 'favourable' condition status will be mentioned. This may involve timing works to avoid summer months for maternity roosts and winter months for hibernation states and also creating replacement roost sites.



Rowner Architectural Drawing © Jamie Davenport, DLA Architects

Bat boxes will soon be found in various locations around the MOD housing estate as part of the DE refurbishment programme. Where possible, these will be built into the fabric of a property or attached to external walls or on near-by trees.

Demolition and rebuilds

DE and MHS are developing a proposal to undertake a demolition and rebuild project at Rowner on the Gosport peninsula in Hampshire. The aim of the project is to demolish 84 properties and build 94 new build properties in their place. All these properties will need to meet the 'Code for Sustainable Homes Level 4' as well as incorporating the 'Disability Discrimination Act' Regulations and Lifetime Homes Flexible Living Standards.

The current plans focus on the new homes but there is also emphasis on the surrounding infrastructure with attention paid to adequate parking, excellent play facilities and attractive, yet low maintenance, green spaces with private outdoor space for all. There are plans for the use of sustainable building materials; rain water harvesting; low water consumption appliances; maximising natural daylight; passive ventilation stacks and the use of high security and durable materials.

Loft insulation

By April 2010 around 8,450 Service homes will have benefitted from a project to install improved loft insulation. These homes now meet the current Building Regulations requirement of 270 millimetre thickness for loft insulation.

Loft insulation works by stopping the upwards movement of heated air, reducing the loss of heat from the rooms below which will in turn require less heating. Around 25% of heat in a poorly-insulated house is lost through the roof. So not only are Service personnel and families able to save money on their energy bills but as a result of better

loft insulation their carbon emissions are also reduced.

Ground source heat pumps

In 2010 DE and MHS will be undertaking a small trial on ground source heat pumps to see whether certain Service Families Accommodation may benefit from this provision of alternative heating. The first trial will take place at Chicksands in Bedfordshire, where a major upgrade programme has been undertaken, with the installation of this technology in 20 properties now in construction.

The ground is a very good source of heat energy, staying at a constant 11–12 degrees Celsius at a depth of one to two metres, and this heat can be harnessed and used to heat buildings and in some cases help provide hot water.

Ground Source Heat Pumps work by pumping a mixture of water and antifreeze through a pipe deep in the ground. The heat pump uses similar technology as a fridge, freezer or air conditioning unit; using the evaporation and condensing of a refrigerant to move heat from one place to another.

Community projects

MHS has an 'Awareness in the Community' programme that aims to bring about positive change for Service Communities, by supporting and enabling communities to help themselves. The MHS liaison officers together with their DE and supply chain colleagues continue to work on a wide range of projects – from improving community facilities for occupants, to organising mass clean-ups or making improvements to the estate.

Recently these have included:

Spring cleaning at RAF Cottesmore in association with 'Keep Britain Tidy'.

The project albeit spear headed by the local Service community was assisted by DE and

MHS. With assistance from Clear Blue Gas, MHS provided skips and additional manpower. Forty litter pickers collected the rubbish which was then logged by Keep Britain Tidy. The Cottesmore tidy up came third nationally for the amount of rubbish collected.

Vegetable plots for Ternhill Tots. With the assistance of DE and MHS the Mums and Tots group at Ternhill were granted permission to use DE land for a vegetable plot. The MHS National Grounds Maintenance Contractor ISS and MHS sub contractor, Jones and Hampton stripped turf, rotivated the land and made the fencing for the plot and are now in use by the mums and tots.

Blandford Allotments. At Blandford Garrison the first Service families kitchen garden was established on MOD land. With 30 plots and 120 raised beds, 40 tonnes of soil were provided by MHS in association with Brey Utilities.

These are just some of the steps that DE and MHS are taking to put environmental policy into practice. By ensuring environmental considerations are at the heart of improving Service Family Accommodation, and by being innovative in their approach, DE and MHS are helping to lessen their impact on the environment. ■

Rosie Brown

MHS Media and Communications Officer

Helen Clark

MHS Environmental Manager

MODern housing solutions

Further information is available at
www.modernhousingolutions.com

Community activities

at Hobgoblin Wood, Chetwynd Barracks



About Hobgoblin Wood

Hobgoblin Wood is a woodland area at Chetwynd Barracks in Nottinghamshire.

Existing flora/fauna at Hobgoblin Wood
This woodland oasis is a stepping stone in the middle of a large urban conurbation (Nottingham) which has been highlighted by the flora and fauna that inhabit the woods. At least two pairs of both greater spotted and green woodpeckers breed in the area with tree creepers and nuthatches observed throughout the year. A pair of buzzards roost, kestrels are probably breeding and sparrow hawks are regular visitors. Blue tit, great tit and robin have been encouraged by nest boxes and tawny owls are also present. Summer migrants include willow warbler, blackcap, whitethroat and garden warbler.

Due to the closed canopy and subsequent low light levels, flora species are predominantly restricted to cow parsley, bramble, nettles and grasses, with a smattering of colour provided by lamiums, campions, primrose, wood avens and scabious. By controlling invasive scrub, reducing sycamore self sets and planting further mixed species we aim to encourage more nectar and fruit producing flora, hopefully increasing species diversity.

Fox, muntjac, badger, pipistrelle bats and wood mice are seen regularly scrambling through the brambles. Speckled wood, orange tip, green veined white, ringlet, red admiral represent the butterfly colony and six species of dragonfly have been noted.

Completed improvement work

Babcock DynCorp, who are the Regional Prime Contractor covering the defence estate in the east of England, recognises that

Hobgoblin Wood before © Babcock DynCorp

its activities and services have an impact on the local community. As an organisation, they are committed to further developing their community engagement programme and have established a Community Involvement Policy.

Some main areas of focus for community involvement include:

- enhancement of local community facilities for the benefit of all;
- conservation of the natural environment and enhancement of biodiversity;
- supporting local charities – financial and non-financial aid;
- holding/supporting fundraising events;
- sponsorship opportunities.

All Babcock DynCorp staff are allowed to spend eight hours a year on the types of community activities listed above.

The Babcock DynCorp site team were passionate about developing a community project which would benefit personnel living and/or working at Chetwynd Barracks. It was agreed that the existing protected woodland area could be further enhanced to allow more people to enjoy this natural idyll by creating a nature trail through the wood.

The first Community Project day

In November 2009, a team from Babcock DynCorp, OCS Horticulture and the DE Environmental Manager for RPC East descended on Hobgoblin Wood for the first Community Project day.

The enhancement activities included:

- native tree planting for creation of a woodland feast for birds and mammals;
- native bulb planting to help the bee, butterfly and moth population;
- creation of green pathways (using recycled tree chippings) through the wood to improve access;
- constructing, painting and erecting bird and bat boxes within the wood to encourage both to breed in the area;
- flora planted include: native bluebells, daffodils, and snowdrops.

The following trees have been planted:

Common name	Scientific name	Number of trees
Crabapple	<i>Malus sylvestris</i>	25
Hazel	<i>Corylus anellana</i>	50
Blackthorn	<i>Prunus spinosa</i>	25
Rowan	<i>Sorbus aucuparia</i>	25
Field maple	<i>Acer campestre</i>	25
Bird cherry	<i>Prunus padus</i>	25
'Spindle'	<i>Euonymus europaeus</i>	6
Wild honey suckle	<i>Lonicera periclymenum</i>	6

By planting this vegetation it is expected to result in a carpet of colour throughout the wood during spring and encourage not only a wider variety of wildlife to the wood but also to allow more people to appreciate and enjoy the natural beauty on their doorstep.

Next steps

The project to create a nature trail through Hobgoblin Wood is ongoing and it is hoped that more community involvement days will

take place to carry out the following work:

- creation and maintenance of more green pathways to aid access into the wood from all parts of the Station;
- further planting of native species;
- maintenance and monitoring of the installed boxes to see which species are thriving and whether additional boxes are needed in different areas of the wood;
- creation of invertebrate habitats from old materials to encourage insects to the wood to increase diversity;
- further species mapping will take place to identify the variety of flora and fauna to see whether the number and type of species present have increased;
- once the species have been mapped then identification boards and signs will be created to inform visitors of what is present in the wood and what to look out for.



Creating a path with wood chippings © Babcock DynCorp

Further work at Chetwynd Barracks

With the kind permission of Lt Col Bishop (Camp Commandant, Chilwell Station) a volunteer campaign was arranged by Stuart Lipscomb (DE Environmental Manager) and Stephen Hartford (Woodland Trust) with surveying assistance from Babcock DynCorp, to plant 1,200 tree saplings in three acres of grassland. The planting was undertaken by the soldiers, cadets, staff and children from Chetwynd Barracks.

Community engagement is crucial in fostering ownership and care of the woodland and helps to increase people's understanding and enjoyment of woodland.

The trees planted in March 2010 included larger species of oak, ash, birch and smaller shrubs such as goat willow and holly. A mixture of tree species were chosen as a sympathetic match with the local forestry surroundings and will be used as a natural screening and noise buffer of buildings.

Stephen Hartford, woodland creation coordinator with the Woodland Trust provided expertise and advice on the planting. The creation of new woods will help improve the quality of station life by providing a recreational space that will increase the habitat for wildlife. ■

Gemma Sortwell, Environment & Sustainability Advisor for Babcock DynCorp. Gemma is the focal point for Environment & Sustainability issues at Babcock. Her role includes sustainable construction good practice, training, policy, community involvement, maintenance of the environmental management system including retaining BD's ISO14001 certification.

Stuart Lipscomb, Environmental Manager for Defence Estates.

Stuart works closely with Gemma on all aspects of Environment & Sustainability across RPCE. Stuart was keen for the community day to be a collaborative activity and believed the activities to be of real benefit to the Station.

Sarah Khawaja, Senior Technical Officer for Babcock DynCorp (Chetwynd Barracks). Sarah has been based at Chetwynd Barracks for four years was responsible for project managing the Community Day at Hobgoblin Wood.

Jeff Davies, Regional Director for OCS Horticulture.

OCS Horticulture are the grounds maintenance supply partner to Babcock DynCorp. Jeff has previously been involved in regular flora and fauna surveys and species counts at Woodland within the region, concentrating on birds, butterflies, dragonflies and flora.

Duncan's Road, badger and sword

Housing projects in Northern Ireland

Defence Estates (Projects) Northern Ireland (NI) deliver as required all MOD projects within NI. This small team utilising Prime Contracts (PC) and latterly framework contracts have delivered £125 million of works including 1,508 Single living accommodation bed-spaces, 186 refurbished and 154 new houses in an eight-year period. The most exciting opportunity for housing came with the new build at Duncan's Road, Lisburn, NI. The assessment study identified a requirement to provide 52 new houses in Lisburn to replace a number of houses which were to be disposed of. The MOD own land outside the perimeter fence of Thiepval Barracks, in Lisburn including the Duncan's Road site and was identified as the preferred location to build.

The site was a farm (long demolished) and grazing land utilised by the Lisburn pony club. Part of the land sloped steeply down to a former reservoir and a local conservation group in partnership with Lisburn City Council and Defence Estates (DE) has successfully managed this area as a wildlife habitat.

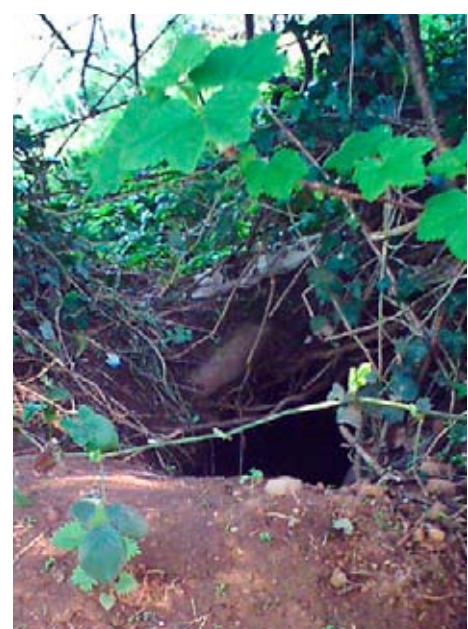
From the initial design meeting the whole team realised what a rare opportunity this was for DE to complete a new build on a mature site outside a military base. The main contractor – Henry Brothers (Magherfelt) Ltd and their supply chain architects – GM Design Associates Ltd, were fully engaged and pro-active in providing the most sustainable and energy efficient housing as well as environmental protection and nature conservation.



Detached house © Crown

The Environmental Heritage Services (EHS) report identified a main badger sett with subsidiary sets within the site curtilage and recommended temporary protection methods during construction. In addition, permanent buffer zones of 25 metre radius around main sett with five metre radius around the four minor sets are to remain post-construction. Further surveys are planned to review and monitor the badger sets once construction is completed.

The flora, fauna, nesting, wildlife and arboriculture surveys all identified areas of interest and recommendations to minimise disturbance as well as how to enhance the site. The dominant tree species found include beech, ash, oak and willow. These specimens formed the structure of the site layout, open space and children's play area, with root protection zones to all identified trees. No otter or bat presence were identified during surveying. The archaeological and cultural heritage impact assessment utilising information from the Sites and Monuments Record identified a shared boundary with an



Badger entrance © Crown

The re-designing of the site layout to include all buffer zones and protection areas reduced the house numbers from 52 to 47. Following further negotiations with the Planning Service and Landscape Branch – who wanted more green space around the existing tree ring feature – the scheme finally approved a programme of 46 houses. The planning permission application, included the detailed landscaping drawings and specifications, based on all completed surveys and reports. Planning permission was approved with no objections and with only a minor alteration to the planting schedule.

environmental performance with the need for a high quality of life and a safe and healthy internal environment. The sections covered within the assessment include building envelope performance, lighting, storage areas, insulation, renewable energy, materials, water usage, construction impacts to environment and ecology. The planning team looked at the use of solar panels, water butts, recycle bins, low energy lighting and use of grey water at the design stage. The final Eco-homes assessment provided the project with a rating of very good at >58%. Upon completion and an Energy Performance

As the project was completed in four phases the occupants moved into a building site but this allowed the addressing of any minor user difficulties for the later phases. All houses have individual meters for gas, water and electricity allowing for an easier monitoring of energy use. The area used as a wildlife habitat and maintained by local conservation group remained closed to public during construction. After consultation and close liaison with Lisburn City Council, the re-opening was arranged with a designated path constructed through the area. Planted willow shoots will form a 'barrier' between MOD housing land and public access land.

Eco-homes balance environmental performance with a high quality of life

The construction work commenced with an archaeologist in attendance. This was prudent with the areas of interest noted from the EHS report. Within the first week, a Victorian rubbish tip was uncovered and within this area a sword was found. The sword, after investigation, was identified as a British 1796 Pattern Light Cavalry Sword and was presented to the Mayor of Lisburn, for display. The assumption is that the sword, probably never used in anger within NI, was probably a family keepsake, thrown away as rubbish in the late 1800's. It may have been used in the 1798 uprising or belonged to a returnee from the Napoleonic campaigns.

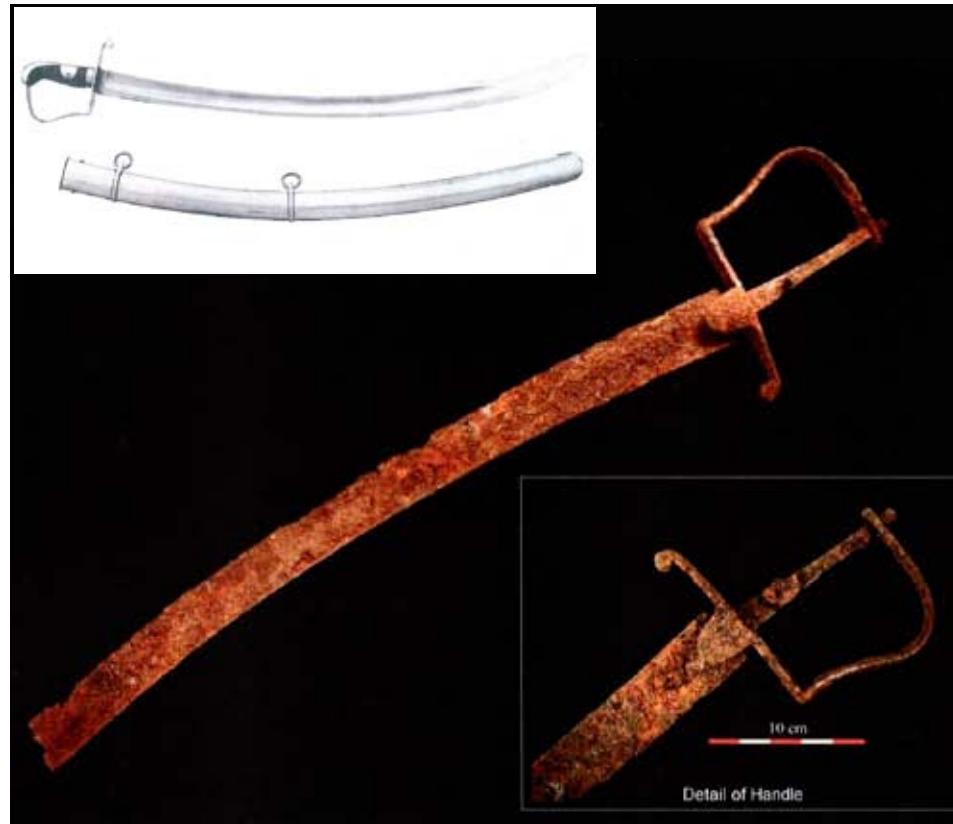
It is a mandatory requirement that an environmental performance assessment appropriate to the size, nature and impact of the project be completed on all public sector construction projects. This uses the Defence Related Environmental Assessment Methodology (DREAM). This assessment, which is completed at the survey, design and construction stages produce an overall rating of 'excellent' for the project.

To achieve the full potential of the site and provide the occupants with the most sustainable and energy efficient houses, it was agreed to enrol the project in the Eco-homes scheme and appoint an accredited assessor. Eco-homes balance

assessment completed, a certificate was issued, with a rating of B (between 81–91%). The typical house new build benchmark is 77% and for Northern Ireland is 50%.

The opportunity within MOD to develop a mature greenfield site for accommodation, with all the environmental and ecology issues, is not a common occurrence. This project has provided high quality eco-friendly housing, with low running costs to the end users, whilst minimising the impact to the environment with the added bonus of being thoroughly enjoyable to complete. ■

Kevin Thomas
DE Project Manager



Duncan's Road sword (Inset: comparative example) © Crown



Pigs with Grace and Thomas Roddy © Maj Lynn Roddy

Blandford Garrison is situated in Blandford Forum, Dorset, and is the home of the Royal Corps of Signals. It is a large establishment that has the primary role of delivering trained Royal Signals soldiers in support of Army, Tri-Service and multinational Operations. Although refurbishment of the service families accommodation is ongoing, many of the gardens are very small. In response to a perceived need to allow families to join the 'grow your own' revolution, the go-ahead was given to establish a kitchen garden or allotments on the Camp. The Garrison Kitchen Garden has been described as the 'genesis' of the Camp's sustainable development thrust and the move to join the 10:10 Campaign.

On about half a hectare of land, created by moving up a football pitch, a volunteer group from across the Camp created 30 plots for members of the Camp community to grow their own fruit, vegetables and flowers. Each plot is ten metres by eight metres and as a start up, has been provided with four raised beds and a shed, with communal access to water. The area is post and rail fenced with wind break netting and has a growing beech hedge around the perimeter.

Initial funding (£6,000) was received from the local initiatives grants (funding directed to improve the quality of life for the Camp community), through 22 Group (RAF) which assisted in providing fencing, some sheds and timber for the raised beds. An application to the Cranborne Chase and West Wiltshire Area of Outstanding Natural Beauty Sustainable Development Fund was successful and the project was granted £7,800. Modern Housing Solutions were approached and kindly made a donation of 60 tonnes of high quality top soil.

Additionally, as an extensive service families accommodation refurbishment programme was in process during the set up of the gardens, a shed, some timber and further surplus top soil were donated. The remaining 80 tonnes of soil compost was bought from Eco Composting, made from all the green waste from the Dorset community. An application was successfully made to Wessex Watermark and the gardens received a grant of £500 to buy water butts for each shed.

Brey Utilities were extremely generous by plumbing the water to the site for free, transforming the watering task for all the plot holders! The sheds were purchased from Jewsons who gave a very generous discount. Thompson and Morgan generously donated over 2,000 packets of seeds to the plot holders. The remaining grant money was spent on equipping the school for their plot, mowing and strimming equipment, a communal shed and general maintenance equipment.

The camp contractor OCS (Horticulture), were integral to the set up of the project by moving the football pitch and kindly erected the sign for the gardens. The sign acknowledges the assistance of all the internal and external supporters.

The remaining set up work was conducted by the committee and plot holders in their free time, which began in October 2008 and was completed by March 2009. All plots were quickly taken and there is a constant waiting list for plots from across the Camp community. Plot holders pay £15 a year for the plot, which goes towards general maintenance. The Camp LEA primary school are provided with a free plot and the grant for the area of outstanding natural beauty enabled the school to be completely equipped, including a RolyPig educational composter. Soldiers, Sailors, Airmen and Families Association generously funded the purchase of a wormery, with a viewing window, to add to the educational piece. Seeds and plants have been continuously donated to the school by parents. Wildlife and conservation activities are additionally conducted with the Junior Youth Group during the holiday periods.

The gardens are run by a voluntary committee with a set of rules which specify the mix on the gardens to be 75% military to 25% civilians. This provides continuity but allows for a turnover as new military families move onto Camp. A close relationship has been forged with the local town allotment, who offer the services of their shop, seed ordering, along with invaluable advice and judges for the best allotment competition.

BBC Gardeners' World have filmed at the gardens on two occasions and a showing is hoped for this year. Jekka McVicar, the high priestess of herbs, kindly offered her support and travelled to Blandford to give one of her inspirational lectures. Attendance from the local community was enormous and provided excellent networking opportunities.

A celebratory opening ceremony was held on 9 June 2009 and the gardens were formally opened by Lady Dannatt, in her capacity as the President of the Army Families Federation. All the sponsors and supporters attended and the school nearly stole the day with the fantastic display of scarecrows.

Throughout the summer, monthly newsletters are produced. The newsletters give a brand identity and an additional mechanism of acknowledging supporters. The newsletters are sent to all supporters and are included within the 'Mercury' monthly magazine which is dropped to every quarter on Camp. A notice board is kept updated in the Camp Community Centre, with tremendous support from the Hive representative, who is often the first port of call for new families enquiring as to how they can take on a plot.

The success of the gardens has inspired the set up of a sister project – the Blandford Camp Community Memorial Orchard. Funding was kindly granted from BAE Systems, Annington Trust, General Dynamics and Steria. Links had been made with Common Ground, the national champions for community orchards, who mentored the development of the project. Previously a bramble scrub, the camp community sharpened their scythes and cleared the area, leaving the roots still to be cleared. The area was fenced with stock proof and electric fencing in preparation for the pigs. A relationship was forged with the local representative of Natural England and River Bourne Community Farm, Salisbury who helped pioneer the first 'flying pigs' concept. A team of Tamworth weaners were installed in the field to 'root' the ground and will fly onto other areas to clear ground. The field was then ploughed and a mixed orchard of cider, dessert apples, pear, cherry and plum trees was planted. The trees were sourced from a Devon nursery, specialising in heritage varieties. The 21 trees have been protected with guards to enable the orchard to be grazed by sheep.

The orchard will be a free food resource for the Camp community in the future and is dedicated as a living memorial to the fallen soldiers of the Royal Corps of Signals. This place of reflection will be a wildlife haven and in the future, a colony of bee hives are to be established nearby and administered by a team of volunteer bee keepers from the Camp. ■

Maj Lynn Roddy
SO2 Area Systems Group, Command Support Development Network, Blandford Garrison



Allotments © Maj Lynn Roddy



The team © Maj Lynn Roddy



Scarecrows © Maj Lynn Roddy



Community Orchard © Maj Lynn Roddy

MOD gets connected to renewable energy



Installation – attaching the rotor blades © Crown

A new wind turbine has recently been installed at the Duke of York's Royal Military School, Kent. It is the first grid connected wind turbine to be installed on land owned by the MOD. It will not only provide the school with a long-term sustainable electricity supply, but also provides the children with a valuable educational opportunity to learn about carbon reduction technologies and renewable energy.

Background

The Duke of York's Royal Military School is an independent boarding school for the 11–18 year old sons and daughters of the Army, Royal Navy and Royal Air Force serving personnel. The school is located on 60 hectares of attractive parkland, which includes numerous listed and historic buildings, on the south east coast just outside the port of Dover, Kent. The school is an active member of the 'Eco Schools' programme, which aims to improve the environment, save money and bring international recognition to the school, set up under the Sustainable Schools Framework.

The MOD has targets to reduce carbon emissions under the Sustainable Development in Government (SDiG) framework. The Land Forces Sustainable Development Action Plan (SDAP) has a target to obtain 10% of its electricity from renewable sources; furthermore, the Army Utilities Directive includes a specific target to generate a percentage of its electricity from renewable sources. In my role as the Army's energy manager based at the HQ 2 (South East) Brigade, I investigated the potential for developing wind energy on MOD land.

Planning

The process started in 2008 with an initial site survey to identify a location that was windy, exposed, away from obstructions such as trees and buildings, safe and close to an electrical 'grid' connection point. The location of the turbine also had to cause minimal noise and visual impact – a difficult task! Considering these points, a suitable location was identified. The school estates manager Andrew Smith

was consulted at an early stage and was very supportive of the proposal right from the start. Andrew was keen to see an innovative renewable energy project on site which helped raise awareness, had a strong link to the schools educational curriculum and the Eco Schools programme.

Eon sustainable energy, a registered framework supplier of grant assisted renewable energy technologies, were approached to carry out a more detailed site appraisal. Their report confirmed that the site was feasible and recommended a suitable wind turbine and provided costs. A formal business case was submitted to Army head quarters (Land Forces) and they agreed to fund the project. The project successfully attracted a 50% grant towards the installation costs from the Low Carbon Buildings Programme, which assisted towards the financial justification.

Once the wind turbine size, type and location was agreed, it was important to establish early contact with the Defence Estates (DE) Safeguarding team to verify the affect of the proposed wind turbine on aviation interests, including potential radar interference. The team quickly responded and confirmed that the proposal did not adversely affect any defence operations.

The formal planning application was lodged with the Local Council in August 2008 and received no objections to the proposal – unusual for a wind energy project! Planning permission was granted in February 2009 on the condition that a noise survey was carried out on site, which confirmed that the expected noise levels were well within the levels set out in the relevant guidelines. The project was given the official ‘go-ahead’ by the Local Council in October 2009.



The Duke of York's Royal Military School © MOD Crown

Project delivery

Given the nature of the government grant, budget holder and DE's processes, the time needed to apply for and obtain Local Authority planning approval left a very small window for the South East Regional Prime Contractor (PriDE), working with the supplier to procure and deliver the project. The project was delivered by high levels of cooperative working between PriDE's project manager Tim Arter, who oversaw the suppliers' site activities whilst their site manager David Walker maintained liaison with the school authorities.

The wind turbine

The wind turbine (Evance R9000) is a three bladed, Horizontal Axis Wind Turbine (HAWT) with a 5.4 metre diameter rotor mounted on a tower 15 metres high. It has excellent mechanical, electrical and safety credentials and is designed for continual operation of between 20–30 years with minimal maintenance requirements. It also has low noise levels, is very efficient and has good corrosion resistance, which was important due to its coastal location and exposure to salty air.

The tail vane forces the wind turbine to face into the wind at all times. The wind turbine is designed to capture wind energy and produce electricity at very low wind speeds (three metres/second), through its maximum rated power output, at a wind speed of 12 metres/second and will continue to generate electricity up to its survival speed (60 metres/second). The turbine automatically shuts itself down at extremely high wind speeds for safety reasons. The wind turbine is expected to generate about 269,000 kWh of clean ‘green’ energy for the school. Harmful carbon dioxide (CO₂) emissions, the main contributor to climate change, will be reduced by over 145 tonnes. The school will decrease their imports of ‘brown’ grid electricity, with its associated high levels of CO₂ emissions. Additionally, the wind turbine will result in cost savings of around £27,000 over its installed life.

Educational

The wind turbine not only makes environmental and economical sense but educational sense too. Real time data is collected from the wind turbine and stored; it is then accessed by staff and students via the schools computer intranet. The students



Robert Macpherson and turbine © Crown

can readily see the amount of energy generated and CO₂ emissions reduced by their very own wind turbine. Pupils also learn about their wind turbine, other renewable energy technologies and climate change through an interactive education pack, with lesson plans and tutorials linked to subjects including science, design & technology, maths and geography. The school estate manager Andrew Smith stated “It is a unique opportunity for the school to have the first grid connected and largest wind turbine on the MOD estate. It offers an immediate payback in terms of curriculum opportunities for the students.”

Summary

The wind turbine project, which is the first grid connected system on the MOD estate, took nearly two years in planning yet only two weeks to physically install. The project has demonstrated commitment to developing wind energy, still seen by some as contentious, on the MOD estate. It required individual drive and determination through a long and difficult planning process, culminating in a team effort in finally delivering the project on time. The project has also proved that renewable energy technologies are eligible for government grants and it is possible to install wind turbines on land owned by the MOD. It has direct educational benefits to both school pupils and MOD staff. ■

Robert Macpherson

Energy Manager
HQ 2 (South East) Brigade

Designation and management within the Sovereign Base Areas in Cyprus



The Western Sovereign Base Area (SBA) (Akrotiri and Episkopi) is an area characterised by very high ecological value, 260 bird species have been recorded at Akrotiri peninsula, which represents 70% of the total of 370 in Cyprus. Of which 200 species are migratory and use the area as a staging post, for wintering or breeding. Akrotiri and Episkopi beaches are nesting grounds for loggerhead and green turtles. The flora of the area includes hundreds of plant species, many of which are rare or endemic.

The Bern Convention on the Conservation of European Wildlife and Natural Habitats 1979 and the Bonn Convention on the Conservation of Migratory Species of Wild Animals 1979 have been extended to the SBAs to ensure

Black-winged stilt © Thomas Hadjikyriakou

proper protection of flora and fauna species. In an effort to provide enhanced protection and proper management of areas and species of high environmental significance, the Sovereign Base Area Administration (SBAA) has enacted the Game and Wild Birds Ordinance and the Protection and Management of Nature and Wildlife Ordinance. The two Ordinances broadly mirror the corresponding legislation in the Republic of Cyprus which transposes the EU Habitats and Bird Directives. Both Ordinances impose an obligation on the Chief Officer to designate Special Protection Areas (SPAs) for Birds and Special Areas of Conservation (SACs) for habitats. The designation in the SBAs will complement Natura 2000 network of SPAs and SACs already established in the Republic of Cyprus and support the existing network of designated sites across Europe. Although the SBAs are not part of the EC their SACs and SPAs mirror EC directives and complement Natura 2000.

Special Protection Areas

The designation process started in March 2008 and included extensive consultations and compilation of baseline information in cooperation with Government of Cyprus Departments, Non Government Organisations and other stakeholders. The outcome was a proposal for three SPAs within Western SBA which has been primarily based on IBA (Important Bird Area) designations and the accepted European guidelines prepared by Birdlife International and the Joint Nature Conservation Committee of the UK. The three candidate SPAs were Akrotiri Wetlands, Akrotiri Cliffs and Episkopi Cliffs.

During the consultation local communities and land owners who have aspirations for development in the area expressed concerns about the restrictions resulting from the designation. Some questioned the data relating to the red footed falcons using

their plantations. As a result a further survey was undertaken in cooperation with representatives of the plantation owners, SBAA, Republic of Cyprus government departments and Birdlife Cyprus. Survey results established that the numbers of red footed falcons using the plantations exceeded the qualifying criteria for designation.

Representations raised by land owners that the value of their property would be adversely affected by the designation did not justify a change in the proposed SPA boundaries as such claims are not a relevant criterion for making decisions about designation according to the Game and Wild Birds Ordinance. In fact, the designation would not affect current use of their property.

Taking into account the consultation and the results of the survey the Chief Officer decided to designate the three sites as originally proposed. The three candidate SPAs were formally designated in April 2010. The Akrotiri Wetlands SPA constitutes the most important area for birds in Cyprus. The Salt Lake, and nearby marshes and wetlands support the largest number of water birds in Cyprus. Thousands of flamingos use the Salt Lake every year for wintering, 89 species of migratory water birds use the area and marshes for wintering, roosting and foraging and in August and September hundreds of demoiselle cranes use the area for roosting. Large numbers of white storks and common cranes also concentrate at the wetlands. The wetlands are used by sandpipers of 20 species (especially ruff and little stint) numbering in

their thousands as a staging ground during spring migration. Akrotiri Salt Lake is also one of the two most important nesting sites for the black-winged stilt in Cyprus.

The area is a site for migratory raptors. Large numbers of red footed falcons, honey buzzards, marsh harriers, lesser kestrels, and many other raptor species pass through the area. The spur-winged plover uses the marshes regularly for breeding. The marshes are also the only nesting site for the globally endangered ferruginous duck and also one of the two nesting sites for the black-headed yellow wagtail on the island. Significant numbers of shelducks overwinter at the Salt Lake, while large numbers of slender-billed gulls and bee-eaters are passage migrants. It is also one of the two nesting sites for the Kentish plover on the island.

Akrotiri Cliffs SPA provides important breeding sites for the migrant breeder Eleonora's falcon and the resident breeder European shag.

Episkopi Cliffs SPA is the most important breeding site for the resident griffon vulture whose overall numbers are in decline in Cyprus and do not exceed 15 individuals. The peregrine, an uncommon breeding resident in Cyprus, also breeds at the cliffs.

Management plans will be drawn up in order to provide effective protection to the three sites. The objective is to set conservation objectives for each site as well as a list of potentially damaging operations which will



Honey buzzard © Thomas Hadjikyriakou

be prohibited. This will facilitate the decision making process on development applications and will provide clear guidance to land owners, users and project proponents as to what uses are permitted. We intend to involve local communities in the preparation of the management plans, cooperate with relevant Republic of Cyprus Departments and NGOs, and take advice on best practice guidelines from the UK.

Special Areas of Conservation

The Republic of Cyprus undertook an EC-funded "LIFE" project in 1998 to map areas which qualified for inclusion in the Natura 2000 Network as SACs. The SBAs have been surveyed as well. Results indicated that Akrotiri hosts 27 habitat types qualifying for SAC designation. Out of these, four are classified as priority habitats and they include Posidonia sea grass beds, coastal lagoons, coastal dunes with junipers and pseudo-steppe with grasses and annuals. Episkopi is also important with 11 habitat types qualifying for designation. The EC-funded "LIFE" project also covered the Eastern Sovereign Base Areas where nine natural habitat types, qualifying for SAC designation, were recorded.

In order to ensure the sites' favourable conservation status until formal designation it is British Forces Cyprus and SBA policy to consider candidate SACs as if they were already fully designated. Thus any military or non-military project or activity likely to have an impact on a candidate site is subject to an appropriate assessment.

Alexia Perdiou

SBAA Assistant Environment and Conservation Officer



Greater flamingo © Thomas Hadjikyriakou

RAF Akrotiri Integrating operational requirements with cultural heritage



A Roman column base or unfinished millstone © Phil Abramson

There can be few establishments where MOD operates close to a 12,000 year old rock shelter, 1,500 rock cut Roman tombs and a handful of Byzantine settlements... but then again RAF Akrotiri is not just an average MOD establishment. Located on the Akrotiri Peninsula on the south coast of Cyprus, the base is host to a concentration of archaeological sites and monuments of remarkable interest and significance.

The isolated nature of the Island of Cyprus in the prehistoric periods has meant that knowledge of boat-building and seamanship would have been required to have simply reached the Island. Until relatively recently archaeologists held the view that pre-Neolithic occupation of the Island (before 8000 BC) was unlikely. However, excavations at Aetokremnos (The Cliff of the Eagles) on the southern cliff-edge of the Akrotiri Peninsula revealed the remains of a small cave or rock shelter where stone tools were found in association with the remains of pygmy hippopotamus. The importance of this site was confirmed with radiocarbon dates of

approximately 10,000 BC, making the site the earliest inhabited site found so far in Cyprus.

The Roman period (50 BC–330 AD) and Byzantine period (330–1190 AD) provide the majority of the remains found on the Akrotiri Peninsula, mainly focused within the RAF base. At least two unexcavated Roman settlements, Pano Katalimata and Kato Katalimata are located in the heart of the RAF base and immediately to the south of these approximately 1,500 tomb sites have been identified along the eroding limestone cliffs which form the southern edge of the Peninsula. These vary from rectangular



Arched tombs cut into the cliff face © Phil Abramson

graves dug vertically into the bedrock to arched tombs which have been cut into the vertical cliff face. These different types of tomb perhaps reflect the wealth and status of the person or persons interred. Also located on the southern edge of the peninsula at Dreamers Bay, evidence of a large harbour and associated installations, is gradually coming to light. These include a breakwater, the foundations of possible warehouses and vast quantities of broken pots which originally held produce for trade, tributes and taxes.

The cultural development of the Akrotiri region is very much tied into the geological evolution of the Peninsula. Abraham Ortelius' map (1573) shows Akrotiri as relatively uninhabited and open to the sea on the east coast. Through a process of silting and sedimentation over a relatively short period of time, a land bridge was established between the island and mainland and a large salt pan

This is good for the MOD, good for stakeholder interests and good for the Island's archaeology

formed in the centre of the Peninsula. These developments have no doubt influenced the location, nature and date of human activity on the peninsula. For instance the Monastery of St. Nicholas and Akrotiri village are marked on the Ortelius map but the rest of the area is bare. Other maps however show ships/barges moored within the salt lake.

So many sites of such importance bring responsibility for their management and stewardship... a responsibility which MOD takes seriously. From the 1950s onwards military and civilian personnel have surveyed the archaeological sites and in some cases

erected protective measures around their boundaries. An Archaeological Society flourishes on the base and its chair, Frank Garrod, was recently involved in a major site condition survey undertaken by Defence Estates and Sovereign Base Administration Environment Department personnel.

The importance attached to archaeological sites by the Republic's Department of Antiquities is driven by cultural and, to some extent, economic considerations and MOD environment advisors, both on and off the island, are sensitive to stakeholder interests. To this end an Integrated Rural Management Plan (IRMP) for the base is in preparation. The IRMP includes a component focussing on Archaeology and Cultural Heritage, which identifies the main sites on the base and the most effective way of managing them. The overarching aim of the archaeological component plan however will be to demonstrate that the operational activity of the base is entirely consistent with the protection and management of some of the most important archaeological sites in Cyprus. This is good for the MOD, good for stakeholder interests and good for the Island's archaeology. ■



Rock-cut tombs © Phil Abramson

Phil Abramson
DE Archaeological Advisor

The Falkland Islands update



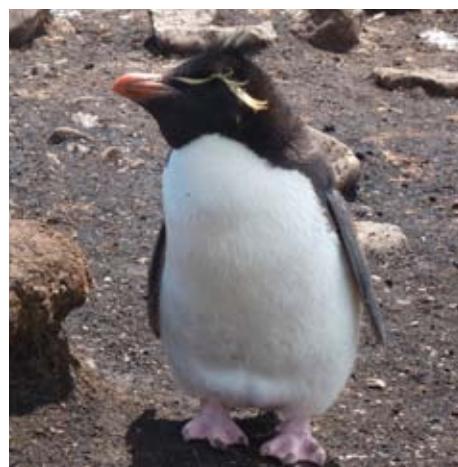
Elephant seal with ever present tussac bird © Tony Higgins

The Falkland Islands are a collection of over 776 islands and islets and are comparable to Northern Ireland in land area. The MOD leases approximately 35,500 hectares (ha) spread across both East and West Falklands. Mount Pleasant Complex occupies around 2,200 ha and includes the port facilities of Mare Harbour, Naval Engineering Falkland Islands, Petrol Storage Depot and Gemma's Gulch. The biggest areas are Orion & Second Creek Ranges which are in the region of 32,500 ha. Other sites include the mountain top Remote radar sites of Byron Heights, Mount Kent and Mount Alice, helicopter fuelling facilities at Fox Bay and Hill Cove and the welfare centre at Hillside in Stanley. There are many other reasonably large islands, most notably, Saunders and New Island off of West Falklands with Bleaker, Lively and Sea Lion off of East Falklands.

A haven for marine wild life, five different species of penguin – Megellanic, Gentoo, king, rockhopper and macaroni along with sea lion, elephant seal, fur seal, leopard seal, killer whale

and dolphin are common place. Threatened black browed albatross, southern giant petrel share the homes with the tiny tussac bird and endemic Cobb's wren.

East and West Falklands are surprisingly similar in height. Mount Usborne at 705 metres being the highest point on the East



Rockhopper penguin, (also known as Jackass because of their braying call) Sea Lion Island © Tony Higgins

Some may see the Falklands as cold and unexciting. Clearly they have never explored the Islands!

The Falklands Islands are situated in the South Atlantic Ocean some 300 miles east of southern Argentina and 700 miles north of the Antarctic. The Islands have a cool, temperate oceanic climate, dominated by westerly winds and low annual rainfall (450–600 millimetres/year). Originally joined to South Africa as part of the supercontinent of Gondwana (which also included South America, Australia, Antarctica and India) the Falklands detached, rotated and moved across the South Atlantic Ocean with South America.

and Mount Adam at 700 metres on the West with the upland areas generally aligned in approximately an east/west direction. There are many sheltered inlets around the extensive and deeply sculptured shoreline but there are also coastal cliffs which rise as high as 100 metres.

One of the most striking features of the Falklands is the rivers of rock which abound on almost every slope. Caused by solifluction, the slow down-slope movement of soil and superficial debris which occurs in ground that is thawing after being frozen, they are a particularly distinctive component of the landscape.

The Falklands were first settled in the 17th century. Now two thirds of the 3,000 Falkland Islanders live in Stanley; the capital on the East Falklands; the rest live in the 'camp' which is land anywhere outside. There are fewer settlements on West Falklands and there has been a marked trend to move from the camp into Stanley over the past 20 years.

Previously the primary income was from sheep farming and even now there are over 500,000 sheep. Advances in farming methods coupled with new financial prospects linked with global tourism and now oil have literally moved the population.

A greater awareness of the beauty of nature coupled with the richness, diversity and general lack of fear shown by the wildlife in the Falklands has led to an incredible explosion in tourism. Oddly the Argentinean Invasion and subsequent conflict with Britain in 1982 seems to have fuelled many people with a desire to experience, albeit briefly, the Falklands way of life and link this into a safari of wildlife and battlefield tours.

After the conflict in 1982, the Mount Pleasant Complex was established and the bulk completed by 1985. This consists of an airfield equipped with Typhoon, VC 10, Hercules, Sea King and civilian Sikorsky helicopters, hanger facilities, an armament depot, engineering, motor transport, communications, Rapier air defence battery and the entire infrastructure which makes it tick. Also at Mare Harbour, eight kilometres away is the Petrol Storage Depot and harbour facilities.

To the east of Mare Harbour is Bertha's Beach, which is classed as both a Ramsar site and an Important Bird Area. It is a typical example of Falkland coastal wetland habitat with a long,

Five different species of penguin, along with killer whales and dolphin, are common place

white sand beach bordered by extensive coastal dunes, many large freshwater ponds and brackish lagoons. White grass plains are dominant. An outstanding area that permanently plays host to Gentoo penguin colonies, Falkland's steamer duck, ruddy headed geese and sea lions. The coastal area and lagoon margins are particularly important for large congregations of migratory species. These include non-breeding summer visitors from the Canadian Arctic: white-rumped sandpipers, sanderlings and Hudsonian godwits occur regularly in higher numbers than in other parts of the Falklands; whimbrels, ruddy turnstones, least seedsnipe, Baird's sandpipers and several other rare visitors have been recorded, often associated with the resident two-banded plover, rufous chested (plover) dotterel and both species of oystercatcher. The ponds, behind Bertha's Beach support a variety of water birds: black-necked swans, Chiloe wigeons, Patagonian crested ducks, silver teals, yellow-billed pintails, speckled teals (numerous) and both resident species of grebe breed. Coscoroba swans, red shovellers, snowy egrets and Chilean flamingos have all occurred irregularly.

At our satellite sites of Mount Byron and Alice on West Falklands there is a great opportunity to get up close and personal with the magnificent striated caracara – known locally as 'Johnny Rook'. A member of the *Falconidae* family it feeds mainly on carrion and sea bird chicks but has been known to kill young lambs and weak sheep which previously led to its persecution by sheep farmers; however it is now protected. There are thought to be 500 breeding pairs in the West Falklands.

The opportunity of this wealth of flora and fauna on the military doorstep has fuelled a desire to resurrect the MOD Conservation Group in association with Falklands Conservation. The rare Dusen's moonwort plant and the protected variable hawk are found on the complex and although early days, we have already started to tackle the 'thorny' problem of removal of invasive species – mainly thistles and ragwort, in the Mare Harbour area. Other projects on the cards are the documenting and counting of bird numbers on Bertha's Beach, learning how to catch and clean oil-contaminated seabirds and planting tussac grass which has become depleted over many costal areas of the Falklands.

In the longer term, we are exploring the prospect of adopting the stewardship of Bertha's Beach. To do this we will need keen, dedicated volunteers and good management but we understand that together we can make a difference. Some in Britain may see the Falklands as cold and unexciting. Clearly they have never explored the Islands.

Sarah Chaloner
Theatre Utilities Management Officer

Tony Higgins
Theatre Health and Safety Officer

Roy Smith
Theatre Environmental Protection Officer
British Forces South Atlantic Islands Falklands



Striated caracara inspecting a NAAFI jammy dodger. Mt Byron, West Falklands © Tony Higgins

Colonel James Baker MBE

It was with great sadness that I learnt of the death of Colonel (Retired) James Baker MBE in October 2009.

James took up the reigns of MOD Conservation Officer in 1986 from Lieutenant Colonel Norman Clayden after retiring from a career as an Officer of the Irish Guards.

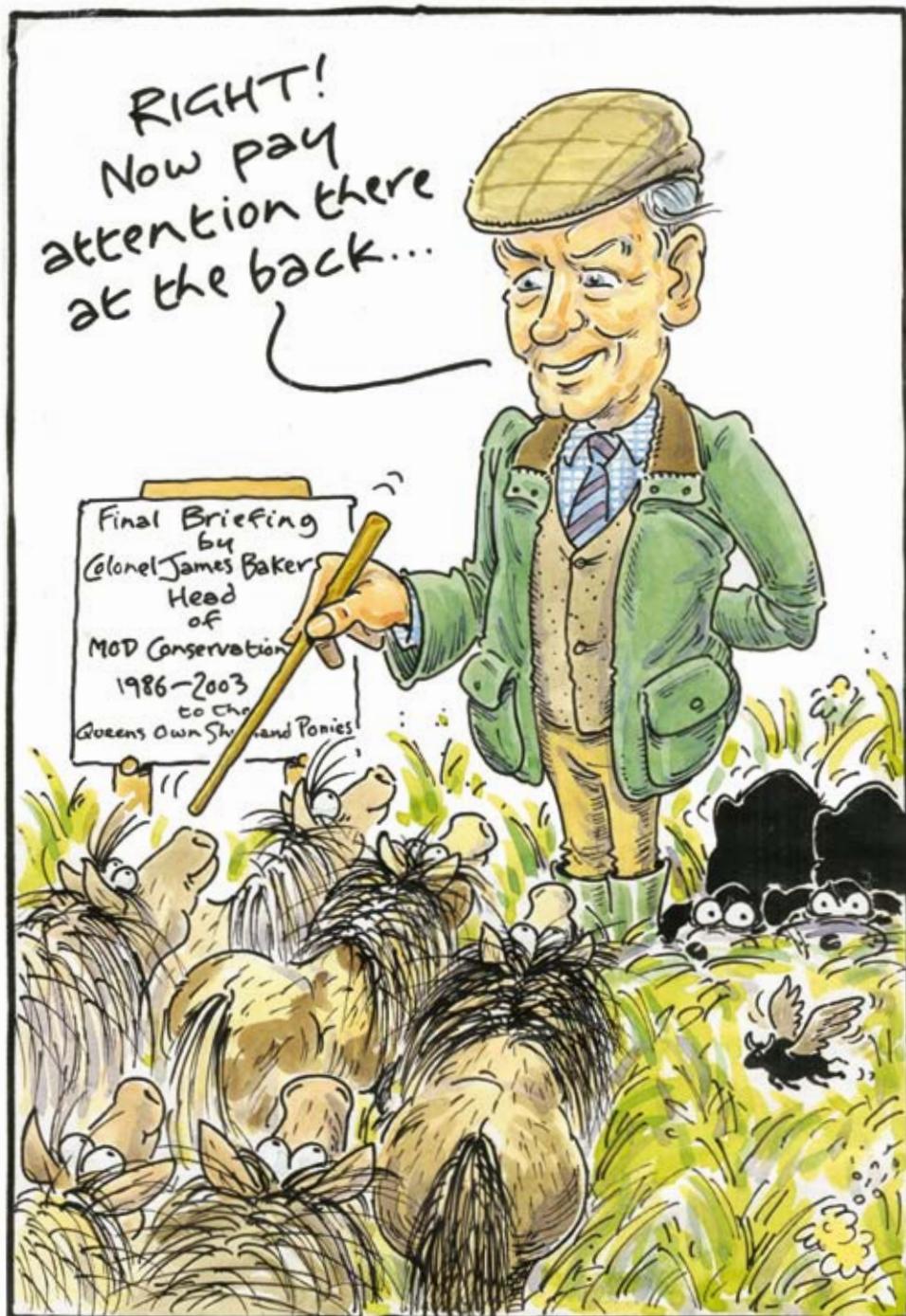
James inherited responsibility for over 200 MOD Conservation Groups and an Army of conservation volunteers that delivered a wealth of survey work and conservation projects under his leadership. He was immensely grateful and proud of those individuals and their achievements, which he championed through the pages of this magazine.

James was the perfect diplomat and a tireless campaigner for MOD Conservation, with a passion for wildlife and in particular archaeology. A great writer and orator, he spent much time enlightening senior military officers, cabinet ministers and the media about the importance of the estates' cultural and natural assets and more importantly, the need for its conservation.

James had great wit and charm, which he used effortlessly to entertain civilian groups. With his splendid sense of humour, he was a pleasure to listen to and his illustrated talks about MOD conservation became renowned.

His passion and commitment to the job was infectious and his immense influence is acknowledged by a great number of budding 'ologists which he recruited into MOD. I was one of them and I for one, remember him fondly as a great pioneer for MOD conservation and personal friend.

James was a true gentleman. A diplomat for the cause whose gentle persuasion achieved



so much for the profile of conservation on the Defence Estate.

When I was editor of Sanctuary, I published a few of James's amusing anecdotes in 2002 on his retirement from MOD. The editor has kindly

agreed to re-publish an extract from 'Yes! That reminds me...' By Colonel James Baker MBE, former Head of MOD Conservation. ■

Rosie Rowe
DE Natural Environmental Advisor

Yes, that reminds me...

by the late Colonel James Baker MBE

Elderly Colonels are well known for their capacity to tell anecdotes from their earlier life, and are usually guilty of shameless embellishments and lack of accuracy. When one of that species says "Ah Yes. That reminds me", it should send an immediate signal to the wise listener or reader that now is the time to switch off. So here goes. The MOD Conservation Office has been in being for 29 years and, since I have survived 16 of them and since this edition of Sanctuary will be the last one for which I have some faint responsibility, I have persuaded the Editor to allow some space for a few reminiscences.

First, Government Ministers. I have been lucky enough to work for no fewer than eight Under Secretaries of State and they have all, perhaps on account of the fact that conservation of wildlife and archaeology is generally an uncontroversial subject, been wonderfully supportive of our work. One of this species was nearly bitten by a wild Mongolian horse at Farnborough when presenting the Sanctuary Award. One kindly took me with him on a visit to the Outer Hebrides where, during break spent trout fishing on a lochan, he succeeded, when disentangling his line, in removing the stopper from the bottom of the boat, resulting in a sinking feeling for us all. On the same visit, he was persuaded to approach a nesting Great Skua on St Kilda, the 'Bonxie' immediately went into attack mode, forcing a general retreat.

Civil Servants. Their plumage is more varied, though usually grey even in the deepest countryside. I remember one visit by the Commissioners of English Heritage to the Salisbury Plain Training Area and Stonehenge, when the coach carrying the wet weather clothing deposited the party, including HRH the Duke of Gloucester, in a field, and departed to the pick up point with wellies! It immediately began to pour with rain, while the Commissioners struggled through waist high thistles, wet grass and cow pats for over one mile toward Stonehenge. Their grey plumage became

very bedraggled indeed, because the Visitor Centre was locked! On another occasion, on hearing a machine gun firing bursts on a distant range at Sennybridge, a senior civil servant was heard to mutter "Bloody great woodpeckers they have here!"

RAF stations employ a variety of techniques to minimise bird-strikes ranging from bird-scaring cartridges to recorded bird distress calls. Some airfields use contractors, flying falcons and other raptors. One such contractor used an open-sided transit van to which the hawks were trained to return for a reward after each patrol. It so happened that one small eagle went absent and turned up at a similar van selling burgers in a nearby lay-by, much to the consternation of the customers.

We coordinate all conservation – related public relations activities on the Defence Estate. This has resulted, over the years, in over 700 positive pieces in the media, with much more left on the cutting-room floor. For several breeding seasons, soldiers practised observation post skills by helping the RSPB in Wales to stop the illegal theft of Red Kites' eggs. One season, sadly, there were no troops available and in answer to an enquiry from 'The Times' as to whether the exercise was happening they were told that it was not. Unconvinced by this denial, they published a piece to the effect that the Special Forces were doing it in secret. Most of the other major newspapers followed suit, with the result that MOD gained massive publicity for doing absolutely nothing!

Some fascinating archaeology exists on the Defence Estate ranging from the huge Bronze Age midden on Salisbury Plain to pre-Napoleonic training redoubts at Sandhurst. One mystery is still foremost in my mind – an RAF officer kindly offered me a tour of the archaeology of the Akrotiri peninsula in Cyprus. Walking through the maquis scrub, armed with sticks to keep the snakes at bay, we encountered a venerable shepherd with his flock. He led us to a small



clearing and carefully scraped away some loose stones, revealing a marvellous Byzantine mosaic of the Madonna and Child. I believe that the shepherd has since died, taking the exact location of that archaeological gem with him to the grave.

Military training areas see many different recreational activities, some designed to produce extra revenue; most are fine, but I wonder why one has a specific injunction in its lease, that it is 'not to be used for immoral purposes'? They can be dangerous places, and I will never forget a visit to a Romano British village situated in the middle of the impact area on Salisbury Plain. The ground was littered with unexploded ordnance which, I hasten to add, had done remarkably little damage to the archaeology, over a period of one hundred years. One of the party owned a Cairn Terrier which started digging at a rabbit hole under an unexploded 1,000 pound bomb. It was probably inert, but there was no means of telling. That was the moment to walk away as fast as possible, without being seen to be doing so. ■