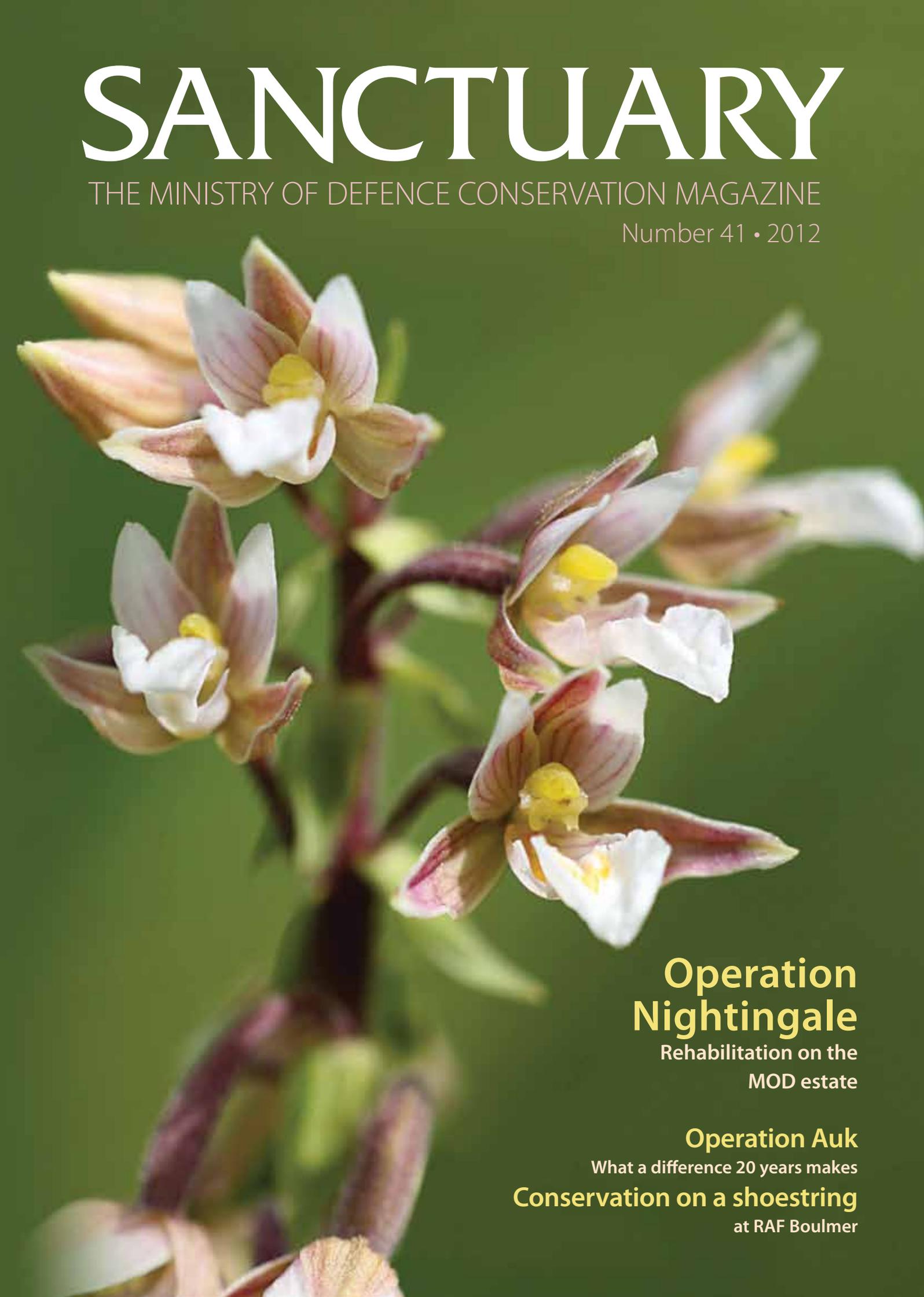


SANCTUARY

THE MINISTRY OF DEFENCE CONSERVATION MAGAZINE

Number 41 • 2012



Operation Nightingale

Rehabilitation on the
MOD estate

Operation Auk

What a difference 20 years makes
Conservation on a shoestring
at RAF Boulmer

SANCTUARY

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Cover image credit

Marsh helleborine © Dave Thomas

Back cover image credit

Frog © Richard Witham

Sanctuary is an annual 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. 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.

Sanctuary is produced for the MOD by the Defence Infrastructure Organisation.

Sanctuary has been produced by the kind sponsorship of the following companies below:

Conservation Group Photography Competition



Kingfisher © Andrew Holmes

This is the third year of the MOD Conservation Group photographic competition and yet again we have had an excellent response with many wonderful and interesting photos. The Sanctuary board and independent judge, professional photographer David Kjaer (www.davidkjaer.com), faced a difficult dilemma but decided on a superb photograph of a marsh helleborine orchid as the overall winner. The beautiful image was taken by Dave Thomas, a member of the Penhale Conservation Group and fully deserves the pride of place on the front cover of this years Sanctuary.

The runner up, which can be seen on the back cover, was a charming frog captured by Richard Witham, from Catterick and Donna Nook Conservation Groups.

Highly commended was the photograph above of a majestic kingfisher, taken by Andrew Holmes from Ripon and Strensall Conservation Groups.

This years competition has been a great success and we shall be running the competition again next year, so keep your cameras at the ready!



Foreword by **Andrew Manley** **Chief Executive Defence Infrastructure Organisation**

I am delighted to once again have the opportunity to contribute to Sanctuary, particularly in my new role as MOD's senior sponsor for Sustainable Development. I continue to be impressed by the range of activities undertaken by the Department to support the stewardship of the MOD estate and to sustainably manage our Defence activities.

Many of you will be aware that this edition of Sanctuary comes at a time when the department is going through a period of major change. Here in the Defence Infrastructure Organisation we are at the forefront of the Transforming Defence agenda and our journey will continue for some time yet as we seek to become a world class, efficient and sustainable infrastructure provider.

Developing and managing the estate for the evolving military need was a natural theme for this edition. We show how a number of sites including Defence Training Estate Tain, Her Majesty's Naval Base Devonport and RAF Spadeadam are already adapting to the change in the military requirement, whilst others adapt to the challenge of prudent resource use ensuring that the estate remains viable for military families, our staff and essential training, alongside its wildlife and historic value. Another excellent example of how the estate is adapting to changing requirements is through Operation Nightingale, a project which uses archaeology to support the rehabilitation of wounded soldiers while providing them with valuable new skills should they have to leave the Army. It is this careful sustainable management that shows how the estate is at the forefront of the department's drive for change.

The photography competition for the Sanctuary front cover has once again received excellent entries from Conservation Group members. The winning image depicts a beautiful marsh helleborine orchid taken at Penhale; it shows that the MOD estate continues to support and protect important habitats as well as delivering the Defence



Andrew Manley, Chief Executive Defence Infrastructure Organisation
 © Crown

requirement. It also highlights the ongoing passion for what I consider to be a superb and unique part of the government estate. I would also like to congratulate the Sanctuary and Energy Award winners and runners up - their enthusiasm and drive sets a standard for others to follow.

Finally, my thanks go to the production and design team for another superb edition and to our estate suppliers for their generous sponsorship. I hope you will enjoy reading the 41st edition of Sanctuary magazine.

A stylized, handwritten signature in black ink, appearing to read 'Andrew Manley'.

CONTENTS

FOREWORD 1

THE SANCTUARY AWARDS 3

THE ENERGY AWARDS 7

FEATURES

Operation Auk, What a difference 20 years makes	8
The Castlemartin Range Trail is buzzing	11
Project Ubique	12
Creating woodland to enhance military training and to celebrate the Queen's Jubilee	14
Time heals, archaeology as rehabilitation on the MOD estate	16
Dune re-profiling at Barry Buddon Training Centre	18
Donna Nook gets the seal of approval	20
Faircross Plantation nature trail	22
Regenerating juniper on Salisbury Plain	24
Vegetation studies on Salisbury Plain	25
Conservation on a shoestring	26
Woolwich and its military heritage past, present and future	28
Protecting the Falkland Island marine ecology	30
Into the Lions' Lair	31
Scrub and heathland management at DTE Tain	32
The Tank Building at Strone Camp	34
Peaton Hill Community Nature Reserve	35
Battlehill 3D laser scan	36
Securing the wood from the trees	38
The history of Newtown Rifle Ranges on the Isle of Wight	40
Working in partnership to improve energy efficiency of Service Family Accommodation	42
MODern Housing Solutions community projects	44
The changing needs of HM Naval Base Clyde	46
RAF Valley once bittern	48
Recycling the use of Nescliff's bunkers	50
The changing face of the estate at RAF Spadeadam	51
Aspire - a changing climate	52
Devonport Landing Craft Co-Location Project	54
Research into a worrying trend of turtle deaths in Cyprus	56
Managing changes at Penhale with positive outcomes	58
Seeing beneath the soil	60
Save today save tomorrow	62

AROUND THE REGIONS 65

Spotlight on...	
Donnington, Shropshire	66
RAF Valley, Anglesey	68
DISC Chicksands, Bedfordshire	69
RAF Henlow, Bedfordshire	70
RAF Halton, Buckinghamshire	71
RAF High Wycombe, Buckinghamshire	72
RAF Alconbury and RAF Molesworth, Cambridgeshire	73
RAF Wittering, Cambridgeshire	74
Penhale, Cornwall	75
Predannack Airfield, Cornwall	76
Ballykinler, County Down	76
RAF Spadeadam, Cumbria	77
Dartmoor, Devon	78
Bovington and Lulworth, Dorset	79
Wyke Regis, Dorset	80
Kirkcudbright, Dumfries and Galloway	81
Defence Training Estate East, Essex	82
RAF Leuchars, Fife	83
Defence Munitions Gosport, Hampshire	84
Newtown Range and Jersey Camp, Isle of Wight	85
Defence Training Estate South East, Kent and East Sussex	86
Air Weapons Range Holbeach, Lincolnshire	88
Bicester, Oxfordshire	89
Castlemartin, Pembrokeshire	89
RNAS Merryfield, Somerset	90
Swynnerton, Staffordshire	91
Thorney Island, West Sussex	92
Boscombe Down, Wiltshire	93
Bulford, Wiltshire	94
Imber, Wiltshire	94
Larkhill and Westdown, Wiltshire	96
DST Leconfield Carrs, East Yorkshire	97
Strensall, North Yorkshire	98
Sovereign Base Areas, Cyprus	99
British Forces South Atlantic Islands, Falklands	100

CONTACTS 101

The Sanctuary Awards

The Ministry of Defence (MOD) prestigious Sanctuary Awards recognises and encourages group and individual efforts that benefit sustainable development, wildlife, archaeology, environmental improvement or community awareness of conservation on or within land and property that the MOD owns or uses in the UK or overseas.

The 2012 Awards were divided into four categories: Environmental Project, Heritage Project, Sustainability Project and Individual Achievement. The winners of each category were considered for an overall winner who received the coveted Silver Otter for one year.

The Sanctuary Award Board

The Sanctuary Award Board for 2012 was made up of Defence Infrastructure Organisation: Julia Powell, Deputy Head (Policy), Jane Hallett, Assistant Head (Policy), Alan Mayes, Deputy Head (Secretariat), Pippa Morrison, Senior Policy Advisor, Ian Barnes, Principal Environmental Advisor and from the Joint Nature Conservation Council Marcus Yeo, Chief Executive who acted as external judge.

HERITAGE PROJECTS AWARD **WINNER** SILVER OTTER WINNER

Operation Nightingale



Participants of Operation Nightingale at Barrow Clump receiving their British Archaeological Award © Corporal Kellie Williams RLC

Operation Nightingale is the very worthy winner of the Heritage Projects Award. Moreover it has been judged to be the overall Sanctuary Award winner and is also awarded the Silver Otter trophy for 2012.

This is an enormously impressive, innovative and unique project to rehabilitate wounded soldiers from The Rifles using archaeology as the mechanism. The excavations give the soldiers new skills and new confidence and some have enrolled in archaeological degree courses.

The wide support and dedication from a high number of staff at all levels and the involvement of many external stakeholders is a remarkable achievement.

Operation Nightingale demonstrates best practice in archaeological fieldwork, acknowledged by English Heritage and Cadw and has already been awarded a special British Archaeological Award.

Read more about this project on pages 16 - 17.



Excavation of a 6th century burial © Corporal Kellie Williams RLC

THE SANCTUARY AWARDS

HERITAGE PROJECTS AWARD **RUNNER UP**

Horse Guards Restoration Project

Horse Guards is one of London's most famous landmarks and a flagship MOD Grade 1 listed asset. Some serious defects in the stonework and large areas of cracking were found in an inspection and a project team was set up to restore and repair the building.

Horse Guards played a key role in the Queen's Birthday Parade and Diamond Jubilee celebrations and also as a venue during the London 2012 Olympics so

timing was essential. The work was also planned to minimise disruption to users and the general public. This project ran for 24 hours a day requiring a lot of commitment from the project team and site liaison officers.

The scaffolding provided access for the team to not only clean the clock face and the building, but it also allowed them to restore the clock tower.



Scaffolding screening the building © Crown



The final touches before the building is finally clean again © Crown

SUSTAINABILITY AWARD **WINNER**

Predannack fire training facilities



Front view of the new building with one of the fire and rescue vehicles © Crown

The project provided a new Fire Training facility for the Royal Naval School of Flight Deck Operations at Predannack airfield, a satellite site to Royal Naval Air Station Culdrose,

Cornwall. The former World War II airfield is partly leased from the National Trust and the site is within an existing aircraft crash rescue training area.

Debut Services and the Royal Navy Infrastructure Organisation constructed this demanding project in an ecologically important site within a largely inaccessible area using a modular building, with multiple energy efficient methods in the design and a self contained drainage system.

The project was funded by the Learning Skills Council, delivered £12,000 under budget and on schedule despite a very harsh winter, and was also short-listed for a Royal Institute of Chartered Surveyors award. This is an excellent example of a sustainability project also working to minimise environmental impacts.

SUSTAINABILITY PROJECTS AWARD **RUNNER UP**

General Management Team, Logistics Commodity Services, Bicester

The Bicester site is one of the two main Defence warehousing and distribution sites and generates a huge amount of waste packaging each year.

The General Management Team has worked hard over the last three years towards improved waste management, tackling the problem of waste recycling and by using collaborative working methods actively engaged with the site.

The team have also involved contractors to develop solutions, recycled electrical appliances and worked with the Disposal Services Authority to sell obsolete equipment instead of scrapping.

The site now recycles over 72% of its waste, and has plans in place to continue this reduction.



Members of the team © Crown

ENVIRONMENTAL PROJECTS AWARD **WINNER**

**Loe Pool and Llyn Penrhyn
Technical Working Groups**



Llyn Penrhyn © Kelda Water Services

The project aim was to find the real impact of MOD sewage discharges, working with civil organisations to

share information to scientifically manage the MOD sewage treatment works.

The project began in Loe Pool in Cornwall, bringing together multiple parties with conflicting views including, military authorities, Defence Infrastructure Organisation, Kelda Water Services, and the Countryside Council for Wales. Working groups were formed with National Trust and RSPB volunteers who were involved in water sampling.

This collaborative approach is quite an achievement and was successfully rolled out to Llyn Penrhyn in Anglesey.

To find out more about the Loe Pool project please see the article in last years edition of Sanctuary.

Read more about the Llyn Penrhyn project on pages 48 - 49.

ENVIRONMENTAL PROJECTS AWARD **RUNNER UP**

Faircross Plantation nature trail

The project developed a nature trail in a small wooded dry training area adjacent to Dennison Barracks. The achievement by Hermitage Station Conservation Society (a group only formed in 2010 and with only 20 active members) is remarkable.

Collaborative working with local parish councils for support and financial donations were key and the nature trail

has been used by local schools and scout groups as part of the national curriculum. This is an excellent example of working together and is to be applauded for the positive messages in the local community. I'm sure that we will see more from this group in the future as they build on this success.

Read more about this project on pages 22 - 23.



WO2 Willis (right) and Bill Wilkie with one of the interpretation boards © Crown

THE SANCTUARY AWARDS

INDIVIDUAL AWARD WINNER

David Chappell

David, Station Health and Safety Officer at RAF Boulmer, has shown impressive personal dedication and determination over the last four years at RAF Boulmer in the various projects he has instigated on site. Creating a woodland path and a haven for wildlife from the area of scrubland of the old station rubbish tip, and a pond from an old demolition site is quite an achievement. His hard work and resourcefulness in recycling unwanted materials is truly commendable.



An owl in one of the bird boxes © Crown

David is highly self motivated and his enthusiasm and inspiration is impressive. The judges wish to thank him for his tremendous achievement in raising awareness of the wildlife co-existing with the operational business on site.

Read more about this project on pages 26 - 27.



The site woodland walk © Crown



David enjoying creating the pond! © Crown

INDIVIDUAL AWARD RUNNER UP

David Aston

David, Site Estate Delivery Manager for CarillionEnterprise Ltd at RAF Cosford, has shown great enthusiasm and commitment over the last six years or more of raising awareness and support for the environment and sustainability on the estate at RAF Cosford.

His initiatives include creating allotments on spare land at the rear of an old Mess; working with local schools to design and build bird boxes; dismantling a disused stable block for reuse at another site; and various energy and carbon saving initiatives as well as organising many fundraising events to support the local Hospice, Help for Heroes and Children in Need.



David Aston (far left) helping to build bird boxes with pupils from Albrighton Primary School © CarillionEnterprise

TEAM ENERGY AWARD **WINNER**

RAF Northolt Sustainable Development Team

RAF Northolt is an active airfield that has faced the difficulties of incorporating sustainable development (SD) without compromising operational output. The SD Team worked with the Regional Prime Contractor to design projects specifically to incorporating SD as part of routine maintenance. Their initiative, innovation and dedication have reduced the station's carbon emissions by 15% in 2011 and their programme to educate staff and the local community has helped raise the profile of reducing energy consumption. The SD Team developed the first station SD plan in 2011, formally incorporating sustainability into its core business. RAF Northolt has sought to lead the way in providing

valuable evidence to support the sustainable program, enabling other MOD units to follow suit. The Award Board recognised the positive impact these initiatives have had on the wider garrison and considers them to be worthy winners.



RAF service chef utilising the sustainable herb garden © Crown

TEAM ENERGY AWARD **RUNNER UP**

DIO and MHS Energy Efficiency Improvement

The Defence Infrastructure Organisation (DIO) has been working with MODern Housing Solutions (MHS) to improve the energy efficiency of Service Family Accommodation across England and Wales. With approximately 45,000 Service family homes, there is the potential to significantly reduce the carbon footprint of the MOD and Service families. The team are recognised for their approach of using various initiatives within a part of MOD that has been identified as having great potential for reducing the estates carbon footprint.



Ground Source Heat Pump installation © MHS

Read more about this project on pages 42 - 43.

INDIVIDUAL ENERGY AWARD **JOINT RUNNER UP**

Arfon Fry

Through his best practice initiatives, Arfon Fry, Energy Manager at RNAS Yeovilton declared the stations lowest ever carbon emissions to the Environment Agency. Arfon's initiatives have resulted in a saving of £1.4m in year costs for heating and a reduction in the environmental impact. Arfon has been instrumental in promoting an education in energy saving throughout the site.



Building 159 gas boilers © Crown

INDIVIDUAL ENERGY AWARD **WINNER**

Major Leigh Jackson

Major Leigh Jackson is the Officer in Charge of a very busy management operation at RAF Brize Norton. His aim has been to drive forward an extensive sustainability program and to improve the unit's ranking on the energy consumption list, to which he has made considerable financial and CO₂ savings. Major Jackson has closely liaised with the Carbon Trust and created a programme management team, incorporating the industry partners on site, in order to allow him to pursue his sustainability targets and allow some quick win projects. This has included the installation of a biomass heating system. The Award Board were extremely impressed with Major Jackson's enthusiasm and pursuit of continuous projects and best practice.



Major Leigh Jackson © Crown

INDIVIDUAL ENERGY AWARD **JOINT RUNNER UP**

Stuart Martin

Stuart Martin is the Energy Engineer for Regional Prime Contract (RPC) Scotland Industry Partner, Turner Estate Solutions. Critical to the success of RPC Scotland were efforts made by Stuart in his tremendous contribution to the development of the energy savings strategy across Scotland and all RPC contracts in the UK. He has been a driving force behind the delivery of energy saving initiatives.



Stuart Martin © Turner Estate Solutions

Operation Auk

What a difference 20 years makes



Guillemot and razorbills at Clo Mor © Crown

The annual bird survey and ringing expedition to the range at Cape Wrath (Operation Auk as it has become known), has just taken place for the 20th consecutive year.

It has truly been a Tri-Service venture manned throughout by members of the Armed Forces and a variety of subject matter experts from the civilian community. Underwriting most of the operational equipment has been the Royal Navy from Faslane with expertise from Fleet Patrol Group, Royal Marines - the launch pad and safety net of this annual survey. Defence Training Estate (DTE) has also been involved and most of the logistics have been assembled at Catterick Garrison and then moved to Faraid Head with the agreement of Commander DTE Scotland.

The initial remit, driven by concerns expressed by the stakeholders including DTE, Natural History agencies, and local residents of the nearby town of Durness, was to assess and review the thriving seabird colonies and other notable species. Over the years the group has been joined by many interested parties, including, on a number of occasions, the Admiral, Flag Officer Scotland, Northern England and Northern Ireland. Situated on the far-flung north-western edge of Scotland, north of the 58° Latitude line, this outstanding Ramsar Site has been accorded virtually every conservation designation possible. Closer to the Arctic Circle than to London this majestic yet fragile wilderness is routinely exposed to the extreme vagaries of the weather every week of the year.

Getting to know a coastline like this, approximately 18 km from Faraid Head to the lighthouse, takes time, tenacity and great care. In the early days we gingerly felt our way around but as

ever, confidence grows to the point where we have become comfortable but ever wary of the prevailing conditions. Very quickly we learned to respect the boggy terrain, wet cliff ledges, the tides, and the critical six metre swell.

So what have we learned from our days bouncing around in Mark 1 Raiders, often soaked, often covered in guano, most often smiling! We have ringed more than 40,000 birds gaining an amazing insight into survivability,



Arctic skua © Crown



Black guillemot with sea scorpion catch © Crown

productivity, site fidelity and the longevity of the key species. Birds we have handled have moved to Greenland, Norway, Sweden, Iceland, Faroes, Holland, Belgium, Germany, Portugal and South Africa, and the recoveries have featured casualties that flew into searchlights at sea, died after oiling or died after storms.

It is fair to say, however, that in keeping with many other sites around the UK coastline, numbers of seabirds today are significantly less than they were 20 years ago. Whereas in the early days birds prospered on the cliffs within the clearly-defined target area nowadays however there are none at all, and even in the quieter zones outside the main templates, numbers have severely declined.

For the gull species the reduction began at the turn of the century and numbers have dwindled rapidly on the islands. Places where we had ringed hundreds of great black-backed gulls

reduced to zero. Herring, common and black-headed gulls, and kittiwakes followed suit with their earlier totals much diminished. Fulmars however seem to be steady state with a decline that seems more gradual.

Within the auk species the reality is probably worse, with the most notable reduction in the puffin from 25,000 breeding pairs along the Cape to around 5,000 pairs. This iconic species, much loved by visitors to the area, is sadly in a state of accelerated decline. Alarmingly, the guillemots and razorbills have followed suit with a total crash in productivity in 2008 and 2009. In both these years the entire population failed, at the egg stage in 2008 and the young dying in their first week of life in 2009. The view that met us of the boulder field at Clo Mhor in 2008 is difficult to describe: the eerie silence in what is normally a busy, thriving, raucous colony, was almost too much to bear. This stretch of cliffs was a graveyard of dead chicks with thousands of broken egg shells where marauding scavengers - often great skuas - had broken apart and eaten the deserted eggs. A similar picture emerged inland on the lochans, where we saw hundreds of near-fledged black-headed and common gull chicks floating dead along the shoreline.

What is behind these desperate scenes has been debated within the team and in the literature and also discussed with Scottish Natural Heritage and eminent seabird specialists. We had first hand experience of the devastation created by the weather when, for instance, on

one occasion a storm blew away every single kittiwake nest in the area overnight. Numerous circumstances were considered, but time and again the pendulum swung back to food availability. Eventually it was concluded that entire groups of birds had failed due to a lack of their staple diet, the sand-eel, and they had been forced to abandon their breeding ledges en masse and return to the sea.

Information received from various sources advised that sand-eels have a low tolerance of sea temperature change and their shoals, sometimes covering an area of 80km², have moved further north and out of range of the Cape Wrath colonies.

The familiar picture postcard of puffins with a beak full of sprats was becoming an exception. In their place were found kittiwakes and common gulls choking on pipe fish - a long, spindly, spine-like creature they are unable to swallow or regurgitate. Any food was better than none it seems.

Tern colonies, which are unpredictable in any case, have been affected too, but because they seem able to survive on smaller fry they appear to have survived the worst. Arctic terns remain the most numerous, but a colony of sandwich terns have taken up residence in the area and common terns continue in very small numbers.

For years we have ringed the storm-petrels who breed in the stone piles, the walls and even in the heather, but these very numerous pelagic wanderers that



Red-throated diver with young © Crown



Rib and crew © Crown



Black guillemot chick © Crown

drift between hemispheres seem, also, to be less prolific. The storm-petrel produced our longest recovery to date when one ringed on the range in 1997 was recovered off Port Elizabeth, South Africa, some 18,000km away, over three years later.

Cape Wrath and Faraid Head have produced magical moments too; no year has ever been the same and new experiences have occurred almost daily. So what have been the highlights? Wading through the ankle-deep guano amongst hundreds of squawking guillemots in Clo Mhor cave; mist netting a fleeting merlin; flushing a flock of twites; the recovery of a migrating swallow on the Isle of Wight ringed in the nest as a chick at Faraid Head, an encounter with a sand-covered badger on an early morning walk, the corncrakes seen and heard on the inshore lochs, an adult skua feigning injury as the young are ringed, or a balmy day perched on top of Pavingstone Point.

Our 20 years have seen a colossal reduction in the seabird population at Cape Wrath but we have been assured this has happened before and that they will eventually bounce back - though we do seriously question this optimism. A restricted number of juveniles have entered the adult populations in recent years so there are fewer to breed and there is much room for improvement. Faraid Stacks where once we were afraid to take a single step for fear of standing on young auks is now

bereft and hardly any breed there at all. On a more positive note the arctic skua, whose numbers are dwindling on Orkney, has a slightly better foothold on the range area than it has had for some time, and the red-throated divers, always a delight to see and hear, seem to be holding their own.

Nature is full of surprises and sometimes disappointments. It is reassuring, though sad, that the reduction in the seabirds at Cape Wrath is due to natural causes, rather than military activity, which was the initial fear and the reason Operation Auk was instigated.

I must finish by acknowledging the contributions made over the years by the many conservationists who carried out the work and the servicemen and range staff who helped facilitate the expeditions. It has been a joy!

Major (Retd) Tony Crease
Deputy Commander
DTE North

The Castlemartin Range Trail is buzzing



Shrill carder bee *Bombus sylvarum* © Bumblebee Conservation Trust

Last year's edition of Sanctuary featured the Sanctuary Award winning Castlemartin Range Trail (CRT) which is now playing a key part in the survival of some rare and important bumblebee species!

In 2006, a group of outdoor companies agreed to fund practical conservation projects protecting the environment they depend on for their livelihood. Over five years the European Outdoor Conservation Association (EOCA) has funded 36 projects in 26 different countries spending €860,000.

In 2010 Trail Magazine asked its readers to vote for their favourite environmental project with the winner receiving EOCA funding. 19,000 votes were cast and a project from the Bumblebee Conservation Trust (BBCT) based on the CRT was chosen, winning 59% of the votes. This project aimed to provide habitat to support and expand one of

the few remaining populations of the shrill carder bumblebee, which is on the verge of extinction in the UK. The CRT offered a fantastic opportunity to restore and link habitat for this, and other, rare bumblebees. This also coincides with the BBCT's highest priority zone for habitat provision to safeguard and expand the existing bumblebee populations.

The widespread loss of flower-rich habitats that has occurred with agricultural intensification has had a dramatic impact on bumblebee populations (unsurprising in the context of the 97% loss of our flower-rich grasslands, their most important habitat!). Castlemartin Range has been owned and used for training by the MOD since 1939. MOD ownership and management has protected the land from the widescale agricultural intensification that has occurred across Britain and today is of considerable conservation interest due to the large tracts of semi-natural coastal habitats and unimproved neutral grassland.

The shrill carder bee *Bombus sylvarum*, still clings on at Castlemartin Range, along with other rare species such as the brown-banded carder bee *Bombus humilis*, the red shanked carder bee

Bombus ruderarius and the moss carder bee *Bombus muscorum*. However, populations of these rare species are becoming dangerously isolated and are severely threatened by further habitat loss or insensitive habitat management, as well as other factors such as climate change and the use of chemical pesticides.

The project has been delivered through partnership working between Defence Infrastructure Organisation, BBCT, Pembrokeshire Coast National Park Authority, Countryside Council for Wales, Landmarc, the National Trust, and numerous volunteers, with funding from EOCA, Esmee Fairbairn and The Mackintosh Foundation. Funding has purchased machinery to mow and bail the grass along the path, with many of the larger patches of habitat cut for hay by local farmers who take the hay crop as payment thus making the habitat management sustainable long term. There are also four new interpretation boards along the CRT which explain how habitat is managed, which wildflowers are important for bumblebees, and which species will benefit from the project.

10.5 hectares of species rich grassland is now under favourable management along the CRT. This habitat not only provides a rich source of nectar and pollen in a continuous strip, but is also managed so that different areas are cut at different times ensuring there is a continuous source of forage available throughout the year. Some areas have also been enhanced through the addition of locally sourced wildflower seed. A number of bumblebee related events have also taken place along the CRT, including a 'celebration event' in August 2011, to raise awareness of bumblebees amongst the local community.

Although funding for this project came to an end in August 2012, it is hoped that through further engagement with landowners in the area, and by continuing to work together as a partnership, more habitat can be brought into beneficial management to help our struggling bumblebees.

Sinead Lynch
Bumblebee Conservation Trust

Richard Brooks
Senior Environmental Advisor
DIO Environmental Advisory Service



Project Ubique

Troops training on SPTA © Crown

Salisbury Plain Training Area (SPTA) is a hive of activity and an essential link in the Defence Training Estate (DTE), with the site providing nearly a million man training days per year.

This primary role of the site has to operate hand in hand with the thousands of visitors who wish to enjoy the outstanding landscape and wildlife. Due to the challenges created by the demands of such a diverse range of user groups Project Ubique was set up with the aim of improving military training through the provision of better managed public access across SPTA. Lt. Col. (Retd) Nigel Linge and the Defence Infrastructure Organisations Access and Recreation Advisory Team have been responsible for directing the project.

History

SPTA is the largest military training area in the United Kingdom. At 38,000 hectares it is the same size as the Isle of Wight and represents approximately one ninth of the county of Wiltshire.

Ubique, (battle honour of the Royal Artillery), is Latin for “*everywhere*”. As well as being apt in its reference to the long association between the Plain and the Royal Artillery, Ubique alludes to the fact that the public access network on SPTA does indeed offer access to virtually all areas of this important and heavily used military training area. The first stage of the project has been to resolve problems with the public rights of way (PROW) within Larkhill Artillery Range (LAR) by: ensuring the routes are properly defined on the ground, then waymarking them and finally ensuring that they are maintained. The last phase of work on Larkhill is to address those PROW located within the LAR Impact Area (IA).

LAR has been a specialist heavy weapons range since 1897. Prior to 1984, whilst the boundary of the Range Danger Area (RDA) remained fixed, the artillery IA changed to reflect the type of weapons being used. This means that unexploded ordnance (UXO) can be found throughout the Range. After a century of military use it is estimated that there are more than 250,000 pieces of UXO and other explosive military debris across LAR.

In 1984 a legal order was made to close those PROW located within the LAR IA. Although the routes were closed there

remained a series of ‘tails’ or cul-de-sacs, outside of the IA but within the RDA, crossing a wild landscape, lacking in easily distinguishable features to navigate by. These PROW continued to invite the public into a dangerous environment where natural curiosity and poorly defined routes led to members of the public straying into areas of danger.

Evolution

Inevitably, given the length of time the MOD has occupied the Plain, the manner in which it is used has evolved. Since the 1984 Order the structure of the Army and the use of LAR has fundamentally changed. In 1984 the Royal Artillery was larger and the use of the LAR for artillery live firing purposes was significantly greater. Additionally, due to the operational requirements of Northern Ireland, the emphasis of musketry training was placed upon single aimed rounds, conducted on fixed firing ranges elsewhere on the Defence estate.

The Royal Artillery is no longer the main user of LAR. To accommodate new training needs the RDA now contains small arms Field Firing Areas, enabling a wider range of live fire training to take place within LAR. This pre-deployment training has been essential to prepare troops for Iraq and Afghanistan.

As the military use of SPTA has evolved, so too has the public's ability to access the countryside. The means and manner in which the Plain is used for recreation is greater now than it ever has been. Walking, mountain biking, horse riding and off-road driving all place pressure on an important training resource, set in a very special historical and ecological landscape.

The presence of the tails amongst such heavily used live firing training facilities, prevented this integral training area being used to its full capacity. In 2008 work started on re-establishing a network of continuous PROW intended to provide safer and better managed public access throughout LAR. The aim is to ensure:

- Certainty as to where the public can go
- Clarity as to where public access physically exists on the ground
- Consistency in the approach to access that ensures expectations are met

All which will deliver benefits to both the military and the public.

Commitment

Public highways are formally protected by law and are important to local communities. With so much interest focused on PROW, taking the decision to make such changes is not one to be taken lightly and requires commitment. In order to gain the trust of the local communities and increase the likelihood of success HQ DTE Salisbury Plain consulted the 18 Parish Councils and all relevant stakeholders with an interest in LAR.

A partnership with Wiltshire County Council PROW Team has been formed and an active role has been taken in the Wiltshire Local Access Forum (LAF). Participation in the LAF has facilitated liaison with local representatives of national organisations such as the Ramblers and British Horse Society. Tread Lightly, an off-roading organisation promoting responsible off-road recreation, has also worked jointly with the MOD to improve the way marking on site. Their work on Salisbury Plain is anticipated to have been completed by July 2013.

This consultative approach has given transparency to the process. Key stakeholders have been informed as to the changing requirements of LAR and

of the dangers associated with unmarked PROW from UXO and other explosive military debris. Constructive discussion between all parties has allowed the development of an alternative PROW network, tailored to better suit the training needs of the site and offer more and safer access opportunities for the public.

An application to the Department for Transport to close these tails was made on 21 June 2012. To address some of the questions that may arise from the application an outline brief was placed on the MOD Access website, along with maps describing the progressive development of the access network.

Changes

To offset the loss of the tails within LAR IA new dedications will plug gaps in the network, providing logical, user friendly and manageable routes. In addition a new viewing point is to be introduced to the north east of LAR, offering views of the local archaeology, supplemented by new interpretive panels. Where possible danger area boundaries have also been moved to facilitate flag free access.

The future

New PROW dedications are ongoing. Whilst much of the network is already available to the public on a permissive basis it is anticipated that the new network will be completely formalised by autumn 2013. This work will continue in the background, alongside ongoing resurfacing works and waymarking.

The next stage of Ubique is to review the existing public access on SPTA West including the Imber Perimeter Path. The management aims of certainty, clarity and consistency will be applied, whilst ensuring the potential for accidental or illegal ingress into the closed Imber IA is prevented. Given the success of the Larkhill project it is hoped that Ubique will continue to make similar positive steps to public access management. Watch this space...

James Nevitt

Environmental Advisor
DIO Professional & Technical Services



Training on SPTA © Crown



A horse rider enjoys a well defined route across the Plain © Crown

Creating woodland to enhance military training and to celebrate the Queen's Jubilee



Local dignitaries who planted six 'royal' oak saplings, which have been grown from acorns collected from the Royal estates © Grantham Journal

Just outside the market town of Grantham in Lincolnshire on an exposed hilltop sits the Prince William of Gloucester Barracks (PWOG), home to the Royal Logistics Corps Territorial Army.

The site was one of the first Flying Training Schools established in 1917 by the Royal Flying Corps. In 1975 this RAF station was handed over to the Army and is now a major training centre with Territorial Army soldiers coming from all over the UK to train in military logistics.

The Royal Logistics Corps have for many years had a desire to create woodland on this large, flat, rough grassy ex-airfield to enhance their training facilities and with the plans to increase the size of the Territorial Army this has become more urgent. Last year saw a partnership between the Defence Infrastructure Organisation (DIO) and the Woodland Trust (WT) successfully create 160 hectares (ha) of native woodland at Warcop Training Area in Cumbria. The WT will deliver the project under a ten year license being responsible for establishing the woodland and sourcing the funds.

The back door training area, which is over 80ha in size, currently exists of an off road vehicle training track around the perimeter and two small areas of woodland planted approximately 20 years ago. The remaining grassy area

offers little value both in terms of military training or biodiversity. It is within the driving track that the 70ha native woodland will be created.

The PWOG, DIO and WT were keen to involve the local community in this landscape-changing project. So all involved were delighted when the project was approved to be one of only 60 special Diamond Woods that are being created throughout the Country as part of the Trust's Jubilee Woods project. The WT has invited everyone throughout the UK to join them in celebrating the Queen's Diamond Jubilee by planting millions of trees. With the blessing of the Queen and HRH The Princess Royal as their Patron, they aim to mark her Majesty's 60 years on the throne by involving a million people in planting six million trees.



Cadets after a successful days planting
© Woodland Trust

With HRH The Princess Royal as their Colonel in Chief it is very apt then that the Royal Logistics Corps woodland creation project should be a Diamond Wood, further endorsed by the fact that Grantham is home to the WT's.

As a Diamond Wood the project will offer exciting opportunities for local people to be involved in learning about and planting trees, as well as providing a unique opportunity for both military and civilian communities to join together in creating the woodland. A ceremonial launch of the project was held in February when over 200 military personnel from PWOG and nearly 100 WT members of staff planted the first 2,250 trees. They were joined by local dignitaries who planted six 'royal' oak saplings, which had been grown from acorns collected from the Royal estates.

The main planting will commence in November when local schools and community groups will be invited to join military personnel from PWOG in a week of planting and woodland and military discovery sessions.

The woodland will be planted over two years and will be funded by a combination of woodland creation grants, sponsorship from companies through the WT's Woodland Carbon Scheme, which allows businesses to mitigate their carbon emissions by funding the creation of native woodland and funders of the Jubilee Woods project.

Two-thirds of the site will be planted as conservation woodland with a planting density of 1600 trees/ha with up to 40% open space. This will allow lots of wide rides and glades that the military can use whilst training and woodland suitable for 'harbouring up' training exercises. Up to 20% of the planting will be of shrubs to allow a grading in height of vegetation along ride edges, with the remaining third planted in four blocks, within the main woodland area, at a density of 2250 trees/ha suitable for timber harvesting in the future if required. In total this equates to the planting of 84,000 mainly native trees and shrubs.

The majority of species are native to the area and, where available, of local provenance. The species to be planted include oak, ash, field maple, crab apple, hornbeam, beech, sweet chestnut, rowan and a mixture of evergreens (10%) plus shrubs, such as hazel, hawthorn, spindle, dogwood and dog rose. As an ex airfield the site was very compacted so the first task for the WT was to subsoil the planting area, which was done last Autumn. Plans are now underway to ensure planting gets off to a smooth start in November.

This project is fully supported by the Commander of the Royal Logistics Corps Territorial Army, PWOG and is an excellent example of working in partnership to achieve greater outputs. The DIO and the WT are now working with other military bases around the UK identifying more opportunities for woodland creation.

For further information or if you think your Base might be suitable for woodland creation please contact Jon Watson, DIO Head Forester or Helen Chesshire, WT Partnership Manager (08452 935804).

Helen Chesshire
Partnership Manager
Woodland Trust



All you need is a helping hand (or dig!) for good teamwork © Woodland Trust

Time heals, archaeology as rehabilitation on the MOD estate

By the men of Operation Nightingale, The Rifles



Rifleman Dave Hart records the burial of an Anglo-Saxon child at Barrow Clump © Crown

For those men and women who return home injured from the conflict in Afghanistan it can be difficult to adjust to life in the UK as they recover. However a new project is using archaeology to both speed wounded soldiers' rehabilitation and give them valuable new skills should they have to leave the Army - 'Operation Nightingale'.

Many early archaeologists were senior figures within the army - there is a close correlation between the skills of a soldier and those of an archaeologist. These include surveying, geophysics (for ordnance or archaeological sites), scrutiny of the ground (for improvised explosive devices or artefacts), site/team management, mapping, and the ability to cope with manual work often in inclement weather.

The project derived from a conversation between Sergeant Diarmaid Walshe of 1st Battalion, The Rifles and Richard Osgood, senior historic advisor at Defence Infrastructure Organisation (DIO). Sergeant Walshe, who is responsible for the medical care and treatment of the soldiers, including injured personal returned from

operations overseas, identified a growing need for some form of occupational therapy and recovery. He recognised that archaeology had many elements that could help address some of these needs. He said *"These soldiers have all endured a lot during operational tours. Due to complex nature of the injuries both physical and mental that are been experienced in Afghanistan, the army is always looking at new and innovative ways to promote recovery. It is important to find projects that can help restore fitness, confidence and self-esteem to the wounded"*. The project looked to support operations in one of the most fundamental fashions; supporting those back from tour. We are examining new methods of managing the historic estate which both meet the best practice requirements and aspirations

of the Statutory Bodies, whilst also assisting with this new military requirement.

It was essential throughout that work undertaken by the soldiers was valuable to the MOD; addressing issues of some of the department's 'Heritage at Risk' holdings, examining the extent of protected sites on the estate, developing new best practice models for the heritage sector. All this is work that is required at a time of budgetary pressure.

As a military activity, the project needed an operational name. In a nod to one of the most famous figures in British military medicine, Operation Nightingale was born!

The first site examined was Chisenbury Midden on Salisbury Plain. Dating to around 700BC the midden is composed largely of animal bone, burnt flint, and many shards of pottery - a location of major ceremonial events including feasting. Badgers were digging elements of the site and items were visible in spoil ejected from sett entrances - the fieldwork was designed to recover and quantify this material



Rifleman Liam Barnett holding an Iron Age bone awl excavated at Chisenbury Midden © Crown

and to examine whether there was any patterning to the assemblage.

The Riflemen worked alongside the Historic Environment Team of DIO to excavate and plot their finds using survey skills which were explained to them by 135 Squadron Royal Engineers. The soldiers recovered thousands of pieces of decorated pottery, bone tools and pottery spindle whorls illustrating the monument's importance. With their new fieldwork skills the soldiers then looked at a Roman site in Caerwent.

Under the direction of Martin Brown (DIO), the team re-excavated Victorian excavation trenches over a large Roman building to evaluate the size of the Scheduled Monument and to inform Cadw on the nature of deposits. The project drew on all 5 Battalions of the Rifles working alongside students from Leicester University. The results were hugely exciting with a beautifully built structure emerging, with Roman coins, pottery, fragments of mosaic and even part of a hypocaust (under-floor heating system) being found. The team produced a record for the site, with sections and plans where none existed previously.

The MOD is committed to reducing its holdings on the English Heritage 'Heritage at Risk' list and Operation Nightingale has enabled two of these sites to be carefully recorded, leading to their ultimate removal from this list. At Battlehill, Phil Abramson (DIO) supervised soldiers with 135 Squadron in their laser-scanning of a Scheduled prehistoric rock carving (pp 36-37 this

issue) whilst another Scheduled Monument at Risk on Salisbury Plain was being destroyed so quickly by badgers that permission was given to excavate it. Barrow Clump is a Bronze Age round barrow (c2000BC) into which a 6th Century Saxon cemetery had been cut. The soldiers recovered 27 burials and sensational artefacts - brooches, beads, cosmetic brushes and the accoutrements of warriors; shields, bladed weapons and spears. The team were able to show their findings to hundreds of visitors on site open days and were also filmed by Time Team.

With the MOD also administering the Protection of Military Remains Act, Riflemen assisted the excavation of a crashed Second World War Stirling aircraft to demonstrate archaeological recording methods to groups engaged in such recovery work; their endeavours leading to a properly recorded site and airframe plan alongside insights on operational use of some of the military equipment recovered.

A number of work placements for the battle-injured soldiers have been secured from a community of heritage groups including Wessex Archaeology and Canterbury Archaeology Trust. While these placements are taking place five soldiers have embarked on University courses! The project has also been recognised by the archaeological community through a recent 'British Archaeological Award' as a project of special merit.

Richard Osgood
Senior Historic Advisor
DIO Environmental Advisory Service



Rifleman Jake Watts carefully completes the excavation of an Anglo-Saxon skeleton at Barrow Clump © Crown

Perhaps the testament of a soldier is the most powerful into the efficacy of this work:

Rifleman Liam Barnett (22) who was injured in a close contact encounter with the Taliban said:

"I was invited on the first archaeological dig and I was intrigued to try something new, I didn't know what to expect and I had no idea that we would find as much as we did. Finding all the different artefacts was exciting especially when clearing the dirt off the face to reveal the different markings and patterns. It was cool knowing that this was made all those years ago.

I found a bone covered in mud, but then as I cleaned it, it was revealed to be an awl that may have been used to pierce leather and it also had holes where it could have been hung from the neck. That was quite exciting.

The digs have been a good way to get injured soldiers out of camp, especially if they can't really do much in camp. It's a good way to take minds off things and onto more positive thoughts. I think it's a great idea that should be employed by all units that have injured soldiers back from tour. I am privileged to have been able to experience this project."



Dune re-profiling at Barry Buddon Training Centre

Barry Buddon Training Centre's extensive dune system © Crown

Barry Buddon Training Centre (BBTC), Scotland's main range complex, provides the UK Armed Forces with operational training for all in-service small arms weapon systems. It is one of only two ranges in the UK which offers training to sniper cadres, providing ranges up to 1,200 metres. In addition to its operational military use, BBTC has been selected as the venue for the full bore and clay pigeon events for the forthcoming Commonwealth Games in 2014.

In addition to being Scotland's main range complex, the site is of national importance as one of the largest remaining sand dune systems surviving in a near natural condition in Scotland.

The site is designated as a Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) and a Ramsar site. The site is a triangular shaped foreland situated at the mouth of the Firth of Tay on the northern side of the estuary in Angus, with Monifieth to the south-west and Carnoustie to the north-east, covering 1,176 hectares. Much of the site is low level, with dune systems to the east and west, with Gaa Sand Hill located in the south-eastern part of the range being the highest point. To the north of this is Barry Ridge, an ancient dune now extensively covered with Scots pine. The majority of BBTC is covered with sand, as well as marram grass and gorse with extensive woodlands. Underlying this are estuarine clays and sand which were deposited following the end of the last Ice Age. As well as being a SSSI and Ramsar site, the dune system is adjacent to two Natura sites, Firth of Tay and Eden Estuary SAC and the Firth of Tay and Eden Estuary Special Protection Area (SPA).

Maintaining the operational capability of the site, whilst ensuring the safety of service personnel and the public is a key concern. Outside firing periods, the public have unrestricted access to the site. However, during live firing periods access to BBTC is controlled via two road entry points and five sentry posts which overlook the key perimeter

access points to the Range Danger Area (RDA). Changing tidal and shoreline processes over a number of years have led to the build-up of sand in the dune system in front of Sentry Post V, at the Monifieth end of the site. This has obstructed the sentries' view along the beach, resulting in numerous incursions by the public into the RDA. Military training has to be stopped to remove members of the public straying onto the RDA. This directly affects the ability to maintain the Safe Place at BBTC, achieved through sentries and Landmarc Support Services (LSS), Defence Training Estates (DTE) Industry Partner.

Discussions with Scottish Natural Heritage (SNH) and Marine Scotland (MS) were held to evaluate the various possible options to resolve the Safe Place issue. The options considered were:

- Relocation of sentry post
- Raising height of sentry post
- Re-profiling of dune in front of sentry post

To aid this process, sustainability appraisals (SA) were undertaken by DTE Scotland for each of the options, and a comparison of the likely effects of each demonstrated that re-profiling the sand dune met the Safe Place requirements most effectively and with fewest

detriments to the sensitive habitats. Data from the SAs flagged up the requirement for a Habitats Regulation Appraisal (HRA), which is required on any project that affects Natura sites and features. The appraisal identified that breeding and overwintering birds, common seals, intertidal sand and mudflats were features most likely to be affected by the work. In addition to the HRA, because the work was to take place in the inter-tidal zone, MS were also required to issue a licence. This set out that the works were to be carried out at low tide in order to minimise impact on the intertidal sand and mudflat features, and were timed for mid winter to negate any adverse effects on breeding birds and the seal population. In addition, the protocol to the license mandated that a series of photographs should be taken from fixed points before during and after the works to provide a record of the work and its outcome.

Once agreement had been reached between MOD, SNH and MS, the LSS Estate Manager took over the project management, ensuring that all conditions and mitigations were taken into account. The work involved removing approximately 2.5 metres from the top of the dunes along a 100 metre section in front of the sentry post with the two ends graded back in to the existing dune system to reduce the visual impact. A tracked digger using a large bucket completed the work in one day. Permission was granted from Angus Council for the digger to use their recreational slipway to access the beach to avoid damage to the dunes. There is an ongoing requirement to monitor the area of re-profiled dune annually via photographic survey from the agreed fixed points. This is in order to assess the rate of sand accretion, the rate of re-establishment and the type of vegetation growing on the section of dune.

With the work now complete, the sentry post view along the beach is now un-obstructed, ensuring that operational capacity and public safety are once again maintained.

David West
Environmental Advisor
Defence Infrastructure Organisation

Colin Maclean
Regional Logistics and Contracts Officer
Defence Training Estate



Sentry box view being blocked by the dune before the re-profiling work © Crown



During the dune re-profiling © Crown



After the dune re-profiling © Crown



Seal pup on Donna Nook © Crown

Donna Nook gets the seal of approval

One of the largest colonies of grey seal in England occurs at Donna Nook Air Weapons Range

More than half the world's grey seal population occurs around the UK coast making it internationally important for the conservation of this marine mammal.

The air weapons range, situated on the Lincolnshire coast, comprises of approximately 885 hectares of coastal habitat with a sea danger area of 3,200 hectares. It caters for a variety of exercises for aircraft dropping practise or inert bombs or strafe practise for both fixed wing aircraft and helicopters. There are a range of permanent beach, sea and tactical targets and it has been in existence since World War I. When the red flags or lights are displayed byelaws prohibit public access, but at other times the range is open to the public.

The use of the land holding has changed over time. It was initially

established to protect the Humber ports from Zeppelins and there is reference to gunnery practice on the beach during World War I. The air weapons range was established in 1926 and Hudson bombers were based there in World War II. It was also used as a prisoner of war camp.

Donna Nook has several nature conservation designations. It is part of The Humber Estuary Special Area of Conservation, Special Protection Area, Ramsar site, European Marine Site and Site of Special Scientific Interest. The site is also part of the Donna Nook National Nature Reserve which is leased to and managed by the Lincolnshire Wildlife Trust. It is of importance for a variety of features including mud and sand flats, salt marsh and sand dunes and a variety of shore birds; but grey seals are also an interest feature.

Up to 3,000 seals, approximately 3% of the UK population can assemble on the beach to breed in late autumn or to moult in the spring. In 2011, over 1400 seal pups were born. The coastal environment has been modified with coastal defences such as pill boxes but

is also subject to natural change with deposition and erosion of sediments originating from the estuary.

It is not known exactly when the seal colony established but it was noted in the 1970's, and has grown steadily since. In most cases major grey seal colonies occur on rocky offshore islands such as the Farne Islands or North Rona, but seals occur in a much more accessible situation at Donna Nook. It is presumed that these remote locations are used to avoid human disturbance, and possibly predation; but at the range the seals appear to tolerate the aircraft and have learned that there is little disturbance from members of the public. Donna Nook gives opportunities for close viewing of a wildlife spectacle; with careful management by the wildlife trust to ensure that the seals are not unduly disturbed and to also protect the public.

The existence of a large seal colony at this location has benefited researchers from Durham University. Long-term research has been carried out by the University in collaboration with the Sea Mammal Research Unit, studying the



Landscape view of the dunes and beach at Donna Nook © Crown

causes and consequences of individual variation in the behaviour of grey seals in different areas of the UK. Dr Sean Twiss currently has students researching inter-male conflict and mother-pup interactions at Donna Nook. Large bull grey seals fight for access to females but also use strategies to avoid direct conflict, which is potentially dangerous. Observations at Donna Nook are also being compared to other locations to try to isolate individual differences in behaviour and the effects of different

environmental conditions, such as topography and the amount of human disturbance.

Individual variation in the behaviour of grey seal mothers and their pups are also being investigated. For example some mothers play with their pups while others don't. An opportunity has also been taken to compare the behaviour of seals near publicly accessible areas and in the range danger area to see if behaviour is affected by human disturbance.

During seal watches, including using night vision, interesting observations were made of fox activity in the colony, which has never been recorded before. The work has been published in the journal *Aquatic Mammals* as "Observations from video footage of red fox *Vulpes vulpes* activity within a grey seal *Halichoerus grypus* breeding colony on the UK mainland".

Donna Nook is an excellent example of how land held for military purposes can provide additional benefits to the wider community and support involvement of a variety of stakeholders. In 2011 nearly 70,000 people visited the nature reserve to see the seals, which also has potential benefits to the local economy and tourism. The site provides a resource for university researchers and contributes to the high biodiversity of the Lincolnshire coast. Hopefully the seal colony will continue to thrive despite any natural or man-made changes to the coastal environment in the future.

Dr Moira Owen
 Natural Environment Advisor
 DIO Professional Technical Services



Adult seal on Donna Nook © Crown

Faircross Plantation **nature trail**



WO2 Paul Willis (right) and Mr Bill Wilkie (left) with one of the information boards © Crown

Faircross Plantation (FP) is a forested area located next to Denison Barracks in Hermitage, Berkshire which is home to Joint Aeronautical and Geospatial Organisation (JAGO), 42 Engineer Regiment (Geographic) and the Royal School of Military Survey (RSMS).

FP is approximately 24 hectares in size and is home to a variety of both deciduous and coniferous trees, fauna, vertebrates and invertebrates.

The Hermitage Station Conservation Society which was established in 2010 in association with Defence Estates (now Defence Infrastructure Organisation (DIO)), Chieveley Parish Council and Thatcham Town Council.

One of the first tasks of the society was to create and implement a biodiversity action plan, with three main objectives; the creation and maintenance of species lists of all plants, vertebrates and invertebrates situated within FP; participation in the MOD bird-count; and the creation and maintenance of a nature trail in FP.

The purpose of the nature trail was three-fold; protect species indigenous to FP; introduce new species to FP without adversely affecting the indigenous population; and the education and enjoyment of the local community. Although FP is military property, it is used by civilians on a daily basis, either for walking their dogs, or just enjoying the great outdoors and this was taken into account when planning the project and proposing it to the station commander, Col Mark Burrows.

After gaining the wholehearted support of the station commander, an action plan was drafted which began by visiting local conservation projects

including the Living Rainforest in Hampstead Norreys and the Thatcham Discovery Centre. Following these visits, it was agreed to ensure the educational element of the nature trail was not lost, information boards situated around the trail were required.

Two large weatherproof information boards situated at either end of FP containing general information about the project and a map of the route; and 20 A4 size weatherproof information boards along the route detailing individual species. This, of course, would require money!

Denison Barracks is situated within both Chieveley parish and Thatcham Town catchment areas, so both councils were approached with a request for funding to purchase the boards. Thatcham Town Council generously donated £350 which was used to purchase the A4 boards and enough cement and sand to site them correctly; and Chieveley Parish Council generously donated £1,000 which was used to purchase the large boards.



The nature trail © Crown

Once the boards were installed along the route, individual information sheets were inserted, with the exception of the first, which displayed various leaves to help identify which tree is which; it is surprising how many people can name only a birch tree or horse chestnut! These information sheets will be changed to coincide with the seasons.

Although the nature trail is now complete in its initial design, it is the intention to improve further. Plans for a pond have been drafted and a suitable area has been identified, near enough to the trail to avoid unnecessary detouring, and will accommodate a safety barrier. Naturally, further funding will be required and recycling agencies have been approached with requests.

Plans are also in place to build a camping area in FP, following suggestions by soldiers from Denison Barracks. Many felt that while they enjoyed taking their children camping at weekends, the logistics and costs involved were such that they were unable to do it as often as they would like; surely there was some way to utilize FP? An area has been identified where two overnight camping areas will be established.

The first will be designated a normal tented area, where personnel can simply take the very short walk from the 'patch', pitch a tent for the evening

and go home the following morning. The second will be designated an 'A-frame' area, where a small number of A-frame structures will be built and personnel can simply bring along a sleeping bag and spend the evening under the stars. There will of course be stringent fire regulations in place, which is the reason why, currently, only military families will be permitted to use the area. As with the pond, it is hoped that work can begin before the end of the year.

The nature trail is already being used by local schools and scouts groups as an educational aid and is gradually becoming a favourite among locals.

WO2 Paul Willis

Field Support Section Warrant Officer
16 Geographic Support Squadron

*Secretary of the Hermitage Station
Conservation Society.*

Bill Wilkie

Civilian Map Reading Instructor
Royal School of Military Survey

*Left the army in 2011 and has a degree in
horticulture from Aberdeen Agricultural
College.*



Close up view of the grass snake A4 weatherproof information boards found along the nature trail © Crown

Regenerating juniper on Salisbury Plain



Juniper seedling with marker flag © Crown

Salisbury Plain at the turn of the 20th century was very different from what we find at the turn of the 21st century.

The management of juniper began in 1996 when we started to tackle the lack of management that had taken place over the previous 100 years. The difficulties of maintaining grazing stock

in the publicly accessible Beacon Hill and the busy small arms ranges meant that natural processes were moving apace and the area was rapidly being colonised by scrub and tree species.

Juniper is an early successional species, which in the south of England can live for about 100 years, however with other species of scrub and trees it can be overwhelmed in a much shorter time period. Practically all the juniper we found surviving into the mid 1990's was an intimate mix of scrub species, yet pictures from World War I show the area

being largely open grassland. We know we had juniper present from counting age rings from recently dead plants, therefore we decided to try and recreate areas that were similar to those at the turn of the 20th century.

The process of regeneration involved cutting shading pine trees and scrub to keep the bushes producing seed and set about establishing rabbit exclosures, as much of the area has been hard grazed by rabbits. Rabbits make short work of even quite large bushes and most juniper stems are scarred from rabbit gnawing.

We have now recreated areas of open landscape on Beacon Hill. By erecting rabbit exclosures divided into smaller sub-compartments and clearing cover from around them we have made these open areas less attractive for rabbits, which has reduced the intensity of rabbit activity.

It has taken 14 years from our management plan starting in 1996 to successfully finding good numbers of juniper seedlings in 2010. Some of the seedlings were a few years old but they were initially difficult to find. From an initial difficulty in keeping the exclosures rabbit free we finally cracked the problem when Stephan Jones from Landmarc took up the 'cudgels' and found a contractor to keep the exclosures rabbit proof along with our strategic clearance plans.

Regeneration of juniper has been achieved through creative conservation management by MOD and Landmarc staff, the other aspect of success has been support over a long time period which MOD has been able to sustain.

Juniper has been the hardest conservation project to achieve successful results. We have managed change for this project by taking the ecological processes back to an earlier start point and we are now seeing success.

Dominic Ash
Natural Environment Advisor
DIO Environmental Advisory Service

Vegetation studies on Salisbury Plain **reflecting evolving military training needs**



Afghan training feature with localised disturbance © Crown

In 2002 an Environmental Appraisal (EA) was undertaken to assess the potential effects of implementation of the MOD's Strategic Defence Review (SDR). Salisbury Plain Training Area (SPTA) has high nature conservation protection with Sites of Special Scientific Interest (SSSI), a Special Protection Area and Special Area of Conservation. The key habitat is species' rich, chalk grassland that underlies the majority of the other notified features. The EA concluded that predicted changes in training load, post SDR, could not be accommodated without significant damage "to the fabric of the Plain". It was therefore agreed that training levels would be managed by a programme of monitoring and recording chalk grassland and changes to its extent and composition arising from military activity.

In 1996/97 vegetation communities across the SPTA had been described using the National Vegetation Classification (NVC) methodology and

in 2003/04 a 10% sample was resurveyed. This demonstrated that NVC was not well suited to measuring change in this situation, due to the fact that it was only possible to detect broad changes in vegetation composition and would not help in assigning causes of change. Through discussion with the Centre for Ecology and Hydrology (CEH) a repeatable method of quantifying finer scale changes was developed and a five year survey programme was implemented (2007 - 2011) to collect base-line data. Survey plots were set-up in every 1 km grid square that supported species rich grassland.

The final report is awaited, but it is clear that the method is repeatable, rapid and cost-effective and gives results that illustrate differences between plots subjected to low, medium and high levels of military disturbance, presence of annuals and plants with stress tolerance and the ability to survive disturbed conditions.

It has also provided data on different management regimes, including parts of the central impact area where the main "management" is from grass fires resulting from live firing.

Recent training focus on supporting operations in Iraq and Afghanistan, has resulted in a reduction in training in tracked, armoured vehicles across the wider landscape, to greater use of heavily armoured, wheeled vehicles which stay on tracks and operate more locally around specific training features. To replicate conditions in "theatre" new features have been constructed, some being more permanent, but since 2010 more temporary "villages" have been placed across SPTA based around the use of containers.

Placement of such features within the SSSI required permission from the statutory nature conservation body, Natural England, and a significant number also required planning permission. In order to obtain these permissions a different survey approach was required to quantify impacts on the grassland communities from the placement and training around features and also to assess if proposed mitigation was adequate. CEH were again commissioned to undertake surveys around existing features ranging from large, permanent forward operating bases to smaller village compounds. These surveys consisted of a series of transects radiating 100m out from each feature with vegetation samples taken at 5m, 10m, 20m, 40m and 100m.

With the handing over of security responsibility to Afghan forces by the end of 2014, future training requirements are being considered including the possibility of reversion to large-scale, free play manoeuvre exercises. This, coupled with rebasing options will mean that if a new assessment of impacts is required baseline data is already held with which to assess potential impacts.

Julie Swain
Natural Environment Advisor
DIO Environmental Advisory Service

Professor Richard Pywell
Centre for Ecology and Hydrology

Conservation on a shoestring



Pond conservation area © Crown

RAF Boulmer set in a Northumberland Area of Outstanding Natural Beauty, is home to 'A' Flight, 202 Squadron, Search and Rescue Helicopters and the Air Surveillance And Control System (ASACS) Force Command, which have responsibility for the policing and military control of airspace over the UK.

The Station is split into several sites and ASACS is concentrated on the Operations site, which covers about six hectares. Since the site was established in 1953 it has seen many generations of air defence radar equipments, which has left a legacy of surplus buildings, which over the years have been steadily demolished.

In 2006 a complex of buildings covering about 2,000 sq mtrs in the centre of the site was demolished leaving an area that, while flat, was covered with building waste. However, it was noted that it frequently developed quite large puddles after rain and, following a brief at Catterick on the Million Pond Project (MPP) which aims to 'reverse a century of pond loss and decline in Britain's ponds', the Safety, Health, Environment and Sustainable Development (SHEP and SD) Team at RAF Boulmer decided that the naturally wet demolition site might be suitable for a natural pond.

The problem of funding for digging a pond and landscaping, even back in 2006, was a bit of a challenge. However, the opportunity arose when a JCB happened to be on site for other work and our then Station Environmental Energy and Protection Advisor, Mac Graham, arranged with the JCB driver to dig a small scrape to produce a trial pond. With some assistance (mainly involving the Defence Fire and Rescue Management Organisation and lots of water!) a pond was born.

The dig confirmed that the underlying soil was clay and consequently the pond held the water very well.

In order to register a new pond for the MPP it has to meet certain criteria and although part of the recipe for a clean water pond was to leave it to colonise naturally, we decided to re-locate some bull rushes and other plants which over the next year took a hold. A few trees and bushes were planted on the surrounds, which soon started to thrive and during the summer swallows were seen swooping over the pond and oystercatchers wading in the edges.

This proved the site had potential and the next time a JCB visited the site Mac arranged for the driver to increase the size of the pond to about four times its original size. Natural rocks on the site were used to make islands and the plants spread to the new area. The pond was now doing quite well but the surrounding area, despite some landscaping, still looked like a demolition site. By now it was 2011 and CarillionEnterprise (the Regional Prime Contractor at RAF Boulmer) donated and planted about 100 trees and



Digger creating the pond © Crown

Reverse a century of pond loss and decline in Britain's ponds

bushes around the top end of the pond. The trees including, mountain ash, common alder, hazel, blackthorn, guelder rose and pussy/goat willow, were natural to our area and would hopefully encourage wildlife.

By constructing the pond in phases it allowed us time to carry on with our other conservation projects on site, namely the woodland walk and natural meadow. By 2011 the pond was maturing nicely, although in hindsight it may have been unwise to add the invasive species of bull rushes, which we will need to keep an eye on.

Next job was to tidy up the surrounds. Some of the material on the site were recycled; the gravel on the redundant paths was collected and used to create new ones, including our woodland path project, large natural stones were collected and a central area created which, when covered in pebbles, hopefully will become a habitat for ground nesting birds, like the oystercatchers who had used the area during the previous year and loved the pond! Even the steel reinforcement bars that were on the site were cut up to provide pegs for steps on our woodland path.

The next stage was to landscape the site not only to fill in holes and flatten the area but also to improve the soil for the trees and to contour the ground to encourage water flow towards the

pond. Again we were lucky, the local RAF Association Club was clearing their garden and with a little help from station personnel about 40 tonnes of soil was transferred to the pond area. We also worked closely with our works services, Defence Infrastructure Organisation and CarillionEnterprise, and any surplus soil they had was also transferred to the pond area. Although the landscaping of the pond area is much improved this work is ongoing.

We also learned that planting and then leaving the trees to fend for themselves is not an option. Winter winds caused significant damage and in late winter and early spring the trees

were given some maintenance. In addition to repairing the protective fences and supports we also 'negotiated' some wood chippings from CarillionEnterprise's ground maintenance staff and this was used as mulching around the trees.

Although we have not witnessed much evidence of wildlife species living in the pond yet, the pond and adjacent natural meadow have attracted lots of wildlife to the area namely, tawny owls, barn owls, oystercatchers, mallard ducks, heron, partridges, pheasants. We have never seen as much wildlife in this area as we are seeing now.

The lessons to be learnt from this project are that by liaising closely with all departments and utilising spare capacity and recycling materials that would otherwise go to waste. There are disadvantages to this approach however and work can only progress when free materials and support become available. Also work does not always progress in a logical order, patience is the key though, in the knowledge that you will eventually get there. So if you have a conservation project in mind and no funding, keep a close eye to activity on your site and, of course, refine your negotiation skills!

We would like to thank all those who helped with this project, and also SERCo who donated benches for our other projects, the Meadow and Woodland Walk.

Dave Chappell and Nicki Mullen
SHEP and SD Team at RAF Boulmer



Oystercatchers by the pond © Crown

Woolwich and its military heritage past, present and future



Mosaic at St George's Garrison Church. Detail of the Victoria Cross memorial, depicting St George and the Dragon. The memorial, installed in 1919-20, is flanked by marble tablets inscribed with the names of all deceased gunners who won the Victoria Cross from the Crimean War to mid World War II © Tara Draper-Stumm

Woolwich, on the south bank of the River Thames in east London, owes its development almost entirely to the concentration of military activities, beginning in 1512 with the Royal Naval Dockyard.

Over the succeeding five hundred years there has been massive investment in military establishments. This is reflected in the survival of substantial buildings, many by distinguished architects and engineers, which are now protected as listed buildings or scheduled monuments. Many of these are at the former Royal Arsenal beside the Thames. Towards the end of the eighteenth century, pressure on space led the military to expand their activities up the hill on to Woolwich Common. The imposing complex of the Royal Artillery Barracks, begun in 1774, is situated at the foot of the Common and remains in MOD use; the upper

slopes are dominated by the Royal Military Academy of 1805 (sold to a private developer in 2006).

Development continued through the nineteenth century with the building of Marine Barracks (later the Cambridge Barracks, for Infantry) in the 1840s, of which only the entrance block survives. The Royal Herbert Hospital (listed grade II), a pioneering pavilion-plan military hospital, was completed in 1865 on a site adjoining Shooters Hill Road, was converted to private housing in the 1990s.

Up until now the historical significance of Woolwich has been under-appreciated, particularly in comparison with nearby Greenwich, a World Heritage Site and a major tourist destination. English Heritage's (EH) Survey of London team are now completing its work on the parish of Woolwich. Volume 48 will be published towards the end of 2012, with chapters devoted to the Dockyard area, the Royal Arsenal, the Royal Artillery Barracks and Royal Military Repository areas, Woolwich Common and the Royal Military Academy. The entire draft text for this book is available online.

The Royal Arsenal

The Royal Arsenal originated in 1671 as an ordnance storage depot, and was progressively extended during the eighteenth and nineteenth centuries to become an immense arms factory occupying 485 hectares (ha). Its maximum expansion occurred during the World War I when, at its peak, almost 80,000 people were employed on the site. Thereafter the strategic importance of the Arsenal declined until closure of the ordnance factories in 1967. The historic core of the Royal Arsenal, some 30ha, was transferred from the MOD to English Partnerships in 1997 and sold to Berkeley Homes in 2011. It is undergoing a major regeneration project involving the repair and re-use of numerous listed buildings and the creation so far of around 2,000 new homes.

Royal Artillery Barracks

The Royal Artillery Barracks (listed grade II*), was the biggest single barracks in the country when completed in 1808. Its immensely long façade faces across the parade ground towards Woolwich Common. The Royal Artillery left Woolwich in 2007, moving to Larkhill. However, the historic barrack buildings have been refurbished and new blocks added to provide accommodation for incoming units. Public Duty Incremental Companies (Grenadier Guards and Coldstream Guards), displaced from Chelsea Barracks, came first. They were followed by the Second Battalion The Princess of Wales's Royal Regiment, which was posted to Woolwich from Cyprus. The King's Troop Royal Horse Artillery moved here from St John's Wood in 2012, with purpose-designed stable accommodation recently completed to the west of the barracks.

The Royal Military Repository

In addition to the barracks, the MOD has other remarkable heritage assets in the area. One of these is Repository Woods, north-west of Woolwich Common, to which The Royal Military Repository moved in 1802 to practise the movement of heavy ordnance. The Rotunda, a unique building originally designed as a temporary pavilion in

1814, was re-erected here in 1819. It is listed grade II* and classified by EH as a 'building at risk'. The Rotunda opened as a public museum in 1820, and the Repository landscape maintained dual roles of training and recreation. The facilities were completed in the 1820s when a linear training fortification was rebuilt.

The purpose-built landscape of ponds, tracks and training earthworks largely survives, as does half of the linear fortification on the eastern boundary. The former has recently been added to EH's Register of Historic Parks and Gardens, while the linear fortification is protected as a scheduled monument. The tradition of using Repository Woods for military training continues to this day.

St George's Garrison Church

Facing the parade ground of the Royal Artillery Barracks stand the remains of St George's Garrison Church, built 1862-63 (listed grade II). A fine interior came to be richly decorated with mosaics and monuments to battles and servicemen fallen in conflict. It became the Royal Garrison Church in 1928 after a visit by King George V. On 14 July 1944 a V1 flying bomb caused a fire that gutted the church. After the war, the shell of the building was retained as an open-air church. Demolition of the upper parts of the walls followed in 1970, leaving the remnants to enclose a memorial garden, laid to lawn, with a canopy over the altar.

Ownership was transferred by the MOD to the Heritage of London Trust in November 2011, following the announcement by the Heritage Lottery Fund of a grant offer of £396,000. This will fund much-needed conservation works over the next two years. The restoration of the remains of the church will serve as a reminder of the Royal Artillery's historic connections with Woolwich, and the valour of those Gunners who were awarded the Victoria Cross.

Will Holborow
 Head of the Government
 Historic Estates Unit
 English Heritage



The Rotunda which housed the Royal Artillery Museum reserve collection until the museum moved to Firepower at Woolwich Arsenal at the end of the 1990s. It is currently used as the garrison boxing centre © EH



Repository Woods. Many elements of the purpose-built training landscape survive as earthworks, ponds and tracks © EH



Royal Artillery Barracks. This immensely long composition was built in two stages, the east half in 1775-82 and the west half in 1802. It is one of the finest examples of military architecture in England © EH

Protecting the Falkland Island marine ecology



Sunlight through kelp forest *Macrocystis pyrifera* © S P Browning

The Falkland Islands approximately 12,500km from the United Kingdom is an archipelago of nearly 800 small islands and most are untouched by man. It is important that the marine habitat is scientifically mapped, studied and protected before potential environmental change takes hold. With a strong core focus of talented marine conservationist the military scuba diving club, based at Mount Pleasant Complex, has combined resources and effort with the Stanley based scuba diving Shallow Marine Surveys Group (SMSG). The SMSG is a group of internationally renowned scientists dedicated to marine ecology and conservation. All volunteers, the divers brave the brutally cold waters of the South Atlantic, penguins and curious sea lions to document uncharted benthic ecology.

The diving group has been highly successful in identifying organisms, photo-documenting biotypes and species and conducting quantitative survey of sites around the islands to generate a baseline survey of the marine ecology; to bench-mark the current diversity against potential future environmental impact and changes.

Since its inception in 2006 the project to map the Falkland Island marine ecology has built a museum collection of over 1,400 specimens, which is utilized by international collaborators interested in identifying species and obtaining genetic samples from this biogeographically unique location. The project also holds a database of over 6,000 photographs for the production of identification guides and a database of over 600 surveys of species from around the islands.

Part of the survey area is the military port at Mare Harbour, where there are several plates attached to the seabed to monitor settlement rates of benthic species. Twice a year the benthic plates are photographed in-situ and recorded for species density and diversity as well as monitoring invasive species which



Anemone sp, Falklands Islands © S P Browning

can be carried on the bottom of ships, ballast water, or any other marine structure brought to the Falklands from abroad. This is vital work and aims to record the effect of increased shipping as the inevitable economic development takes hold. The work, supported by the military diving club, is to develop a marine ecology strategy that can be in balance and harmony with the changing environment.

The shallow marine environments of the Falklands are unique in their geography, their species composition and the lack of exploitation and industrial pollution. However, they are at potential risk from future stress through the development of new industries, population-related pollution and climate change. It is rare that the scientific exploration of a new environment and the protection of the ecology overlap in time and in advance of resource exploitation and pollution. This work is of international reputation and importance and the military scuba divers contribution and support from Mount Pleasant Military Complex can not be underestimated.

Lt Col Simon Browning
Officer in Charge Mount Pleasant Sub Aqua Diving Club

Sarah Browning
Treasurer Mount Pleasant Diving Club



Odontaster penicillatus © S P Browning



Sea cucumber *Cladodactyla crocea* with juveniles © S P Browning

Into the Lions' Lair

DIO staff turns unwanted stationery into savings



The Lions! © Crown

Lesley Glenn and I noticed that in certain areas of the Defence Infrastructure Organisation (DIO) Sutton Coldfield site were discarding items of stationery and office equipment, whilst at the same time other areas of the site were ordering new supplies of the same items. Realising that there needed a simple and accessible method of advertising these unwanted items we developed the surplus stationery recycling scheme.

We introduced a surplus stationery-recycling scheme aptly named "RECYCLE the MOD'ern Way." It's a web based notice board which allows staff to quickly and simply advertise to the Sutton Coldfield site any items of stationery that are surplus to requirements. It saves money and in addition this scheme has reduced the MOD's Carbon Footprint by reducing its CO₂ emissions. In accordance with the Government's National Waste Strategy, the scheme has improved DIO's contribution to the increased recycling of resources and had a reduction in the amount of waste being sent to landfill sites in line with Government's Landfill Directive diversion targets. Based on the cost MOD will have to pay for Carbon Credits, our scheme has already saved £3,000, which equates to savings of 250 tonnes of CO₂.

We were surprised at how well the scheme was working and were extremely surprised and pleased to have won not only a MOD Gems Award and a Senior Award Group GEMS Award but had been invited to 'tend our wares

at Civil Service Live, Lions' Lair 2009 (similar to the BBC Two television programme Dragons Den). Little did we know what we were letting ourselves in for when we submitted our Surplus Stationery website idea!

Out of 300 ideas submitted, ours was one of the ten that was deemed suitable to be put before the Lions. We were invited to London for a days filming before a distinguished panel of judges that included:

- Peter Jones**
Entrepreneur, TV's Dragons Den
- Robin Tye**
Ernst and Young
- Helen Ghosh**
Permanent Secretary, Defra
- Lin Homer**
UK Border Agency
- Dame Gill Morgan**
Permanent Secretary Welsh Assembly Government

We ditched our carefully worded pitch and spoke off the cuff the reasoning behind our idea and waited for the inevitably grilling. Gill Morgan thought it was a good idea but that there was a basic problem in stationery co-ordination and control, the other Lions were nodding in agreement and we thought we had failed to get our idea over.

Then Peter Jones piped up - 'Well I think it's a great idea' and we breathe again. He joked, we presume, that he sets up a company to buy the surplus stationery from the Civil Service. The remaining

lions agreed with him. Peter said that all large organisations have issues with stationery and suggested that we sell, at a reduced price, the larger items such as toner cartridges, to other departments. However we explained that it would cost too much to arrange the transfer of funds.

As the director told them to wrap it up, the voting was one Lion against and four lions in favour (you needed to get the backing of two lion's to get the idea accepted). The Lion who offered to champion the idea was Lin Homer using the Civil Service West Midlands web site.

After this event, being Lions' Lair winners we were invited to Whitehall to meet Sir Gus O'Donnell Cabinet Secretary, Head of the Civil Service.

The idea is gaining wider implementation across other DIO offices and has been well received and utilised by the staff attending sites on official business to deliver items, therefore saving on postage costs. We have now focused our efforts on increasing the number of DIO users and have rolled out the idea across the MOD, where the collective savings are even greater. We have taken on this role, which is above and beyond our day to day role in Sutton Coldfield and regularly send out feedback, set up monthly reminders and liaise with other military sites who have adopted our scheme.

Derek Myatt
DIO Information Business Services



Lesley Glen and Derek Myatt meeting Sir Gus O'Donnell © Crown

Scrub and heathland management integrated with changing military needs at DTE Tain



Mechanical removal of the gorse scrub whilst retaining the juniper © Crown

Air Weapons Range (AWR) Tain, part of Defence Training Estate (DTE) Scotland is a training area of 1050 hectares (ha) located on the Dornoch Firth along the north east coast of Scotland.

The site is designated for nationally and internationally important habitats and species as Morrich More is a Site of Special Scientific Interest (SSSI), Dornoch Firth and Morrich More and Special Area of Conservation (SAC), and Dornoch Firth and Loch Fleet being Special Protection Area (SPA) and Ramsar sites.

The DTE Tain Integrated Rural Management Plan (IRMP) issued in November 2008 sets out management objectives which include ensuring full use is made of training facilities and adaptation for likely changing military needs and nature conservation priorities.

DTE Tain facilitates fixed and rotary wing aircraft training operations, specifically air to ground weapons training with some limited ground training. There is an aspiration to reflect likely changing military requirements such as improved field army tactical training through the establishment of field fire 'safety boxes' utilising existing target infrastructure.

DTE have funded extensive scrub removal since the autumn of 2010, working in close collaboration with Scottish Natural Heritage (SNH) and

QinetiQ (our industry partner). The SSSI management to remove encroaching gorse onto heaths and dunes has already facilitated easier access for ground troops to allow greater flexibility of training packages and has reduced the amount of fire risk material around live fire targets.

Nature conservation interests

DTE Tain forms one of the most outstanding coastal sites in Britain, noted for the relatively undisturbed development over 7000 years of an extensive low level sandy plain of dunes, saltmarsh, mudflats and offshore sandy spits. These landforms and dynamic coastal processes are intricately linked to the outstanding nature conservation interests.

The hydrology is varied on both a macro and micro scale influencing successional development of

vegetation communities. A large area of the younger, lower ground is strongly affected by the tidal cycle and saltwater, forcing tides with more brackish and freshwater conditions inland. A combination of leaching, stabilisation and the decreased influence of saltwater has produced a distinct landform of dry, stable dune ridges grading into a complex mosaic of acidic fixed dune vegetation types, interspersed with lower lying wet slacks.

DTE Tain is equally important for the associated wildlife including mammals such as otter *Lutra lutra*, and common seal *Phoca vitulina*, internationally important numbers of migrating and wintering wildfowl and waders and a rich invertebrate community.

Heath and grassland dune vegetation

The SAC priority habitats are dunes with juniper thickets, coastal dune heathland, dune grassland and lime deficient dune heathland with crowberry *Empetrum nigrum*. Morrich More is the most important site in the UK for juniper species *Juniperus communis ssp Communis* and *Juniperus communis ssp nana*. Juniper occurs both on dry ground and wetter areas with the main juniper stands covering approximately 10ha (Dargie 2007) with scattered and prostrate forms over a larger area extending into wet heath and slacks.

Although gorse is a 'natural succession component' and has co-existed with juniper on DTE Tain for a long time, gorse seems to be spreading and shading out juniper, increasing by approximately 70% between 1946 and

2010 (Atkins 2010). Such scrub encroachment including other non-desirable species of broom, birch, willow and pine, can also threaten the favourable condition of other heath and dune vegetation communities.

A key requirement of dune systems is retaining a low nutrient system as well as other features such as a particular hydrological regime. Thus, it is important that cut scrub is 'removed' from the nutrient recycling system, as well as reducing the potential for it to be a seed source and so the cut material does not hinder regenerating vegetation.

Scrub management

Atkins Consultants produced the Tain 5 Year Scrub Management Plan 2010-2015 in March 2010 to help identify priority areas for attention and appropriate methodologies. From this and subsequent assessments by DTE, DIO and SNH staff, key principles have been developed to effectively target resources over the short and longer term:

- Whole-site approach, taking into account key conservation priorities and military requirements, including retention of some scrub as cover for wildlife and military training packages
- Removal of non-desirable scrub to minimise regeneration in cost-effective ways which minimise damage or disturbance to SAC features
- Retention and protection from damage of most juniper bushes/ young juniper regeneration and their roots

- The highest priority areas are qualifying priority habitats of juniper and other dune heath/ grasslands, which have currently, low to medium cover of non-desirable scrub followed by areas with denser scrub
- The lower priority areas are dense scrub with little juniper or remnant heath beneath
- Careful use of machinery
- Appropriate measures to protect for example, breeding birds and otter

Scrub management 2010 -2012

The extensive scrub removal has addressed about 80ha. The scrub density has varied from scattered to dense beds and from dry, firm and almost level ground to fragile and very tussocky botanically rich heath.

Most of the scrub removal has been undertaken by trialling different types of machinery, which seem to be working very successfully on the drier parts and for tackling extensive gorse stands. Although difficult and resource heavy, some areas of very intricate scrub mosaics are best addressed through manual hand removal.

For example, in year one, a 360-degree excavator and dumper truck were used to remove the whole gorse bush including roots and disposal off site. The aim was to reduce the potential for re-growth and seed source plus remove nutrients and perhaps encourage regeneration of heath and juniper.

However, this approach was very time consuming particularly for the removal of large quantities of arisings. Thus, in year two, a different approach was trialled using a mulcher and then a flail to chop the arisings into a fine waste.

These practical experiences are being incorporated in further capital and maintenance works including use of the flail to top re-growth with suitable measures to protect any ground nesting birds.

Sarah Jupp MRICS MIEEM CEnv
Natural Environment Advisor
DIO Professional Technical Service



Year 1 mechanical removal of whole bushes including roots © Crown

The Tank Building at Strone Camp Garelochhead Training Area



Royal Marines undergoing training © David Cairns

Tucked by the banks of the Fruin Water, some 300 metres from the cairn commemorating the Battle of Glen Fruin in 1603, sits the imposing mass of the Tank Building.

This building was constructed in 1940 at a critical phase of the Battle of the Atlantic when shipping losses to German U-boats was outstripping Britain's ability to replace them. The Glen Fruin Tank, as it was then known, was part of the Marine Aircraft

Experimental Establishment, which was moved from Felixstowe to Helensburgh at the outbreak of War.

In 1940 the only way of sinking a submarine from an aircraft was by a direct hit on the casing with a 250 lb anti-submarine bomb. The scientists knew to three decimal places how the bomb performed in the air but not in water and early tests involved propelling bombs down an inclined railway on a rocket driven carriage and then photographing its passage through the water. By this means aircrews could be advised on optimum heights and speeds to achieve the best chance of hitting a diving u-boat. Ralph Sharpe, a delightful gentleman who

had worked as a young scientist at the Glen Fruin Tank in 1940, asked if he might visit again in 2001 and regaled me with a host of fascinating and amusing anecdotes of his time there 60 year's before. One of his duties was to examine the bombs at the bottom of the tank before recovering them, so he was sent on a diving course at HMS Excellent.

Many types of sub-surface munitions were developed and tested in the Glen Fruin Tank during the war and after as it was still in use until the 1980s. The establishment's name was changed to the Admiralty Hydro-ballistic Research Establishment then Admiralty Marine Technology Laboratory and finally Qinetiq before becoming a part of Garelochhead Training Area.

As a large, multi-storey industrial building it provides an unusual training facility for personnel from the Royal Navy, Royal Marines and Army in the challenges and complexities of operating in such an environment. It is used for building clearance techniques, searching large complexes and ship's holds, techniques for security issues on ships and Explosive Ordnance Disposal clearance in large buildings. In inclement weather, not un-heard of on the Garelochhead Training Area, it provides welcome shelter without units breaking the continuity of an exercise. Infantry Training Centre Catterick and the Army Foundation College both incorporate it into their final exercises.

The Tank Building was listed in 2007 because of the work carried out there during World War II but it also remains an invaluable training resource in the 21st Century.

Lt Col (Retd) Donald Ross
Garelochhead Training Area Safety Officer

Peaton Hill Community Nature Reserve: a volunteer's perspective



Mike McManus and Alistair McIntyre happy painting © John Simpson

Sandwiched between HM Naval Base Clyde and RNAD Coulport, Peaton Hill Nature Reserve was conceived at a MOD biodiversity event in 2004.

An area of around 16 hectares, deemed of little value for other use, was identified as a suitable site. Post-war, the land had been extensively landscaped, and was now witnessing natural regeneration by species such as birch, willow and alder, along with some planted spruce and pine. There was some marsh and a large pond, with areas of heather on higher ground. Surrounding were areas of rough grazing and commercial woodland, while to the north lay Garelochhead military training area, already well-known for its conservation interest. The general setting was attractive, with a backdrop of sea lochs and the hills of Glen Fruin.

The driving force behind development of the Reserve came via Sgt John Simpson, wildlife crime officer with the MOD police. John's enthusiasm and commitment are infectious, and through his contacts, he brought together a group of people willing to help transform the site into an

attractive amenity and wildlife sanctuary. In my case, I'd recently retired from the further education service, the project was close to my heart, and almost on my doorstep.

The first priority was to improve access for visitors. So a start was made in 2006 to build two paths, to provide a circular walk of about 1km. With muddy underfoot conditions, one path was formed from decking boards mounted on wooden frames, while the other was constructed using hard core contained within wooden edging. The cost of essential materials was covered through grant aid from Scottish Natural Heritage.

Monthly work-parties were held, the efforts of regular volunteers being supplemented on occasion through the British Trust for Conservation Volunteers and MOD conservation days. From my perspective, it was great to do something useful out in the fresh air, work alongside like-minded people, and of course witness nature close up.

With the paths nearing completion, attention turned to the transformation of a small lay-by into a proper car park. The local authority provided some surplus road metal and other help, Tilhill Forestry built a path linking the car park to a forestry road, and the volunteers installed wooden edgings. At one side

a hut/hide was constructed from which to watch birds, or be briefed (there is also an outdoor classroom). Completing this area was an attractive entrance signpost.

In the meantime, John was taking the message to the community, being especially keen to involve schools and youth groups. Special events were laid on, like an Easter egg hunt, children's art competition, bat and bird walks to name but a few. Nest boxes were put up, and a bee-hive installed. A committee was formed to provide focus, a website developed, and the Reserve was mentioned in outdoor promotional literature.

How successful has the project been to date? In good weather, there are many visitors. Another yardstick was the award of the prestigious MOD "Silver Otter" Sanctuary award in 2009.

What then for the future? Present biodiversity can be described as good, but there is scope for improvement. With human access needs well in hand, more effort can hopefully now be devoted to habitat improvement.

Alistair McIntyre
Peaton Hill Community Nature Reserve
Volunteer

www.peatonnaturereserve.co.uk

Battlehill 3D laser scan



135 squadron setting up the 3D laser scanning equipment © Crown

The Battlehill range is situated in County Durham and is home to several enigmatic archaeological features of early prehistoric date.

Nine carved rocks are present on the range, with indentations known as cup and ring marks which archaeologists believe were engraved into the rock some 5000 years ago. Such carvings are almost non-existent in the south of England, but here in the north they are a feature of the moorland hill slopes - and at the nearby training area at Catterick for example over 100 carved rocks have been recorded on the isolated moors.

But we have a bit of a problem. The once fresh and distinctive carvings have been eroded over the millennia by their exposure to the elements, to the point that some of them are barely visible. Consequently, English Heritage have

placed several of the Battlehill carvings on the Heritage at Risk register. Their removal from the register is dependent on implementing a suitable set of mitigation measures. Clearly, it would be nigh on impossible to halt the erosion, but by carrying out a 3D laser scan of the carvings it should be possible to produce an extremely accurate record of the rocks that will enable their 'preservation by record'.

It was at this point that 135 Geographic Squadron stepped into the breach and came to Battlehill to scan the stones. As a TA Squadron, 135 Independent Geographic Squadron Royal Engineers (Volunteers) serves as the 4th sub-unit within the Regiment, providing geographic support to defence - such as surveying and terrain analysis, the production of maps and geographic products, and the distribution of these.

Working on archaeological features may represent a departure from their normal duties, but the training element of the exercise is of high value, enabling the team to familiarise themselves with the highly technical survey equipment

and get it operational in demanding field conditions.

On a late February morning at Warcop training centre, the kit, the crew and the weather all turned out nicely. As we drove up to Battlehill the weather, perhaps predictably, didn't fail to disappoint, but it didn't stop the team from assembling on the site and setting up the equipment next to one of the stones on the risk register.

Laser scanning for heritage purposes is highly specialised and goes above and beyond what would generally be required. Without getting bogged down in complexity, three dimensional laser scanning is a method of data capture that requires the use of a laser beam to measure distances to a series of three dimensional points on the surface of an object. Rather than selecting individual points on the objects as you would for a traditional survey, the resolution and area of interest are pre-programmed and the scanner fires enough laser beams to indiscriminately measure however many points are needed on the surface

of the object. This results in what is called a point cloud which provides a mass of 3D measurements. The advantages of laser scanning are that it is non-destructive, highly accurate and provides a 3D image that can be rotated to achieve a variety of angles and perspectives. English Heritage have agreed that the production of a laser scanned image of the carved rocks would ensure the removal of the rock from the Heritage at Risk register.

Returning to the actual field survey. The team set up the equipment close to one of the carved rocks and scanned the surface, collected the data and tied in the location of the rock by using accurate GPS. This was not without its problems. Rainwater could collect in the shallow indentations of the cup marks thus serving to reduce the accuracy and effectiveness of the survey. Luckily, the team was able to survey one rock before rain stopped play. The raw data was then submitted to Wessex Archaeology who have the archaeological know-how to process or 'render' the data to the standards required by English Heritage. A measure of success can be established by a comparison of the digital colour photo and the 3D scan image. The colour photograph is a traditional digital image taken by the author on the

morning of the survey and it is not stretching a point to say that one would be hard pressed to distinguish this rock from any other in the locality. The 3D scan, on the other hand, shows numerous cup marks and a cup mark with a circular ring around it towards the top of the stone.

Now that an accurate record of the carvings has been obtained, it is likely that the stone will be turfed over to reduce the exposure of the rock face to the elements and to help slow down the erosion process. In so doing it marks a change in the status of the monument from one that is at risk to one that has been afforded a measure of protection from erosion and in turn this demonstrates to our stakeholders that MOD takes its responsibilities towards the historic environment seriously.

All that is required now is a convincing explanation of what the engravings actually mean. Hmmm I wonder if 135 Geographic Squadron have a time machine I can use.

Phil Abramson
 Historic Environment Advisor
 DIO Professional Technical Services



Carved rock at Battlehill measuring approx 2m x 1.5m. Due to erosion over the millennia the carvings are barely visible © Crown



3D image of the rock at Battlehill showing numerous carvings © Crown



Scanning the rock © Crown

Securing the wood **from the trees**



Timber harvesting at Longmoor © Crown

How a forestry harvesting initiative is **contributing towards the delivery of a sustainable training estate**

In late 2010, Defence Training Estate (DTE) entered in to a Forestry Harvesting Initiative with its service providers to address contractual limitations placed on the harvesting and marketing of timber grown on the estate.

The principal aim of the initiative was to bring forestry harvesting activities in to the scope of existing supply arrangements, enabling service providers, such as Landmarc and Debut, to effectively manage our woodlands through their supply agreements. With in excess of 15,000 hectares of woodland on the Defence estate, it was

recognised to be an important yet under-utilised natural resource with the potential to make a significant contribution to a wide range of estate management objectives.

Periodic harvesting work, such as the re-spacing of plantations (thinning) and the clear-felling of mature stands of timber, is a routine yet essential forestry management activity. Planted at high stocking densities to favour later selection, as trees mature they require space to grow, not only to maximise timber production but also to ensure tree health. With only limited harvesting activity being undertaken across the estate prior to the launch of the initiative, the condition of many woodlands had started to decline with an increasing incidence of storm damage particularly in the exposed upland training areas. At sites such as Otterburn and Catterick, woodlands were being placed 'out of bounds' because the presence of windblown

and upturned trees made them too dangerous to enter in to safely.

In January 2011, Landmarc recruited Judith Peachey, an experienced forestry manager with over 20 years experience in the public and private sector, to lead on the implementation of the initiative on the Project Vanguard estate. Working closely with regional Defence Infrastructure Organisation (DIO) Head Foresters, she developed a prioritised programme of forestry harvesting work.

At the end of its first full year of operation, Landmarc were able to report they had marketed over 20,000 tonnes of timber, netting an income of nearly £250,000. Similar positive results were achieved for harvesting contracts let by Debut at the Lulworth and Bovington training areas. Timber from the estate is now being used for a wide variety of uses including high grade construction timber, lower grade pallet and fencing timber, woodchips for

biofuel and equine bedding, all making a contribution towards reducing the UK's reliance on imported wood products. Timber sale prices have also been higher than the UK national average, with over 40 different timber buyers expressing an interest in purchasing supplies from the estate.

This resumption in harvesting activity not only had an immediate impact on the condition of the woodlands, by improving their accessibility for training, but also made a significant contribution towards the funding of essential estate management activities which might otherwise have been unaffordable. With the authorisation of regional DTE staff, harvesting income has been reinvested on the training estate in projects such as the restoration of ancient woodland sites on Salisbury Plain, the replanting of windblown plantations in the north of England and ongoing estate maintenance activities such as the replacement of fences and gates.

CASE STUDIES

Longmoor Training Area, DTE Home Counties

Timber harvesting at Longmoor has been a huge success with over 4,500 tonnes of timber harvested in the first year. A programme of selective thinning has opened up the densely afforested pine plantations, not only improving access for military training but also but also increasing light levels on the forest floor encouraging a richer and more diverse flora. The work was undertaken by a local forestry contractor, Ian Hampshire, who liaised very closely with regional DIO staff to ensure the work was completed to minimise disruption to training programmes on one of our most heavily used training areas.

Otterburn Training Area, DTE North

Timber harvesting activities at Otterburn were initially concentrated on the clearance of extensive areas of windblown plantations. During recent winters over ten hectares of sitka spruce plantation had suffered storm damage and had become inaccessible for training.

The clearance of the timber was competitively tendered and the



Timber harvesting at Otterburn © Landmarc

contract was awarded to the timber harvesting company Euroforest, who employed John Blacklock to undertake the work. In excess of 4,500 tonnes of timber have been cleared from site producing an income of over £80,000 which might otherwise have not materialised.

At Otterburn, plans are now in place to reinstate these felled areas. Sites will be mulched and mounded to prepare suitable ground conditions for restocking the land and, where necessary, deer fences will be erected to protect the young trees from browsing damage. Replanting with a mixture of conifer and native broadleaved trees is programmed for 2012 planting season and will be funded from the income generated from the harvesting works.

Judith Peachey
Landmarc

Nigel Hayward
Defence Training Estate



Timber harvesting at Longmoor © Crown



The butts of the range © Crown

What follows is a brief account of the history of Newtown Rifle Ranges and how and why it has become what it is today.

Following the Boer War of 1899-1902 it was clear that Britain's military forces needed a radical overhaul.

In 1906 the Liberals were swept into power and the new Government set about transforming all aspects of British society, including the military. Richard Haldane was appointed Minister of War and he amalgamated the ancient militia and the Victorian volunteers. The merger led to the creation of a new Territorial Force, (later to be renamed the Territorial Army). The Territorials were quite separate from the regular army and it was intended that they should provide home defence. Training was to be of a high standard and officers were to be provided via the Officer Training Corps of the public schools. Each county was to create its own Association, with the aim being to separate the military command

structure from its administrative needs and the Associations were required to provide the training facilities, equipment and administrative support. The Haldane Act came into operation on April 1st 1908.

The small Isle of Wight was linked to Hampshire, and the Hampshire and Isle of Wight Territorial Association sited its HQ in Southampton. Land was now sought for training purposes and the Association acquired 320 hectares in the parish of Calbourne, Isle of Wight.

Troops from nearby Fort Victoria were called in to help clear the ground and construct two butts, stables, a canteen, and a Range House. Eventually on May 25th 1912, 400 men, led by a band, marched in from Newport. There had been no ceremonial opening or cutting of tape, the Range was simply in use.

In 1912 the first Range Warden was George William Creeth (1869-1953). Creeth was a "caulkhead", meaning he was Island born. He was a regular soldier who happened to be based at Fort Victoria. In 1914 Creeth returned to active service. Sadly records do not exist for the period, but it is assumed the military took over the Range from the

Association. Post war, Creeth M.C. and now holding the rank of temporary Major, returned to the Range where he remained until 1920.

The second Range Warden, James Philip Pirie (1874-1957). Pirie, the grandfather of the famous 1950s' runner Gordon Pirie, who had been a regular soldier who had served in Bermuda, Canada, India and Aden. He lived in Range House from 1920 until his retirement in 1940.

The third Range Warden, Ernest Charles Williams (1894-1972) was another ex regular who had seen action during the 1914-18 War. Williams remained at the Range during the 1939-45 conflict and managed to keep things in good repair as thousands of troops passed through.

National Service ended in 1960 and consequently the demand for Range facilities faded. Albany Barracks on the Island also closed and was converted into a prison. Soldiers based at Albany had always been useful to the Range as a pool of cheap labour. Williams now found it increasingly difficult to manage and the Range started to fall into disrepair. He died in post in 1972.



167 IW Rifles band 1913 © Broderick Postcard

The next Range Warden was William Edward Way (1912-1975). Sadly, William Way made little impact on the Range as, without warning, he died in Range House in 1975. He was succeeded by Terry Rolf on November 1st 1975. Terry, born 1931 was another "caulkhead". He'd served as a regular soldier in Singapore, Germany and Malaya and with the help of his three sons Terry gradually brought the Range back into order.

In 1952 the whole area had been declared a Site of Special Scientific Interest (SSSI), but apart from the recognition little actually happened. However just before William Way died, national interest in conservation had started to develop. Terry Rolf embraced the developments and in 1976 a Conservation Group was formed. Terry was a founder member, along with Lt Col Christopher Norman Clayden, who in 1973, was appointed the MOD's first Conservation Officer. For conservation purposes the Association's land came under the MOD umbrella.

In March 1987, as a result of the 1982 Falklands War, Jersey made a large contribution to the defence of the nation. Rather than see the money absorbed into general defence funds, the money was allocated to the then Hampshire and Isle of Wight Association. At the time Jersey had developed strong connections with Newtown Ranges and many cadets from Jersey had used its facilities. In 1988 the old camp, with its ramshackle collection of huts and caravans, was demolished and new buildings were erected on the site. On 21st April 1990, Sir Peter Crill, the Bailiff of Jersey, formally opened Jersey Camp.

About the same time a small pond was enlarged to build a firing point. The "new" pond was named Claydens Pond in recognition of Lt Col Clayden's conservation contribution. Norman Clayden loved Newtown and when he died, in 2004; his ashes were buried near the pond.

After bringing the Range back into order, overseeing conservation work, monitoring the construction of Jersey Camp and a new bridge, Terry Rolf retired in 1996. That same year he was awarded an MBE for his services to conservation. In 1996, Terry Gaskin, who had worked on the Range since 1989, took over as Camp Commandant; he left in 2003.

The main change that took place during this period was a national reorganisation of TAVRA. After 92 years

the Association HQ in Southampton closed, and Hampshire and the Isle of Wight now form part of the South East Reserve Forces and Cadet Association (RFCA) with it's HQ in Aldershot. The historic connection with Jersey was ended when the Channel Islands were allocated to Wessex RFCA.

In January 2004, Major David Maidment became Range Officer and Training Estate Manager. Major Maidment has served 39 years in the RASC, RCT and RLC, most of that time at sea on board HM Army Vessels. The marriage between range activities and conservation has continued under his supervision.

Ian Broad

Local Historian and retired lecturer in Politics and History at Solent University

Commissioned by Maj (Retd) Dave Maidment to write the history of Newtown Range Training Area and Jersey Camp. He has condensed a 150 page document into two pages for this article. Ian also has several local history publications to his credit.



Old Bridges © Crown



Clayden Pond © Crown

Working in partnership to improve energy efficiency of Service Family Accommodation



Cavity insulation at Baker Barracks © Crown

The Defence Infrastructure Organisation (DIO) has been working with MODern Housing Solutions (MHS) to improve the energy efficiency of Service Family Accommodation (SFA) across England and Wales.

With approximately 45,000 Service homes in England and Wales, there is the potential to significantly reduce the carbon footprint of the MOD and Service families. DIO and MHS are focusing considerable effort in carbon reduction activities to support the overall MOD goal to reduce their carbon footprint.

DIO is leading an energy efficiency improvement programme with support and involvement from MHS as housing maintenance provider for SFA in England and Wales. One element of this

programme has involved conducting infra-red heat loss surveys at properties, to determine current levels of home insulation. The surveys are carried out at night, according to weather conditions, helping to build a map of which properties are in the greatest need of additional insulation. To date 4,500 thermal imaging surveys have been completed.

The survey results highlight properties where additional insulation is needed and this is then scheduled to provide identified properties with loft insulation, cavity wall insulation or both. To date insulation has been fitted in 159 solid wall homes in Poole and Strensall, York as well as 12,000 loft insulation measures and 500 cavity wall insulation measures. Our current data shows that this has brought a saving of 550 tonnes CO₂ per year and families have benefited from lower utility bills amounting to around £1.3m in total. Once the additional insulation works are complete, follow up thermal surveys will be carried out to on a selection of properties to validate the impact of the insulation measures.

As well as improving property insulation, DIO and MHS have looked at and are using other methods that help towards reducing carbon emissions; such as renewable energy heating and hot water technologies. In 2010/11 Ground Source Heat Pumps (GSHP) were installed in homes at Chicksands. Smart meters were installed in six of the properties using the GSHP system and in four similar properties with gas heating to enable a comparison of the energy used. With the ability to access and monitor the data in real time, the meters will provide very good information on how usage differs across households with different daily routines. Occupants can also use the meters to help them understand how best to use the GSHP system as efficiently as possible.

Other technologies that are being used include Solar Thermal panels which have been installed in 20 homes in Catterick to augment existing hot water

heating systems. Air Source Heat Pumps (ASHP) and Solar Thermal panels have been installed in a number of properties at Didcot.

During 2012, DIO and MHS are taking their energy efficiency improvement programme a major step forward, with plans to provide up to 20,000 SFA properties with additional loft and, where appropriate, cavity wall insulation. This will be supported with Carbon Emissions Reduction Target funding from the Energy companies. In addition Photo Voltaic (PV) panels are being installed in properties at Shrivenham to generate electricity. The design of the electrical system means that any surplus electricity generated and not used by the occupants is fed back into the DCDS Shrivenham site grid, saving the site energy costs.

Other home energy efficiency projects include insulation in 51 solid wall homes in Poole; a further 28,000 thermal imaging surveys; and 18 new build homes planned in Colchester will have a combination of PV, Solar Thermal and ASHPs installed. Towards the end of 2012, the UK Government launches its flagship national energy efficiency programme called Green Deal. DIO and MHS are planning to access the 'ECO' element of Green Deal for 'hard to treat' properties in 2013/14, linked to the £100m MOD programme to improve Service accommodation. 'Hard to treat' properties are mainly solid wall properties where it is difficult to fit insulation without major disruption and cost. The MOD has approximately 4,500 of this property type mainly in the

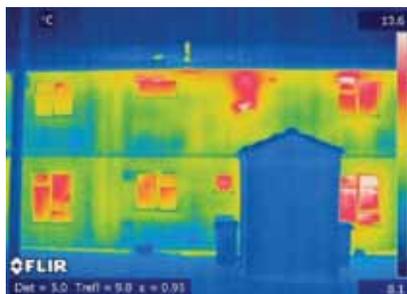
south which DIO and MHS hope to target as part of the programme. The benefits of solid wall insulation are clear to see in the before and after images below; the shades of yellow, green and red show where heat is escaping.

Overall the energy efficiency measures carried out and planned by DIO since 2008 have led to a reduction of approximately 1,650 tonnes CO₂ per annum and £3.9m reduction in utility bills to Service families. Whilst this investment may not financially benefit DIO in the short term, benefits are expected in the longer term. For example, whilst properly installed insulation does not fully resolve damp problems in all cases, it does assist in reducing the incidence of damp. Therefore the number of calls received

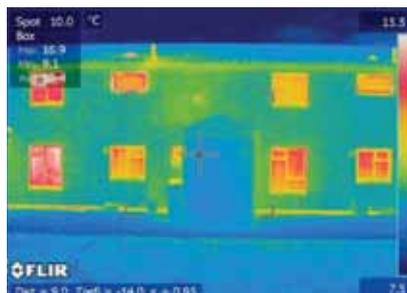
by the MHS Helpdesk related to damp is expected to reduce once the current phase of insulation installation is completed.

Finally, across the MOD there is a drive towards encouraging everyone - staff, occupants, suppliers, contractors - to be more sustainable and to think about the environment in their daily activities. Often the simplest activities can have a significant impact; therefore DIO and MHS regularly provide occupants with information sheets and guidance on how they can be more sustainable for the benefit of the environment and to reduce their energy costs.

Paul Di Mambro
Sustainability Projects Manager
CarillionEnterprise



Thermal image before © Crown



Thermal image after © Crown



Ground source heat pump installation © Crown

MODern Housing Solutions community projects



MHS Conservation Project Bulford Garrison © Crown

Providing Service families with a safe, comfortable and welcoming environment to live is a key focus for the Defence Infrastructure Organisation (DIO). As well as the infrastructure of Service properties, this focus extends to the wider environment in which Service families live, and the facilities they use and often rely on.

DIO and MODern Housing Solutions (MHS) are working together to provide tangible and sustainable benefits for Service families and their local communities.

DIO, MHS and Unit personnel have supported and participated in community activities including initiatives to raise awareness of road safety; creating new allotments or garden areas; redecorating community facilities and many others.

Improving the environment

Service families move around on a regular basis and creating a good first impression when a family first drives through their new area plays a huge part in making them feel happy and comfortable about their new home. In

In Bulford, DIO and MHS took forward a suggestion from local Service families to transform a large central grassed area, overlooked by around 40 homes, into a beautiful wildflower and butterfly garden. An information board was installed to educate children and visitors about the type of plants and animals that may be seen. The addition of benches in the centre of the garden provides a fantastic community area to sit and enjoy the peace and catch up with neighbours.

Unit welfare staff at Vauxhall Barracks, Didcot, refurbished an old property for use as offices and a meeting area for families. The building is surrounded by an unused garden, one part of which the families wanted to use as a kitchen garden. BBC Gardener's World felt this

garden project was an ideal opportunity for them to provide horticultural expertise to the local Service families and film their progress over several months.

Many Service personnel and their families are keen gardeners but don't always have a suitable area to develop. MHS and the local supply chain recently responded to a request from families in Benson to mark out 25 plots, with rotavation, topsoil and fencing which the families are using to grow produce for the summer months. During the autumn and winter local grounds maintenance teams will provide leaf mulch to give much needed nutrients.

The high level of recent Operations has sadly resulted in Service men and women being injured, and some losing their lives whilst on operational tour. This not only affects the individual, but can also have a profound impact on their friends and families. MHS and others spent a day planting trees in the Memorial Garden at RAF Brize Norton, to enhance the calm, peaceful and inviting space where family, friends and others can pay their respects to fallen and injured Service personnel.

A welcoming meeting place

Community Centres provide a valuable location for clubs, nurseries, welfare services or coffee mornings. These facilities help Service families get to know their neighbours living on the unit so they don't feel so isolated, particularly when the serving family member is away on tour or other duties.

Several centres and clubs across England and Wales have been redecorated giving these much used spaces a fresh and inviting look. The White Rose Club at Catterick was totally redecorated internally; the outside of the Radford Naval Community Centre in Plymouth was power washed and painted; the Crossley Community Centre in Gosport was redecorated internally. The winter months in particular provide an ideal opportunity for internal redecoration work and helps DIO and MHS staff maintain links with the local communities.

At the Beeches Community Centre, Bulford, DIO and MHS worked with colleagues in other organisations to refurbish the play equipment and replant the existing raised beds with

sensory plants using seeds, bulbs and compost kindly donated by a local garden centre.

The Pembroke Road Contact House, at St Colomb Minor, is used as a short stay 'home from home' for visitors, families and welfare purposes but it is also used for mother and toddler groups. A team got together to cut grass, weed, tidy and remove redundant play and garden equipment before installing a raised bed, painting and renewing gate posts and fencing and fitting garden furniture.

In Bovington, MHS and the unit provided funding for toddler tables, chairs and carpets while some local suppliers generously provided the paint for the local baby and toddler play group.

Play parks are another valuable area for families with children to meet, get to know each other and hopefully build new friendships. In Didcot, staff from MHS, suppliers and the unit have provided resources to remove the redundant equipment and install the new equipment gifted by one of our suppliers in addition to equipment bought by the unit.

Supporting the wider community

Units often rely on the wider local community for support and services such as schooling, shops, and leisure facilities. Community projects also benefit the wider environment with litter picking, redecoration, weeding, and general tidying up of

neighbourhood areas. In Hounslow, London, MHS staff made grounds maintenance repairs, painting and re-marking a football pitch at a local school. The children many of whom are from Hounslow Barracks were absolutely thrilled with the changes when they returned to school in September.

In Bulford, DIO, MHS and the unit supported the unit and local police with a very successful Road Safety Awareness Campaign helping with the prizes and encouraging involvement from local children who created some amazing pictures.

These are just some examples of the many projects carried out or underway which have brought huge reward both to staff in DIO, MHS and those actively involved in the activities and to the Service families and communities who have benefited from the time and effort spent to make their local environment and/or facilities more welcoming and enjoyable.

Catherine Long
Communications Officer
MODern Housing Solutions



The new allotment plots at Benson © Crown



MHS, DIO and Service families joined forces to plant the wildflower and butterfly garden © Crown

The changing needs of HM Naval Base Clyde



Entrance to the Firearms Training Centre, showing the photovoltaic canopy © Turner Estate Solutions Ltd

HM Naval Base Clyde is situated on the eastern shore of Gareloch, 6 miles north of Helensburgh in the county of Argyll and Bute. The primary function of the base is to support the nuclear powered submarines that form part of the UK's strategic deterrent force.

The key objective of the Maritime Change Programme to transform HMNB Clyde into the Submarine Centre of Specialisation continues through key

engineering, waterfront operations and infrastructure projects. The target for 2012 is that HMNB Clyde will be the centre of excellence for support to the Royal Navy in Scotland and home of the UK Submarine Service.

In line with this target and the changing needs of the estate, various facilities required modernisation, in order to offer enhanced services and to cope with increased demand. The construction of two new buildings: the Incident Command and Control Centre (ICCC) and the Firearms Training Centre (FTC) were also commissioned.

Incident Command and Control Centre

Base Defence and Nuclear Accident Management are two functions that support the base's primary role. The

Base Defence Head Quarters (BDHQ) and Nuclear Accident Head Quarters (NAHQ) were located in separate buildings, half a mile apart and the opportunity arose to bring both of these functions under one roof in a new facility. This enhances the cohesive integrated approach to the management of any incident within HMNB Clyde.

Firearms Training Centre

Firearms training activities within HMNB Clyde were carried out in a number of different locations. As the MOD has increased the profile of National Security efforts, there followed an increased demand for a robust training facility for the Royal Navy (RN), Royal Marines (RM) and Ministry of Defence Police (MDP) personnel. It had become increasingly difficult for the existing

facilities to cope with the increase in the number of personnel requiring the specialist training due, to the dated and substandard condition of the buildings and Portakabins.

A new facility was required which could be used to deliver a structured, high quality firearms training programme.

Overall Approach

Integrated Project Teams (IPT) were formed to deliver both projects. The teams consisted of the Defence Infrastructure Organisation IPT Team Leader, MOD (Requirements Manager), Turner Estate Solutions Ltd (TES), HMNB Clyde and Henry Brothers Scotland, their supply chain contractor.

Sustainability was a priority within the design, construction and operation of the buildings and various measures were implemented to ensure a long-term sustainable solution.

Sustainability Appraisal

As is standard practice within all DIO and TES projects, a sustainability appraisal was carried out prior to the design stage. This assessed all elements of the projects which could impact on the local environment, economy and community. In identifying any adverse impacts, the project team were able to

put in place various mitigation measures, for example, ensuring spray water was available during demolition works, using recycled materials, identifying the most appropriate way to deal with Japanese knotweed and identifying opportunities to share transport for construction workers during the project.

Defence Related Environmental Assessment Method (DREAM)

DREAM is the MOD equivalent of Building Research Establishment Environmental Assessment Method (BREEAM) for assessing excellence in sustainable design and construction. Both the FTC and ICCC are subject to DREAM assessment and are on target to achieve an 'excellent' rating. Numerous solutions were implemented to incorporate sustainable design solutions into the projects, for example:

- Air handling units incorporated for heat recovery and use of waste heat from variable return valve air conditioning plant to heat domestic hot water
- Zoned and occupancy linked lighting controls
- Heat recovery and heat exchange between teaching spaces
- Sun pipes for natural lighting
- Use of brownfield sites

- Photo voltaic canopy on south elevation providing solar gain, which is used to supplement the power supply to the building. A bi-product of this is shading teaching spaces to minimise overheating during summer months

Waste

A Site Waste Management Plan was used on the projects. To date, diversion from landfill rates have been achieved through reuse on site and working closely with waste management contractors to ensure the highest proportion of waste is recycled off site (ICCC 95.21% and FTC 91.32%). Waste management will continue to be closely monitored on site throughout the remainder of the projects. A number of 'designing out waste' solutions were used during the projects including:

- Off site prefabricated floor slab units and precast inner units with brick panels for outer skin
- Use of recycled materials such as timber and metal
- Excavation material re-used on site

Overall, it is heartening to see how sustainable practices are being integrated with the changing needs of the estate and it is important to demonstrate that sustainability measures do not work against the operational needs, and can in fact deliver enhanced solutions to meet these needs.

HMNB Clyde will continue on its path of being the centre of excellence for the RN in Scotland, and this path looks set to include the integration of sustainability within any necessary changes on the estate.

Donna Green MSc BSc AIEMA

Sustainability Advisor
Turner Estate Solutions Ltd



Sun pipes in use with artificial lighting © Turner Estate Solutions Ltd



One of the many sun pipes © Turner Estate Solutions Ltd



RAF Valley once bittern

Now wheres that bittern! © Kelda Water Services

Llyn Penrhyn is a shallow, reed-fringed lake and Royal Society for the Protection of Birds (RSPB) bird reserve.

It forms part of the Llynau y Fali Site of Special Scientific Interest (SSSI), a complex of lakes and wetlands covering more than 100 hectares (ha) and supporting many rare plants, birds and invertebrates. Sited next to the runway of RAF Valley on the island of Anglesey, it is flown over by Hawk jets and wildfowl alike. Bitterns used to breed in the reeds, and the RSPB is trying to bring back this rare heron. Excess nutrients in the lake have caused algae to grow out of control, robbing the water of oxygen and causing major ecological changes to the plants and animals in the lake. This process is termed eutrophication. Recently a Countryside Council for Wales (CCW) condition assessment classed the lake as 'unfavourable'.

A principal source of nutrients is thought to be RAF Valley's sewage treatment works (STW). The works

already removes a proportion of nutrients, principally phosphorous, from the effluent, but other sources could also be important. A group has now been formed to investigate the origins of the extra nutrients. A Llyn Penrhyn Conservation Group already existed, but the technical nature of eutrophication made a separate working group the best way of addressing the problem. The use of a technical working group had been

pioneered at RNAS Culdrose in Cornwall, where similar problems existed.

The RSPB, Countryside Council for Wales, Environment Agency (EA) Wales, Ministry of Defence, SEACAMS (Bangor University) and Kelda Water Services (which operates the STW) were brought together to find a way of improving conditions at Llyn Penrhyn. The result is a year of intensive study of



Valley wetlands interpretation board © Kelda Water Services

the lake and the wider catchment from a hydraulic and chemical point of view.

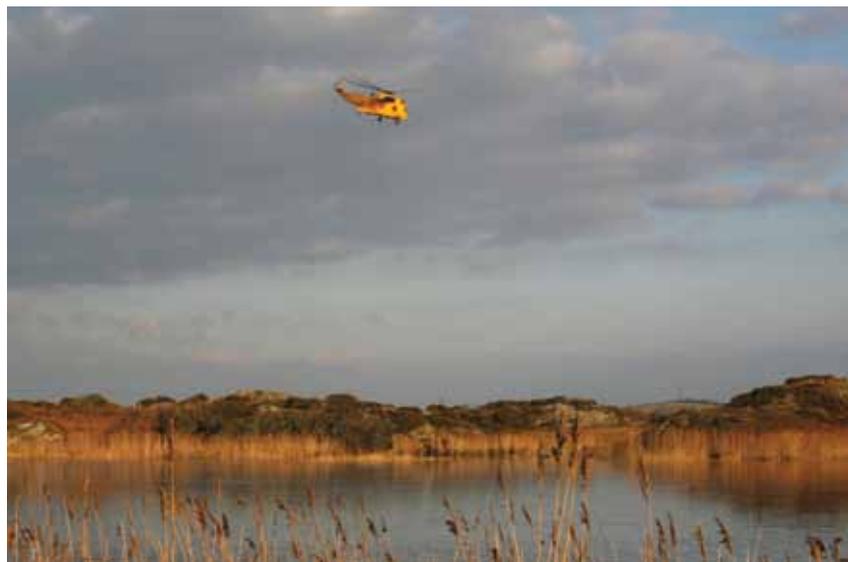
Fifteen small-diameter shallow boreholes have been sunk around the perimeter of the lake and further into the catchment to allow water levels and water samples to be obtained. Water levels are monitored and recorded every two minutes, with the data downloaded every three months. This will allow a picture to be built of groundwater flows into the lake, which in winter are estimated to dwarf flows from the STW. Analysis of the groundwater will allow a calculation of the levels of nutrients entering the lake from this source. The three boreholes next to the runway at RAF Valley had to be sunk between Christmas and New Year, in a planned lull in the constant flying of Hawk jets.

The EA has installed a flow meter on the outlet of the lake, so that total flows can be accurately measured. Taken together with the flow meter at the STW, it will build confidence in the groundwater flow calculations, allowing a total picture of water and nutrient flows to emerge. The information will be carefully analysed and used to decide on the most effective actions to reduce nutrient levels. Upgrading the STW, turning it into a pumping station to the nearest sewer main, or even moving the STW closer to the coast have all been mooted as possible solutions. Modelling of the different options, with their various costs and benefits, should provide the optimal solution to restore this important wetland ecosystem to favourable condition. Hopefully the boom of Hawks will then have to compete with the boom of the bittern again.

Working together in partnership can and does bring benefits

The Countryside Council for Wales is a Welsh Government Agency responsible for the protection of SSSIs and wider biodiversity.

Environment Agency Wales works to protect and enhance the natural environment for people and wildlife. At Llyn Penrhyn it sets standards for discharges into the lake and regulates these to improve water quality. It aims to get streams, rivers and lakes to good ecological standards and works closely



Llyn Penrhyn with RAF Valley Search and Rescue helicopter © Kelda Water Services



The elusive bittern © David Kjaer

with partner organisations to make this happen.

RSPB Cymru is part of the RSPB, which speaks out for birds and wildlife, tackling the problems that threaten our environment. RSPB Cymru celebrates 100 years of working in Wales this year. The charity's work protecting birds and wildlife and their habitats in Wales started in 1911, with a small project to look after one species of seabird on the island of Llanddwyn, off the coast of Anglesey in North Wales.

SEACAMS (Sustainable Expansion of the Applied Coastal and Marine Sectors) is a partnership of three of the leading universities in Wales - Bangor, Swansea and Aberystwyth. It is a unique venture, bringing together some of the world's leading research expertise in marine,

coastal and terrestrial environmental sciences. SEACAMS offers businesses with interests in the marine sector access to the research, expertise and facilities of universities in Wales. By working with the Llyn Penrhyn project, SEACAMS will be helping to restore and maintain wetlands that are an important part of the coastal economy of North Wales.

Kelda Water Services is the Ministry of Defence's contract partner for Package A of Project Aquatrine - a 25 year Public Private Partnership to deliver water and wastewater services across the Defence Estate. For further information please see www.keldawater.co.uk

Dr Lewis McCaffrey
Environmental Manager
Kelda Water Services

Recycling the use of Nescliff's bunkers



Aerial view of Nesscliff © Landmarc

The Defence Training Estate (DTE) must continually adapt to deal with the change in defence training requirements.

Much of the training features and infrastructure provided during World War I and II, for example, no longer meet the needs of Defence today. In partnership with DTE, Landmarc Support Services is assisting with the development of the Estate to not only meet modern day training requirements and ensure the estate is a safe place to train, but also to protect the environment and interact positively with the wider community.

A long term project being carried out by Landmarc at DTE Nesscliff Training Area, Shropshire was to deal with the increasing problem of numerous World War II bunkers becoming dangerously unstable. The bunkers were originally

constructed in 1940 to store ammunition. Nesscliff was at the time, a central ammunition depot, the biggest of its kind. Since the bunkers were decommissioned in 1959 they were mainly used for storing plant machinery or simply left empty. The bunkers became extremely hazardous with blind heights to fall from and unstable roofs. While these unstable structures remained, they continued to be a maintenance liability and costly to both Landmarc and the MOD.

In 2009, a demolition plan for the most hazardous buildings was put in place with the agreement from DTE. A number of opportunities to ensure this project met the requirements of the training estate while reducing impacts on the environment and helping the local rural community were identified.

Firstly, a small local contractor won the tender to carry out the demolition works. This contractor, also a long term tenant on the DTE, came from within a five mile radius of the site and could provide value for money due simply to reducing the distances to travel each day.

As part of Nesscliff's rural annual maintenance plan, the extensive track network across the training area requires resurfacing. The opportunity to reuse the demolished material was identified and any iron or steel was recycled. This ensured that no waste went to landfill. It also meant that approximately 4,800 tonnes of natural resources per annum did not have to be procured for resurfacing. Transportation costs and associated emissions have also been reduced.

Although many of the bunkers were demolished, a number were redesigned to remove the risk element and provide additional training features for Nesscliff Training Area. Two bunkers were made into a forward operating base which is now an asset for the military to use. A feature of this kind would not ordinarily be considered on a small training area such as Nesscliff. Therefore, this project directly benefits the military users that come to this training area for years to come.

This project, as well as others across the rest of DTE, are taking place frequently as training requirements change and buildings such as these World War II bunkers go into disrepair. The challenge is to ensure that the changes and training developments across the DTE, which are often needed urgently for operational requirements, are carried out in a way that both meet the needs of the military users but also improve or mitigate the impacts on the environment.

Camilla Timms
Sustainability Advisor
Landmarc Support Services



World War II bunker on Nesscliff © Landmarc

The changing face of the estate **new biomass facility at RAF Spadeadam**



New biomass boiler installed at RAF Spadeadam © Crown

As part of the Government's drive to deliver against sustainable development targets, the Air Command Utility Management Bureau Service (UMBS) worked in partnership with the Carbon Trust under their Biomass Heat Accelerator (BHA) programme towards delivery of a 500kW biomass facility at RAF Spadeadam, supplying heat to the largest building on site, the F1 Main Hangar.

RAF Spadeadam is based in a very remote rural location near Gilsland, Cumbria. The base comprises a number of buildings consisting of accommodation, offices and hangars utilised for maintenance and stores dating back to 1957/58. It hosts the 3,600 hectare Electronic Warfare Tactics Range and is one of the largest (by area) RAF bases in the UK.

Air Command UMBS worked in partnership with appointed Carbon Trust Renewable Consultants, carrying out an initial investigation on the

possibility of installing a biomass heating system on site. The station is not connected to the gas supply network and is totally reliant on oil for heating supplied through separate boiler houses serving either individual or several buildings. Together with our Industry Partners CarillionEnterprise, further feasibility studies were undertaken covering biomass storage system design, technology, demand and fuel sources with various appraisal opportunities identifying several options towards installing a renewable heating system.

The most expedient option in terms of a 'best value for money' investment and carbon savings was to install a 500kW biomass boiler serving the F1 Main Hangar as the lead boiler, and retain the existing four 300kw Hovall oil boilers as back up. These boilers were originally installed in 1994, and non-intrusive inspections suggested that they were in reasonable condition to operate as a stand-by plant. Funding was secured



On-site at RAF Spadeadam © Adele Gerrard



Woodchip conveyor © Crown

through Air Command to deliver the project and a specially constructed fuel store and energy centre has been built within close proximity of the hangar, allowing for sufficient turning space for articulated vehicles to deposit their delivery of wood chip.

To service the biomass boiler, a number of wood fuel suppliers were considered to evaluate associated costs, with a local supplier now delivering wood chip on demand. However, there is a long-term ambition to source wood chip from the local Forestry Commission. Operationally, the biomass system is managed by CarillionEnterprise.

The installation of the 500kW biomass facility is expected to offset 503 tonnes of CO₂ per annum, whilst the financial appraisal calculates that potential savings to the MOD are in the region of £105,000 per annum. This in terms of energy expenditure (primarily made up of fossil fuel savings and renewable heat incentive payments) gives a payback on investment of five - six years.

Tony Moss
 Defence Infrastructure Organisation
 Utility Management Bureau Service

Aspire - a changing climate



Overview of Tidworth Garrison © Aspire Defence

The military camp of today not only needs to provide support in response to the evolving needs of our troops involved in conflict overseas, it also needs to adapt to the changing environment in terms of climate, resource scarcity, wildlife and the community around the estate footprint.

The MOD's Project Allenby/Connaught, which started in 2007, has been the vehicle through which Aspire Defence has made radical changes to the built estate at Aldershot Garrison and the Tidworth, Bulford, Larkhill and Warminster Garrisons of Salisbury Plain. There has also been a cultural shift with greater attention paid to customer service, resource efficiency and long-term thinking.

Aspire Defence has been working in partnership with the MOD to provide the Army with a solution to meet their changing requirements. The garrisons have been designed around a campus concept allowing flexibility in using the accommodation with the ability to 'pair and share' dining and mess facilities for regiments as needed.

New Single Living Accommodation (SLA) buildings have ensured that soldiers are now provided with en-suite bedrooms, which according to the soldiers, are making their lives better.

Design for life

It is widely accepted that our climate is changing and a long-term vision is needed for the way that buildings are designed and built in the future. The MOD have integrated their requirements for a sustainable estate within the original specification for Project Allenby/Connaught and Aspire Defence has since ensured that sustainability is at the heart of the Project. The way the estate is managed and how materials are procured will help to maximise the benefits of a sustainable approach throughout the Project's 35-year duration.

For a sustainable culture to work, its basic principles need to be embedded during early design. Using the Building Research Establishment Environmental Assessment Method (BREEAM) tool has ensured that a number of sustainability measures are incorporated into the building designs, such as the Junior Ranks SLA blocks.

Watering in

Water is a valuable resource, which could become even more important if current warming trends continue. The new and refurbished buildings all have water efficient fittings, with 100 of the 150 accommodation blocks supplied with rainwater harvesting systems to

provide water for flushing toilets. This focus continues once construction is complete, as the buildings are monitored using over 800 water meters to enable excess consumption and leakage to be promptly identified and resolved.

This long term thinking goes beyond the built estate into landscaping plans, including an increase of over 8,000 trees across the Project, many of which are indigenous and drought resistant varieties. These new trees form part of an established population of 40,000 individual trees (and additional woodland) all of which are recorded, inspected and maintained using the Arbortrack system.

Aspire Defence also manages large swathes of grassland and is researching the use of drought resistant grasses to further reduce the impact of managing the estate whilst maintaining the desired standard.

A balancing act

The process of carbon management is seen as the key environmental challenge of the 21st Century. Aspire Defence has produced a carbon account of the construction programme, one of the biggest ever undertaken. The review, which has

been independently verified by Ramboll Sustainability Consultants, highlights the components of our carbon footprint and analyses the benefits in carbon savings from making certain business decisions.

- Trees - The additional trees planted across the estate represent an estimated 180 tonnes/year of carbon removed from the atmosphere, thereby helping to reduce the Project's carbon footprint
- Re-usable packaging - Our lighting supplier designed re-usable packing frames which avoided packaging waste on 12,000 products
- Operational efficiency - During refurbishments Aspire Defence have installed new efficient light fittings which contribute towards a real difference in operational energy efficiency, tests on accommodation blocks have shown over 30% improvement
- Modular construction - Modular construction involves off-site fabrication within a factory environment and the modules brought to site and bolted together. This technique has clear benefits in terms of build time and waste minimisation, however there are also carbon benefits from this approach

- Results of a study carried out by sustainability consultants reported savings of 30% when compared to traditional construction, equivalent to 140 tonnes of CO₂. When scaled up at over 200 accommodation buildings, this equates to a significant equivalent of 31,000 tonnes CO₂ saved!

Sustainable procurement

Aspire Defence's strategic approach includes a drive to embed sustainable procurement within all our processes. Sustainable procurement plays a key role in ensuring that buildings are properly designed to meet the requirement, can be managed to achieve MOD targets for sustainability and that materials and goods are supplied with minimal impact on scarce resources.

In 2012 a sustainable procurement guide was launched to help procurement professionals within Aspire Defence, and throughout the supply chain, to understand key principles. It uses the 'One Planet Living' model to assess which areas of sustainability should be considered when selecting materials, products and construction methods for each of the major packages

of works within a typical building. It also highlights through a red/amber/green key what represents good environmental performance.

Moving forward

The redevelopment of the Project Allenby/Connaught estate is now nearing completion and with another 30 years to run on the service delivery side, Aspire Defence has an opportunity to demonstrate how major changes to the military estate can be implemented and managed so that the benefits realised are for the business, the MOD and the soldiers themselves.

Aspire Defence and the MOD continues to work in partnership to focus on sustainability in the ongoing management of the estate. It will be fascinating to see in 30 years how the garrisons have evolved and fared in this 'changing climate.'

Peter Caddock and Nick Kirwan
Environmental Managers
Aspire Defence



Junior Ranks Single Living Accommodation © Aspire Defence

Devonport Landing Craft Co-Location Project **HMNB Devonport**



Works underway on the Devonport Landing Craft Co-Location Project © Debut

The Devonport Landing Craft Co-Location Project (DLCCP) will achieve long-term savings on operating costs and site maintenance for the Royal Marines' Estate by providing a waterfront base in HMNB Devonport for 1 Assault Group Royal Marines, including 10 (Landing Craft) Training Squadron and 539 Assault Squadron Royal Marines currently based at Poole and Turnchapel.

This will establish a co-located base for training landing craft crew alongside operational amphibious Royal Marines units and warships from which they

operate, adapting the MOD estate for an evolving military need.

Debut Services (Debut), Defence Infrastructure Organisation's (DIO) Regional Prime Contractor, will deliver the project under the Regional Prime Contract South West Core Works Programme, which provides estate management solutions in south west England. DIO, Debut and their supply chain have worked in partnership over the past six years to bring this project to construction.

The overall scheme comprises a new marina, accommodation (offices and classrooms), a rock revetment, slipway, finger jetty, hard-standing for landing craft dry storage and Engineering Facilities. A total volume of around 45,000m³ of material has been removed through capital dredging and further maintenance dredging will be required through a managed programme.

Some capital dredge, piling, slipway and jetty construction works will be carried out within the boundary of the Plymouth Sound and Estuaries Special

Area of Conservation (SAC). All works are adjacent or nearby the SAC, with potential for significant effects. Much of the Tamar Estuary Complex is also designated as a Special Protection Area (SPA) and the main channel is used by migrating salmon, a feature of the upstream Dartmoor SAC. The consultation process for the project was extensive and focused on issues surrounding the Environmental Impact Assessment and Habitat Regulations Assessment to support the Marine Management Organisation (MMO) License and Planning Application.

The SAC found within the development footprint is designated for several estuarine habitats and species, including sub-tidal and inter-tidal muds, sands and gravels. Saltmarsh and eelgrass beds are found elsewhere in the SAC and species include a rare fish, the allis shad, which migrates to the higher reaches of the estuary to breed in May and June. The SPA is designated for passage and over-wintering avocet, and little egret and other breeding waders and waterfowl are found within the various SSSIs in the



At the building stage © Debut

estuary complex. However wetland bird survey data, from the British Trust for Ornithology, demonstrated limited bird activity in the vicinity of the development.

Inter-tidal habitats are valued and threatened, hence it is treated as 'priority habitat' at local, regional and national scale. Therefore, the project is in line with current planning policies that ensure 'no net loss' of inter-tidal habitat occurs. Working to avoid and mitigate the effects of the project, a range of measures was developed by DIO and Debut in collaboration with Natural England, the Environment Agency and Plymouth City Council as follows:

- The area of habitat loss was minimised in the design phase and a geomorphologic assessment demonstrated that there would be no wider impacts from dredging on sediment and water movements in the estuary
- The development footprint was intensively surveyed for potential hotspots of sediment contamination or rare habitats, although no specific constraints were found
- A series of pollution prevention and avoidance measures were incorporated in the Construction Environment Management Plan to minimise movement of heavy metals and organic compounds that are present in the Tamar complex
- A redundant careening grid for boat maintenance, located at Turnchapel, is to be removed to restore an area of previously developed inter-tidal mudflat within the SAC

This will mitigate for the area lost through the footprint of structures and inter-tidal mudflat, converted to sub-tidal habitat through dredging at Weston Mill Lake

- Rubble at Weston Mill creek will be removed and debris at Wilson's Beach has been cleared to restore non-designated inter-tidal habitat
- Maintenance dredging at Ernesettle Trot and Slip Jetty has been reduced in recent years, offsetting disturbance to sub-tidal habitats from the new berthing pockets

Additionally, a survey of abandoned craft in inter-tidal areas to identify potential removal of small wrecks or other structures on the foreshore of the Tamar Estuary will be undertaken by Plymouth University. Subject to the findings and implementation by other key organisations, this could result in a net gain in the useable inter-tidal habitat within the Tamar Estuary.

The piling activities for the slipway and jetty within the Tamar Estuary main channel have been timed to avoid the main fish migratory season. As these operations were also undertaken around nuclear submarines and logistical Naval Ships, coordination with the Queens Harbour Master was vital. Piling at the eastern end of Weston Mill lake was considered sufficiently far from the main channel therefore deemed as low risk and not subject to timing constraints.

A Phase 1 habitat survey identified that the majority of land-based habitats were either grassland of low ecological value or hard-standing. Several mature

trees on site and the area of scrub vegetation adjacent to Wilson's beach was of higher ecological value for reptiles and nesting birds. This vegetation was cleared in late winter to avoid impacts on nesting birds and reptiles in the vicinity, with trees removed before the bird nesting season and replaced on a two-for-one policy.

An archaeological watching brief was required by English Heritage for the capital dredging works, along with early examination of borehole records and laboratory analysis of core samples. No items of historical significance were identified.

In line with the MOD sustainability objectives the project is on course to achieve a Defence Related Environmental Assessment Methodology (DREAM) Excellent score for the accommodation and engineering buildings, along with Civil Engineering Environmental Quality (CEEQUAL) Excellent for the civil and marine works. A recent Considerate Constructors Scheme audit scored 36.5 out of 40, demonstrating exceptional management on site.

The project is due to complete in December 2012 and will successfully demonstrate that even in highly sensitive environmental locations, it is possible to transform an MOD estate for the ever changing military need.

**Catherine Pinney MEng CEng CEnv
C.WEM MCIWEM**

Debut Environment and Sustainability
Manager

Research into a worrying trend of turtle deaths in Cyprus



Adult emerging from the sea to lay her eggs © Pantelis Charilaou

Marine turtles are charismatic reptile species with a long history dating back to the age of the dinosaurs.

Two marine turtle species the green *Chelonia mydas* and the loggerhead *Caretta caretta* nest in the Mediterranean and Cyprus is a nesting hotspot for both.

These two species are protected as 'priority species' under the Protection and Management of Nature and Wildlife Law of the Republic of Cyprus, by the Bern Convention on the 'Protection of European Wildlife and Natural Habitats' and by the Bonn Convention on the 'Conservation of Migratory Species of Wild Animals.

The nesting habitat at the west coast of Cyprus was declared a turtle reserve under the Fisheries Law, including a coastline of 10km and a sea area up to the 20m isobath (or depth contour).

The need for this survey originated from concerns over the large number of dead and injured marine turtles being found on Sovereign Base Areas (SBA) beaches in Akrotiri and Episkopi bays during 2008 and 2009. It was also decided by the Sovereign Base Area Administration (SBAA), to undertake a post-mortem project in an effort to confirm the cause of death of some of these turtles.

In 2009, 14 autopsies were carried out and the results concluded that the probable cause of death for ten of the turtles was entanglement in fishing nets with the remaining four being killed deliberately.

This information matched the majority of recorded deaths thought to be due to fishing with set nets. These records estimate 60 -70% of turtles caught in nets drowned and a significant proportion of the remaining 30 - 40% were deliberately killed. The conflict between turtles and fishermen covers areas from Cape Aspro to Lady's Mile and is likely to be extending in areas outside of the SBA, due to the fact that some of the dead turtles washing up at Episkopi and Akrotiri may be coming from other more distant areas.

During 2009 the number of dead turtles increased to 50, which further raised concerns. The composition of the deaths over the last three years was consistent, with more than 50% being green juveniles and 30% loggerhead adults. In response, the SBAA prepared an action plan for 2010 in an effort to address the problem and this survey formed part of the action plan.

Originally, three types of surveys were proposed: aerial, boat and interviews with fishermen.

The aerial survey was based on observations of turtles from small aircraft based at RAF Akrotiri. The aircraft followed zigzag transects along the coast between Cape Gata and the SBA boundary at Evdhimou. The transect spacing was designed to avoid double/multiple counts, taking account of aircraft and turtle speeds. Under agreement with the Republic of Cyprus, two surveys were extended approximately 4km beyond the SBA boundary to Cape Aspro in order to confirm information from fishermen and others for turtle interest in that area.

The original plan for the boat surveys was to follow transects across isobaths between 5-20 metres at 10 knots, along the Episkopi-Akrotiri coastline. However, it became evident after the first attempt that the value of such surveys was limited, compared to the aerial survey. It was, therefore, decided to replace the boat surveys with snorkelling/diving ones.

The snorkelling surveys were based on using a boat to reach 'hotspots' of turtle presence as indicated by the first aerial surveys and initial information from

other sources. The boat was anchored at each such location for around 30 minutes.

The interviews were based on a questionnaire, however, in order to minimise fishermen reservations, the interviews took the form of friendly discussions rather than a structured approach. In addition to these interviews much effort was spent on obtaining information from divers, snorkelers, amateur fishermen and others in relation to the sightings and other experiences with marine turtles within SBA waters and elsewhere in Cyprus.

More turtles were found in some areas than others, with more observations in the north-western part of Episkopi Bay and less in the south of the Akrotiri Peninsula. Most of the turtle observations were made in waters deeper than 10 metres.

Interestingly, nesting activity does not seem to increase the death rate of nesting females compared to the non-nesting season. Most of the deaths for all ages of both species occur from April to September.

The Western SBAs (Akrotiri - Episkopi - Paramali - Evdhimou) have been

supporting an average of 22 nests per season of loggerhead turtles and four of green, since systematic recording started in 1994.

Simply put; more research is recommended, focusing on wider aerial surveys, mapping of marine habitats and possibly tagging and satellite tracking turtles, where appropriate. Once areas of conflict between turtles and fishing have been identified, appropriate measures should be considered to address these areas and develop a way forward.

In the meantime, the enforcement of fishing regulations, awareness raising and promotion of sustainable fishing will be the top priority.

Pantelis Charilaou
SBAA Environmental and Conservation Officer

Alexia Perdiou
SBAA Assistant Environmental Conservation Officer



An injured young turtle receives some medical attention © Pantelis Charilaou



The environment department rescue some flooded nests © Pantelis Charilaou



A newly hatched juvenile finally reaches the sea © Pantelis Charilaou

Managing changes at Penhale with positive outcomes



Rare shore dock *Rumex Rupestrus* © Ian Benallick

Management of the entire Penhale Special Area of Conservation (SAC), between Perranzabuloe and Newquay, can be complicated by the fact that it is owned by different landowners with different priorities!

The two main landowners, MOD and Bourne Leisure (who run Perran Sands Holiday Park), each own approximately half of the 650 hectares (ha) of SAC designated dunes. Other landowners are Perranzabuloe Parish Council, Perranzabuloe Golf Club plus smaller private landowners. There are also edges of the dune system not within

the SAC, but still an important and managed habitat, so the entire dune system is about 1,000ha.

Much of my role as Reserve Warden involves working with different landowners to manage the dune system as a whole, rather than separately owned areas.

This involves all types of management, from practical works such as achieving dune system scrub and bare sand targets, to being involved with interpretation and education. Penhale receives large numbers of visitors each year, varying from locals, visiting MOD units and people on holiday.

Education forms a valuable tool and by educating locals, visitors and MOD units alike about the area, the wildlife and the habitat it helps them to appreciate and look after this unique site.

The MOD owned area is the only part of Penhale which is not open to the public, except for the Coast Path and a Permissive Path route along the dune tops. This makes it a very different part of the dune system, from the areas which are open to the public, especially the Bourne Leisure land around the Holiday Park, which can hold 6000 visitors and is also very popular with locals for various recreational activities.

The MOD area is less disturbed by people as well as dogs. Dog fouling, and the subsequent addition of nutrients into the ground can be a major problem on the 'open' areas. The unwanted addition of the nutrients can damage the habitat and is not pleasant for troops when moving through the different areas.

Dogs and people also disturb the ground nesting skylarks *Alauda arvensis*, whose numbers have increased at Penhale due to careful management and education. Each year members of the Penhale Conservation Group, local volunteers, Cornwall Council and Cornwall Wildlife Trust carry out skylark monitoring surveys.

So, the 'open' and 'restricted' areas are very different, with species, such as the rare liverwort petalwort *Petalopyllum ralfsii*, found only on the more eroded ground of the Bourne Leisure land. This is also where the majority of the bare sand of the system is found, so a large blowout area here is not managed at the moment, but monitored, as the MOD area has very little bare sand. Certain species need areas of bare sand, therefore when a new driver training



Shetland ponies grazing on dunes at Penhale © Sarah Taylor

route was required it was introduced into an area of the site which would benefit from bare sand creation.

Contractors carry out scrub cutting control on many of the south facing slopes to create patches of open sand, which are ideal for the thousands of invertebrates found at Penahle, many being locally or nationally scarce. Other species such as marsh helleborine *Epipactis palustris* and a sub species of fragrant orchid *Gymnadenia conopsea* ssp *desiflora*, only found here in Cornwall, are only seen on seasonally marshy areas on the MOD land.

We are very lucky to have an enthusiastic conservation group of knowledgeable experts, who carefully monitor the dune system and frequently discover or re-discover many important species. They can also advise on management and help balance this between their own specialist species needs and MOD training and other activities.

I continue to do many briefings, walks and activities with MOD groups, especially Cadet units and recently a division called 'DSTOW', based at St Mawgan who lead 'Survive and Escape Training' at Penhale. On each visit I lead a walk about useful, edible and poisonous plants, as part of their course and have also done similar with a Culdrose unit.

There has also been growing interest from local schools wishing to visit the

area, either for curriculum work or to undertake other various activities. I also run an annual 'events programme' across the SAC, including the MOD area when there are not any conflicts with MOD use.

One of our main management aims remains control of scrub spreading onto species rich habitats, this is done by either large scale or hand tool cutting, or more recently by spot spraying re-growth or spreading low scrub with a chemical that targets only the scrub and does not harm the dune vegetation.

Willows were cut back experimentally last year to try and increase the marsh helleborine *Epipactis palustris* and fragrant orchid habitat area, as numbers had been decreasing. This has proved beneficial, with many more plants last summer, so we now plan to re-cut and stump treat these.

Grazing is another main tool. Currently we are using Shetland ponies borrowed from Natural England and Exmoor ponies from CWT. The use of the ponies has already shown a marked visible improvement of the habitat, so much so that CWT have recently brought ten red Devon cattle with which to graze the Holywell Headland compartment. So next year there may be a picture of these grazing, possibly with calves at foot.

Choughs, specialist invertebrate feeders, have also benefited from the grazed land and although a pair of choughs

which appeared two years ago failed to breed last year due to egg predation, are still in the area and are nesting again. This is very exciting news, as it is the furthest north in Cornwall that choughs have been recorded nesting. A dedicated team of RSPB Chough Project staff, local bird watchers and myself regularly carry out round the clock monitoring of the pair.

We have also carried out experimental scraping of deteriorating dune slacks, which again has proved beneficial, recreating pools and slack vegetation, in one scrape a new colony of the rare shore dock *Rumex Rupestris* appeared; now over 171 plants are found just in this colony, whereas a few years ago this species was almost extinct on the MOD area.

There are still more challenges ahead; meeting the ongoing MOD Higher Level Stewardship management being one of them. However with the arrival of Lt Col Andy Westcott, the new Cornwall Commandant, bringing with him his enthusiasm and support for conservation, the future is looking bright.

Sarah Taylor
Cornwall Wildlife Trust Reserve
Warden for Penhale Sands

Seeing beneath **the soil** or how to avoid unexploded bombs and unexpected archaeology



The towed magnetometer array at RAF Lyneham, surveying as part of the transition program © Crown

The MOD estate is in a significant period of change, with sites being assessed for redevelopment or disposal.

Activities that historically occurred on these sites may have produced issues and responsibilities including unexploded ordnance or disposal pits; as well as archaeological sites. Early identification of liability increases knowledge of the site, helping manage risk and prevent delays, ultimately saving money. The MOD's Land Quality Assessment (LQA), Explosive Ordnance and Historical Environment teams are working together to mitigate these risks using results from geophysical survey (or "geofizz" as viewers of Channel 4 TV show Time Team know it). These surveys produce unique images identifying potential issues and development of mitigation before they become problems. Unlike TV's geofizz, the Explosive Ordnance Clearance team has a vehicle towed magnetometer array.

Within the Explosive Ordnance community, there have been significant developments in these surveys to identify the precise location of buried bombs. This approach has resulted in the rapid characterisation of former firing/ bombing ranges leading to increased rates of ordnance detection and removal. Conveniently magnetic fields like those produced by bombs are useful to both archaeological and LQA advisors. While archaeologists are interested in features such as kilns, buried ditches, trackways or foundations, the LQA advisor would be interested in disposal sites, old fuel tanks and former structures.



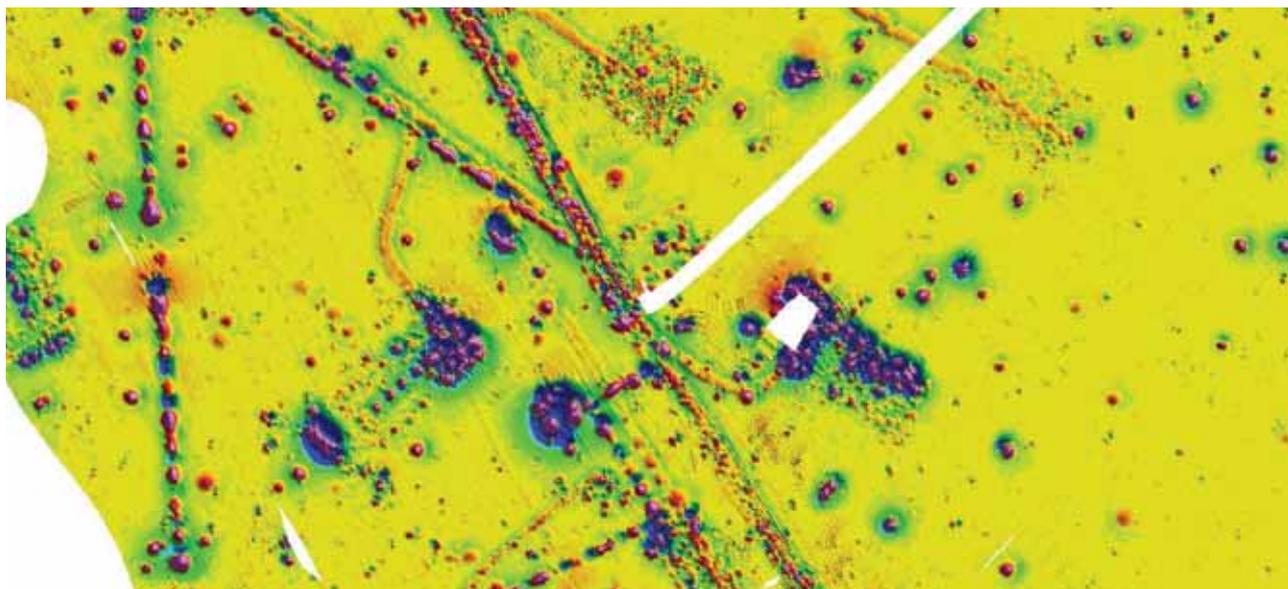
Barrows identified as part of a magnetometer survey designed to target UXO © Crown



Items of ordnance recovered as a result of towed array surveys on a former firing range © Crown

Celts on the Cricket Pitch at RNAS Yeovilton

At Royal Naval Air Station (RNAS) Yeovilton the proposed development on the north side of the site required survey as part of LQA works. It also has archaeological potential following the



Magnetic results showing former structures and possible areas of concern on the former MOD site © Crown

discovery of Roman buildings during the construction of the Ward Room.

The surveys showed a number of unexpected things including a former athletics track and structures, but the real surprise came on the cricket pitch where a settlement from the Iron Age (800 BC - AD 43) was identified. Similar Prehistoric settlement had been identified nearby using aerial photographs of private agricultural land near the cricket pitch, but how far these remains extended onto MOD land was unclear.

The survey results included anomalies showing a network of tracks, enclosures, small fields and circular features that are the remains of timber houses of this period. Some of the remains also seem to overlie one another, suggesting that the settlement had developed over time. There seems to have been a shift from droveways and paddocks to larger, square fields suggesting a change over time from pastoral to mixed agriculture. The apparent longevity of the site also suggests that this settlement later developed into the nearby Roman site as the descendants of the Iron Age farmers adopted new Roman building styles. This area was ruled out for development for other reasons, meaning that cricket continues and the remains remain undisturbed.

Martin Brown
Historic Environment Advisor
DIO Professional Technical Services

Antony Butcher
Senior Geophysicist
DIO

Summary

Collaboration between specialists has led to improved utilisation and analysis of the geophysical survey results. This means that better information is provided to colleagues, ensuring that potential stumbling blocks to development or disposal, whether ancient or explosive, are identified sufficiently early to enable effective mitigation. At the same time, the archaeological input to surveys is increasing our knowledge of the estate and contributing to the understanding of Britain's past.



Archaeological results from the cricket pitch at RNAS Yeovilton, showing an Iron Age settlement with the cricket crease in the centre. © Crown

Save today **save tomorrow**



Just some of the members of the Energy Spend to Save and Strategic Energy Management Services Working Group © Crown

£1 million a day, **£12 per second!**

That's how much it cost to heat, light and power the Defence estate last year. Clearly with such a large energy bill there is a business imperative and obligation to drive down energy usage, costs and our carbon footprint wherever possible and make sustainable improvements to how energy is managed on the estate.

The MOD is taking action to do just that through the implementation of a major spend to save programme that will provide significant financial savings, make technological enhancements to the infrastructure and will improve the

working and living environments for those that use the Defence estate.

Spend to Save

The opportunity to substantially invest in delivering an increasingly energy efficient and resilient estate is recognised as one of the activities that will contribute to Transforming Defence. The MOD is committing £105 million into energy efficiency initiatives, in order to save a potential £110 million by 2013/14, with an enduring £70 million per annum thereafter. The table below sets out the investment and the savings target for the three year programme.

FY	Investment	Cumulative Savings
11/12	£10m	£7m
12/13	£40m	£33m
13/14	£55m	£70m
Total	£105m	£110m

The Defence Infrastructure Organisation (DIO) Utilities Team, working closely with Industry Partners, DIO and MOD delivery teams and the Carbon Trust are taking forward the spend to save programme which has already successfully delivered its first year £10 million investment and made in year savings of over £7 million during 2011/12.

The programme invests across all areas of the Defence estate, both UK and overseas, with focus on the highest consuming sites that require active management to ensure energy use and associated spend is better controlled. A range of projects will deliver tried and tested technologies that will provide the savings required, typically those that can pay for themselves in 18 months or less. The quick win projects include:

- Building Energy Management System (BEMS) to replace obsolete and unreliable systems and reintroduce effective heating control strategies

- Heating upgrades
- Insulation and draught proofing
- Lighting upgrades
- Installation of Variable Speed Drives (VSDs) to pump units to allow power consumption to be optimised against flow requirements
- Voltage optimisation, management and power factor correction to reduce energy losses and distribution and supply charges
- Small scale renewables
- Water efficiency projects

Examples of projects that were delivered during 2011/12 include a building-wide LED lighting pilot undertaken by Regional Prime Contract (RPC) South East at RAF Northolt, which demonstrated electricity savings of 50-70%, whilst also making improvements to the quality of the lighting for the building users and reducing the longer term maintenance liability. This approach is now being rolled out further on the RPC South East estate.

Landmarc implemented a project across the Defence Training Estate to install lighting automation and key switches in the accommodation blocks to ensure lighting is controlled and not left on accidentally whilst unoccupied.

At Marchwood Sea Mounting Centre, RPC South West delivered a £2,000 project on a large boat maintenance workshop, where the large roller-shutter type doors were frequently left open, causing unnecessary heat loss and affecting the heating controls. To limit this, the doors were each fitted with an interlock linked to the boiler control circuit, shutting the heating down unless the doors are shut. This simple low cost project will save approximately £1,500 a year therefore a 1.3 year payback.

Absolutely key to the success of the first year, and vital to continuing this success, is the collaborative working and sharing of best practices and experiences by all involved. The programme is now well into the second year and the team are all working hard to build on the lessons learned so far to ensure the savings targets are met and all the highest consuming sites are brought up to a common level of efficiency.

Strategic energy management

Closely linked to the investment programme and also generating significant savings in their own right are the Strategic Energy Management Services (SEMS) being implemented

across the estate. The principal activities of a SEMS include a bureau type service that actively monitors and manages energy consumption. It also provides energy expertise to work with users of the estate to identify and implement behavioural change activities and other saving opportunities. They will also put in place the foundations that will enable DIO to strategically manage energy across the estate now and in the future.

All of the RPCs now have a SEMS up and running and are progressively expanding and improving these services. The collective performance of the SEMS in 2011/12 has been impressive, with another £7 million of in year savings being made, in addition to those achieved from the investment programme. The service introduced by RPC Scotland has saved 24,986,327 kWh and £1.3 million last year.

Greening Government

Saving money is not the only benefit being realised from investment and the SEMS. Under the Greening Government carbon targets the Department is required to reduce its CO₂ emissions by 25% by 2015 from a 2009/10 baseline - an estate wide 5% year on year reduction target that will see a saving of some 245,673 tonnes CO₂. Already the MOD has made significant headway in this and is on track to meet this target. The investment in energy efficiency technologies during 2011/12 has alone contributed about 40,000 tonnes CO₂.

Behavioural change

Technology and strategic services in isolation are not the answer to the utilities management and reduction challenge. Efficient use of energy is everyone's responsibility and should become second nature. All MOD personnel and Industry Partners who work or live on the Defence estate should be encouraged to do so in an energy efficient manner and seek out opportunities to make real changes that will drive down usage, make savings and reduce carbon.

Rebekah Jones
DIO Utilities Team
Programme Manager



Building Services Manager, Anthony Leighton using one of the newly installed lighting control Key Fob switches at Wathgill Camp, Defence Training Estate © Landmarc Support Services

CASE STUDY

A Central Energy Bureau

In support of the Energy Spend to Save Programme CarillionEnterprise (C-E) is delivering a Strategic Energy Management Service (SEMS) across Defence establishments in the Central region, which will help the MOD achieve substantial energy savings.

At the core of the SEMS is the Energy Bureau which has been established for the 34 highest energy-consuming sites across the region to deliver savings of up to £3.5 million over three years and will pay for its own operational costs. The Bureau provides Remote Active Energy Management (RAEM) for sites

via on-site Building Energy Management Systems (BEMS) and metering facilities connected to the Bureau. The Bureau monitors and controls the operation of systems that use energy at each site such as heating, records consumption and provides monthly performance reports showing how closely each site is meeting energy reduction targets. The data collected from each site allows the Bureau to identify where energy is being wasted, for example, it can identify where the heating is on in an unoccupied building and can then, with the site's agreement, switch it off remotely.

The monitoring undertaken by the Bureau allows for the optimisation of the BEMS and enables estate managers to immediately identify plant and equipment faults via alarms. The right maintenance specialists can then be quickly deployed to reduce unnecessary call-outs and associated costs. The Bureau also helps to extend the useful life of plant and equipment, due to reduced operating times.

During the summer of 2012, a trial programme was implemented that provided sites with real time energy information and reports, which helped to identify the most suitable reporting format for site managers. Real time energy information from the Bureau also provides an excellent opportunity to enhance behavioural initiatives such as site energy awareness campaigns.

The Bureau not only enables real time changes but also can identify further opportunities for investment to reduce both energy use and carbon emissions. Building on this C-E has developed a technology approach for the 2012/13 Energy Spend to Save investment programme, with a fast-track project roll-out system to improve payback. The technologies include:

- Security lighting
- Boiler optimisation
- Variable speed drives
- Lighting conversion kits
- De-stratification fans
- Heating, ventilation and air conditioning Improvements
- Compressors
- Fuel switching

C-E have also combined this investment with Life Cycle Replacement funding, to improve the specification of 'Like for like' replacements to the most energy efficient alternative.

The progress being made by C-E in delivering the SEMS and a range of energy efficiency projects has already saved a total of £1.66 million during 2011/12, with further more significant savings predicted over the next few years.

Paul J. Di Mambro
Sustainability Projects Manager
CarillionEnterprise



Bureau Management and Verification display © CarillionEnterprise



Replacement of insulation to the external high temperature hot water heating system at Boiler House 7, MOD Donnington © CarillionEnterprise

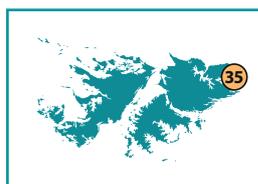
Around the Regions with the Conservation Groups

There are over 120 Conservation Groups operating across the MOD. The following section provides an update on the dedicated work of some of these groups.

Key: UK map

- 1 Featured Regional Conservation Group
- Other Regional Conservation Group

1. **RAF Valley**, Anglesey
2. **DISC Chicksands**, Bedfordshire
3. **RAF Henlow**, Bedfordshire
4. **RAF Halton**, Buckinghamshire
5. **RAF High Wycombe**, Buckinghamshire
6. **RAF Alconbury and RAF Molesworth**, Cambridgeshire
7. **RAF Wittering**, Cambridgeshire
8. **Penhale**, Cornwall
9. **Predannack Airfield**, Cornwall
10. **Ballykinler**, County Down
11. **RAF Spadeadam**, Cumbria
12. **Dartmoor**, Devon
13. **Bovington and Lulworth**, Dorset
14. **Wyke Regis**, Dorset
15. **Kirkcudbright**, Dumfries and Galloway
16. **Defence Training Estate East**, Essex
17. **RAF Leuchars**, Fife
18. **Defence Munitions Gosport**, Hampshire
19. **Newtown Range and Jersey Camp**, Isle of Wight
20. **Defence Training Estate South East**, Kent and East Sussex
21. **Air Weapons Range Holbeach**, Lincolnshire
22. **Bicester**, Oxfordshire
23. **Castlemartin**, Pembrokeshire
24. **Donnington**, Shropshire
25. **RNAS Merryfield**, Somerset
26. **Swynnerton**, Staffordshire
27. **Thorney Island**, West Sussex
28. **Boscombe Down**, Wiltshire
29. **Bulford**, Wiltshire
30. **Imber**, Wiltshire
31. **Larkhill and Westdown**, Wiltshire
32. **DST Leconfield Carrs**, East Yorkshire
33. **Strensall**, North Yorkshire
34. **Sovereign Base Areas**, Cyprus
35. **British Forces South Atlantic Islands**, Falklands





Spotlight on... Donnington, Shropshire (24)



Pictured left to right: Dave Love, Lee Sanderson and Dianne Hawkins © Crown

In late 2010 I was officially given the role of Conservation Officer for MOD Donnington. Previously, colleagues had taken up these duties on a voluntary basis. However, while some excellent work was achieved, it was always going to be difficult to progress the role only when time allowed. By placing it firmly in the duties of the Environmental Protection Officer, it became a legitimate objective for me, with the full support of my line management. Of course, I also needed support and help from other major stakeholders on site. Subsequently I was delighted to have Dianne Hawkins from DIO and Dave Love from CarillionEnterprise on board to offer their support. In addition to this, a number of volunteers from the Site came forward to lend a hand where they could.

The first thing that became apparent to me was that we had little or no support, if we found an injured wild animal on site. This concern led me to discover Cuan House Wildlife Rescue, a local registered charity that takes in injured wild animals, with the aim of nursing them back to health. The MOD Donnington Conservation Group visited Cuan House to see the work they did and meet the staff. It was also an opportunity to identify some practical help that could be supplied by CarillionEnterprise to fix a leaking roof.

Following our successful visit to Cuan House, an exchange visit was organised where Megan Morris-Jones and Fran Hill who run the rescue centre, were invited to Donnington. They enjoyed a thorough and informative tour of the

site by Petar Ilic, the Head of Establishment, as well as taking home a number of donations from staff, including feeding bowls and cat food pouches.

One of the challenges for the conservation group has been to find tasks that can be undertaken at little or no cost. A perfect example of this turned out to be on site litter picking. Having asked for volunteers, I had Maria Olerenshaw, Matt Blakey and Malcolm Rowley come forward from main office, LS Donnington while Colin Fernley and Sam Sharratt stepped forward to lend a hand from DSG building 15. We focused our lunch time litter picking on the long grass and scrublands away from roads and paths. This is where some of the wildlife on site thrives and it was

good to be able to remove the unwelcome addition of litter in their environment. On a very windy October day, we managed to fill a large bin bag each in a surprisingly short amount of time. The items that we collected was a combination of operational litter such as cardboard, flow pack and bubble wrap as well as the usual crisp packets and drinks cans. Most importantly, we all agreed it was a very rewarding experience and one we would all be willing to do again.

According to recent studies, nearly half of the species of birds that nest in, or routinely visit Europe are in peril, with some so threatened they may disappear altogether. 226 species - 43%

of Europe's birds face an uncertain future. The decline of European birds is part of a world wide pattern with more than 10% of the world's bird species being threatened with extinction. With this in mind, volunteers were asked to make up bird boxes that could be placed across the Donnington site and were designed to house a specific selection of birds including the great tit, robin tawny owl, jackdaw, sparrow, barn owl and kestrel. In total, 49 bird boxes were made up and placed around the site by Philip Cartwright and Peter Bamford of CarillionEnterprise. The boxes have all been given numbers and their locations plotted, so they can be revisited in due course to look for signs of bird activity.

Garry Watson was the mastermind behind plotting the locations for all the bird boxes and specifying which designs were needed. Garry works for CarillionEnterprise and has been on the Donnington site for many years. During that time he has built up an extensive knowledge of the bird life that exists here and has spotted over 50 different species on site including stock dove and the green woodpecker. The most unusual bird to date that Garry has managed to spot was the common sandpiper.

Looking back over the year, it is encouraging to see what has been achieved in a relatively short space of time. As Editor of the local Conservation Group Magazine, Dianne Hawkins was able to bring together the stories of all our hard work to a wider audience. I was particularly delighted by the number of colleagues that made a point of speaking to me about the magazine and the work that we have done. This response reflected a wide spectrum of grades from a number of different areas on site and the comments were nearly always the same. Everyone was impressed that so much conservation work had been going on behind the scenes. Hopefully this positive response may encourage more people to take part in the future.

What's most pleasing is that the conservation work has been a real example of major stakeholders working together towards shared goals. It is all the more impressive that so much of this work has been done by volunteers in their own time. This demonstrates how conservation is a subject matter that can generate an interest and commitment from so many of us. Looking ahead, there are plenty of ideas about what we can look to achieve in the future. As long as we can continue to harness the goodwill of the volunteers involved, I'm sure conservation work can continue to flourish at MOD Donnington.

Lee Sanderson
Environmental Protection Officer
LS Donnington



Swans that have been rescued at Cuan House rescue centre © Crown



Litter pickers from the conservation group © Crown



Anglesey

RAF Valley (1)



Just some of our furniture: way-marker and Dutch-ladder (a sand dune erosion control measure) © M Noble

The Isle of Anglesey Coastal Path is a 200 km recreational route that circumnavigates the picturesque island of Anglesey in North West Wales. Officially opened in 2006 it attracts over 300,000 people each year and passes through the largest Area of Outstanding Natural Beauty in Wales. The path is maintained by the Isle of Anglesey County Council (IACC) and is supported by a charitable organisation known as the Friends of Isle of Anglesey Coastal Path; it was this group of enthusiastic volunteers that came up with the ABC Scheme - "Adopt a Bit of the Coastal Path".

Rosie Frankland, IACC Coastal Path Manager, approached RAF Valley in October 2011 with a suggestion that the Unit itself might like to consider adopting a stretch of the path. This was a subtly new approach as all previous adoptees had been individuals rather than organisations. A section of the path actually runs alongside the western boundary of the camp. Personnel from RAF Valley have previously taken part in an annual sponsored run along the length of the path, it seemed like a natural progression to take a more structured approach to use of the path by personnel associated with RAF Valley.

A number of meetings took place between Rosie and I, as well as RAF Valley's Senior Management Team, in order to explore the idea further. Having just arrived at Valley from RAF Cosford, where I had chaired the Conservation Group for nearly four years, I was looking for a new challenge and the timing of this intriguing venture could not have been better! By working in partnership with IACC we will be better placed to support the development of the path through a myriad of planned activities.

Given that the path already follows existing rights of way and is fully maintained by IACC the 'adoption' by RAF Valley is seen more as a 'stewardship' role. We have undertaken to monitor the condition of the path, report on our findings and actively partake in any restorative works; in drawing up the Memorandum of Understanding (MoU) between IACC and RAF Valley we have, however, made it clear that the MOD has not taken on any formal responsibility in terms of financial or personal liability. Our 'volunteer days' will continue to address the ongoing issue of flotsam and jetsam associated with the stretch of beach that forms part of 'our' section. In addition to these tasks we also hope to

deliver a number of environmental educational initiatives to as wide an audience of interested parties as possible - wildlife monitoring through flora and fauna surveys, environmental awareness sessions and the development of information and interpretation points. This is the really stimulating stuff...sharing that wonderful world of nature with youngsters and adults alike who just want to learn more about what goes on around them!

The formal adoption ceremony took place at RAF Valley on 26 April 2012 where Group Captain Adrian Hill, CO RAF Valley and Gwilym Jones, Chairman of the Council signed the official MoU, thereby cementing that partnership that will provide so many opportunities for both parties in the years to come.

Not only has this project been delivered under the banner of the Armed Forces Community Covenant but it is also believed to be unique with DIO having no record of anything similar happening across the Defence estate. Exciting times for all those involved both now and in the future!

Isle of Anglesey Coastal Path
http://www.visitanglesey.co.uk/en-GB/anglesey_coastal_path-103.aspx

FS Martin Noble
 Hawk Support Team
 RAF Valley



One of the challenges ahead...winter flotsam and jetsam awaiting Valleys Volunteers! © M Noble



Bedfordshire

Defence Intelligence and Security Centre (DISC) Chicksands (2)

We are very fortunate at Chicksands to have 260 hectares of varying habitats. These include grade II listed parkland, lakes, a wildflower meadow currently under regeneration by grazing and many small areas of deciduous woodlands. We are also lucky that the Greensands Trust nature reserve borders the camp to the south-east granting further habitats. As a keen apiarist, the massive quantity of flowering plants and trees here was just begging for bee hives.

There is definitely an art to planning and building an apiary near a residential area on a military camp. Ensuring that the bees cause little problem for residents and vice-versa can cause some headaches. The apiary that we built in 2010 is surrounded by Heras fencing panels lined with hessian. The obstruction that this creates causes the bees to fly up out of the apiary to begin their search for pollen and nectar way above head height. This fact has been most sincerely appreciated by the Military Provost Guard Service dog handlers whose patrol route takes them alongside the apiary.

In order to assess the viability of the apiary site, we started off with one colony in August 2010. Unfortunately, they proved not to be a great starting colony as these bees had been uninspected for around 18 months and were more than a bit "twitchy". They seemed to take a perverse delight in exiting the opened hive en-mass and trying to find a gap in my bee suit. Sadly, the winter of 2010 was quite harsh and prolonged and as with many colonies around the UK, this colony died out leaving us with an apiary and hives but no bees.

With dumb perseverance and a growing immunity to bee venom, I purchased three new colonies from friends in the Bedfordshire Beekeepers Association (with some assurance of docility) and placed these in the



Close up photograph of the bees © SSgt Pickin-Gardner

Chicksands apiary. Two of these colonies survived last winter and have proven to be quiet and very pleasant to work with and are now happy foraging among the rows of cherry trees on site. The other colony took a great dislike to the thymol based treatment against varroa mites and absconded in October 2011. I was not particularly sad to see them go as, although these particular bees were not as foul tempered as the very first colony here, they had an equally nasty habit of hitching a ride back to my house and waiting till I took my bee suit off to teach me how to do the bee dance. Still, every sting endured helps to keep arthritis at bay (so I have been told by an optimistic beekeeper friend).

Having built a display hive in the conservation workshop, I have taken the queen and two frames of bees to the youth group as a "show and tell" with the children. They got a chance to see the bees and some of the (empty) hives and got to play with raw beeswax and beekeeping tools. They also sampled the first honey (on hot toast) produced at Chicksands for over 100 years.

DISC holds a "learning at work day" every May and I can say with certainty

that the bees will be making a similar appearance there as well.

I would fully recommend any unit desiring to keep bees on site to get in touch with their local beekeepers association. They will freely offer advice and help with all aspects of beekeeping and can assist in sourcing local, disease free bees.

SSgt (SQMS) Gavin Beatty GCGI
Unit Conservation Officer



Photograph of the bee hives © SSgt Gavin Beatty



Close up photograph of the bees © SSgt Pickin-Gardner



Bedfordshire

RAF Henlow (3)



Henlow Conservation and Heritage Group diggers © Crown



The Henlow identifier © Crown

Miscellavia: The Henlow Circle

In the early days of aviation, many airfields could be identified from the air by reading its name carved into the turf below. Similarly, railway stations also had the town's names painted on their roofs. These identifiers were used like navigational beacons. RAF Henlow also had a separate circle which was used as a drop target by the Parachute Test Unit (PTU). On the eve of World War II, the identifiers were ploughed up or painted out to preserve anonymity.

The Henlow Conservation and Heritage Group recently recreated the Henlow identifier. The work was timed to coincide with the re-establishment of RAF Henlow as a station in its own right. Coincidentally, it was also the 94th anniversary of the Royal Air Force. We would honour the PTU by incorporating the parachute drop circle and, since chalk comes in "diamond" white, it's our lasting tribute to the Queen's Diamond Jubilee.

The plan was to excavate 16' by 8' and 6" deep letters in the turf. A circular trench would be dug around the letters. All would be filled with crushed chalk, inhibiting floral growth and make "HENLOW" easy to read from altitude.

The excavation site was surveyed during the last snow in January. Its rough position was marked by trampling the snow and the area was scanned by Babcock-DynCorp to ascertain freedom from anomalies (pipes, cables, munitions, bodies, buried treasure, lost cities, etc).

The chalk was repositioned close to the excavation site. Shifting a large amount of material by hand was a daunting prospect but Mr Martin Huckle (RAF Henlow Golf Course Manager) provided his mini digger and his services as operator - all for free! Without Martin's help, it would have been extremely difficult to complete this project.

The team manually cut the turf along pre-marked lines and the excavated spoil was recycled by tipping it on Henlow's pre-deployment off-road training track. In just one day the work was completed and almost 40 tonnes of material had been shifted. A session of aerial photos, courtesy of the RAF Henlow Flying Club, confirmed just what a good job the team had done.

When Google maps are updated, "Henlow" will be literally on the map; the Group will be able to say

"we did that!". Henlow is close to some busy airspace and the Circle is regularly used by passing and visiting aircraft to accurately fix their precise position.

With some annual maintenance to trim the edges, the Henlow Circle should be visible and useful for many years to come. It is a marker in space and time: its reconstruction is dedicated to all things good in 2012.

The Diggers
(in no particular order)

Lt Col Lance Annicelli
(USAF) (RAF CAM)
Sqn Ldr Julia Streete
(Senior Dental Officer)
Flt Lt Tan Cavendish
(Airfield Manager)
Miss Ellie Mowbray (RAF CAM)
Cpl Philip Astle (RAF CAM)
Mrs Denise O'Hara (SHA)
Mr Martin Huckle
(Golf course MD)
WO Robin Braithwaite (LogNEC)

The Research Team

Mr John Spencer (DES ISS CIS)
CT Carl Goodrum (LogNEC)



Buckinghamshire

RAF Halton (4)

The new Station Conservation Group stood up for the first time this year after a long hiatus. The first meeting was a success and brought people together to identify aims, targets and opportunities. In the short term, the aim will be to gather as much information about the site as possible before forming a long term action plan. This is likely to be a sizable task due to the area that will need to be covered; however we are lucky to have some extremely enthusiastic and knowledgeable members to take on the task!

Rumours were about this year that there may be great crested newts on site, so following the guidance given to us through the DIO's great crested newt surveying course last year, and with our licence firmly in hand, a survey was promptly conducted in the various ponds around the Station including the newly created dew pond at the side of our airfield (yet to fully establish itself with newts unfortunately!). The survey revealed only smooth and palmate newts at Halton which, although not protected are welcome residents.

The various members of the group continue to watch out for birds and wildlife around the grounds; nuthatches have been spotted nesting, as have buzzards and crossbills, not forgetting red kites which continue to thrive in and around the grounds of Halton. We also have a large contingent of badgers including an erythristic badger (with a red hue to its coat) spotted by a keen wildlife photographer on site.

Our Woodland Management Project has been continuing to develop through the efforts of one member in particular and this year we were lucky to receive some guidance from DIO on formally planning the future of our extensive woodland. The project, in addition to management and improvement of the woodland as a habitat, has helped to enhance the

quality and functionality of some of the training areas and will hopefully provide additional areas as it progresses. It has also been a useful tool for community engagement with both the Air Cadets and the local Scouts coming to help out with the project and the Air Cadets are keen to come back. The plan is long term and even includes an area used by the Local Council to house slow worms taken from a local development site, we are yet to spot any this year but it is hoped that by improving the area, they will remain local to us.

White helleborines, which are on the UK BAP list as being a priority species, have appeared in abundance for the second year running in the training area next to the airfield, and look beautiful amongst the various grasses under the trees. With the help of the newly formed conservation group, it is hoped that we can continue to encourage more species of flora and fauna to the site, as well as taking care of those we are already lucky enough to have.

Emily Haddock
Station Environmental Adviser



White helleborine © Emily Haddock



One of the contingent of badgers on site © DMOC photographer Jamie Peters



Buckinghamshire

RAF High Wycombe (5)



New arrivals from the nests into the holding pen. A survival mechanism is for red kite chicks to 'play dead' when they feel threatened © Helen Olive

The RAF High Wycombe Conservation Group has recently been reformed. Its initial aim is to examine the biodiversity across the station's three sites, looking at ways to protect, improve and manage it with a view to developing a Station Conservation Management plan. RAF High Wycombe is located in the Chilterns Area of Outstanding Natural Beauty and is also close to the original reintroduction area of the red kite *Milvus milvus*. The group's work will include reporting any red kite nests found around the station, and liaising with the relevant external red kite monitoring groups and other applicable organisations such as Natural England and the RSPB.

The red kite disappeared from the skies of England and Scotland at the end of the 19th century, largely as a result of persecution. Although the remaining numbers were extremely low, some kites did manage to survive in Wales despite unsuitable conditions, however, the numbers were not sufficient to repopulate England and Scotland.

In 1989, following strict criteria set out by the International Union for Conservation of Nature (IUCN) the RSPB

and the Nature Conservancy Council (now Natural England) launched a project to reintroduce the red kite back into England and Scotland. Over a period of five years, more than 90 chicks were brought to the Chilterns, mostly from Spain, and the first successful breeding occurred in 1992. Following on from the successful Chilterns project, further reintroductions have taken place in England and Scotland. To date, almost 300 Chilterns red kite chicks have been donated and translocated to other areas including Gateshead and Aberdeenshire.

Easily identifiable, the red kite has a deeply forked tail, rufous coloured plumage, and an average wingspan of more than 5ft. Although males and females are usually indistinguishable, females can be slightly larger than the males with both sexes weighing no more than 0.9-1.3kg. Primarily scavengers, they feed on carrion such as road kill, but will also take small live prey such as mice, voles and rats, especially during the nesting season when they have chicks to feed. In spring, the kites lay and incubate one-four eggs for 30+ days.

The young fledge around eight weeks old, and remain close to the nest site for several weeks.

In 2010 an estimate of the kite population in the south of England showed approximately 600-800 breeding pairs. Listed Schedule I under the Wildlife and Countryside Act 1981 (as amended), the kite is a fully protected species. It is also listed as 'Near Threatened' on the IUCN Red List of Threatened Species. The kite continues to be monitored, and a small number are wing tagged. Further information is available at www.redkites.net.

Helen Olive
RAF High Wycombe Conservation Group Member and founder of www.redkites.net

Helen is an accredited licenced agent for Schedule I Nest Recording for red kites and has been involved with red kite conservation for almost ten years. Helen is also a member of the Southern England Kite Group and point of contact for the public to report dead kites found in the Chilterns.



The majestic red kite in flight © Helen Olive



Cambridgeshire

RAF Alconbury and RAF Molesworth (6)

Conservation efforts at RAF Alconbury and RAF Molesworth, used by the 423d Air Base Group of the United States Air Force, have continued with their usual seasonal pattern. Hay cutting (in the widest sense if you like a bit of creeping thistle in your hay) has continued on the County Wildlife Site at RAF Molesworth as part of a long term plan to improve the condition of the unimproved grassland. Results have started to appear from this effort with good shows of Dyers greenweed, a Cambridgeshire rarity, over an increasing part of this four hectare site.

Outreach work with the children from the US schools on site has been a continual activity this year, with a girl scout completing a fauna and flora survey in the late summer and autumn of 2011, on a newly acquired part of the site. Her survey proved useful as great crested newts were found and the data from her project provided a very useful starting point for deciding how to approach the planning approval process for a new development.

The newly acquired site included a large balancing reservoir used to attenuate surface water drainage, and with the help of another scout this has been developed into a useful teaching location for the on-site schools. Developing his design for a pond-dipping platform, whilst not conflicting with the reservoir's intended use, and with the help of 423d carpenters, his project was completed in time for US Earth Day on 22 April this year. As part of the activities for Earth Day, children from the on site schools completed aquatic invertebrate identifying and sweep netting. In addition they planted 300 plant plugs to improve the site biodiversity, one of the requirements of the planning approval for the new development.



Pond dipping platform © Jo Guy

Bringing the year a full circle the Environment staff have been completing annual surveys to monitor the existing great crested newt population at RAF Molesworth in May, and which maintain good health with over 20 breeding locations. Responding to the discovery of the same species at RAF Alconbury, they have also been working at the same time with the local Wildlife Trust to complete a new survey of potential newt habitats. Whilst RAF Alconbury and RAF Molesworth are small, there is no shortage of conservation activities.

Dr Jonathan Guy
Environment Element
423d Air Base Group



View of the new part of the site © Jo Guy



Cambridgeshire

RAF Wittering (7)



Vigo Wood © Senior Aircraftwoman Sarah Hanson

The OC Spt Wg post is assigned the role of Conservation Action Group (CAG) Chairperson at RAF Wittering and in April we saw the departure of Wg Cdr Paul McClurg and the arrival of Wg Cdr Joanne Ogden. Over the years we have enjoyed good links and support from our local Natural England representatives; the latest contact Tom Charman has recently relocated to work in the north of England so we will look forward to meeting his replacement Julie Danby over the coming months.

Despite numerous manning movements encountered by the

Station recently, a refreshed CAG met in February this year. The group discussed some possible activities to embrace over and above the mandated management of our Site of Special Scientific Interest in Whitewater Valley.

The group has made contact with a local ecologist, Gill Fisher, who has offered to assist with bat roost enhancement and surveys during 2012. A revisit to the existing bat roost in our Rogue Sale woodland area last year identified scope for improvement by sealing off some of the openings to reduce drafts and replacing some of the old wooden roosting slats that had

become dislodged over time. Having noted a brown long eared bat in the building during the visit any planned activities will need to be carried out around seasonal use of its inhabitant; that is where we will call upon Gill's expertise to guide us.

DIO foresters emailed around the bazaars earlier in the year to offer their services with regard to surveying woodland areas on the Defence estate and assist with the production of a comprehensive long term tree management plan. The Station engaged with Jon Watson, DIO Forester, in May who plans to scope a tree planting scheme that will connect our two segments of ancient woodland, Rogue Sale and Vigo Wood.

The two dominant woodland areas, Vigo Wood and Rogue Sale, are divided by mixed grassland and the Station perimeter road; with the A47 running parallel. They consist of semi natural woodland, incorporating small leaf lime coppice and ash stands amongst others. Historically they would have been part of neighbouring Collyweston Wood, the area itself once RAF Collyweston, but now managed by Natural England. Senior Aircraftwoman Sarah Hanson, one of our Station photographers, took time out of her busy schedule to capture pictures of the spring bluebells in Vigo Wood which are thriving well along with smatterings of early purple orchid.

Rogue Sale is an ex-Explosive Support Area that now houses a training village for 5131 Bomb Disposal Sqn and again is home to similar woodland flora found in Vigo Wood. Both woodlands are examples of where nature is apparently thriving successfully beside service training.

Sharon Rawnsley
CAG Secretary



Cornwall

Penhale (8)

Last year's article focused on the then recent closure and subsequent sale of the built Camp and potential effects on the Training Area, which MOD still owns. However, training has in some cases actually increased, Penhale remains popular with Cadet Groups and other visiting units - 'DSTOW' from RAF St Mawgan and Units from RNAS Culdrose, increasingly use the dunes for survival training, whilst incorporating walks with the Penhale Special Area of Conservation (SAC) Reserve Warden, learning about useful, edible and poisonous plants found here.

Relocation of the Helicopter Landing Site from the sold Camp, onto a part of the SAC, has not had any negative impacts on conservation to date, thanks to liaison between Natural England (NE), MOD, Landmarc and the Reserve Warden.

The Higher Level Stewardship Agreement between MOD and Cornwall Wildlife Trust (CWT) has been working well with increased input from CWT and support from the new Cornwall Commandant, Lt Col Andy Westcott, who covers Penhale Training Area and chairs the Conservation Group. Management of the Reserve Warden has moved to CWT and along with practical works, the Reserve Warden also leads events for the public and local schools. These have become increasingly popular and are a good way of educating people in the importance of the site, the role of MOD and the work that is carried out here.

Conservation work, such as managing scrub to control encroachment onto particular habitats, continues by a variety of means: new sections have been cut, some re-growth topped and several areas grazed by ponies (Shetlands and Exmoors).

The conservation group also remain very active in monitoring and advising on management work - although we



Portland spurge *Euphorbia portlandica* © Sarah Taylor

unfortunately can't control the weather!! This year is the driest the dune slacks/pools have been for a few years, although rarities such as the shore dock *Rumex rupestris* seem to be coping.

A recent bryology survey for NE, has shown several Nationally Rare or Nationally Scarce species are still thriving and being supported by our management work. Although some lepidoptera have been struggling with the weather, rare flora such as early gentian *Gentianella anglica*; Portland spurge *Euphorbia portlandica* and mountain everlasting *Antennaria dioica* are flourishing. The latter was surveyed by Conservation Group and Botanical society of the British Isles members, as Penhale is it's most southerly location and numbers are increasing.

The Cornwall Amphibian and Reptile Group now hold regular workshops here due to their high regard for Penhale. Perhaps most exciting is the successful nesting of choughs in the area along with being encouraged by

grazing, other management work, plus the continued liaison and balance between MOD use and conservation work... long may it continue.

Sarah Taylor
Reserve Warden
Penhale Sands SAC



Pair of choughs © Sarah Taylor



Cornwall

Predannack Airfield (9)

Predannack Airfield is a satellite station to RNAS Culdrose used primarily for helicopter aircrew and fire fighting training. Situated on the Lizard Peninsula, the airfield forms part of the West Lizard Site of Special Scientific Interest (SSSI), a component of The Lizard Special Area of Conservation.

DIO work closely with the National Trust (from whom part of the Airfield is leased), Natural England and the Cornwall Wildlife Trust (CWT) to maintain the SSSI land in a favourable condition. Work commenced in March 2012 to create scrapes and reinstate tracks. This was after reassurance that their creation would not attract additional bird life on the airfield and potentially introduce an air safety issue. These shallow temporary scrapes are identified as priority habitats under the Biodiversity Action Plan and support many very rare and threatened species.

This is part of a national project known as the Million Ponds Project of which the MOD is a key partner. The project



Reinstating an old trackway © Crown

aims to increase the number of ponds in the UK from around 400,000 to about 1 million over the next 50 years, to halt a century-long decline in these rural features.

The Biffaward funded project has enabled the creation of six scrapes and reinstated old trackways. The largest of the excavations, completed by the National Trust and funded through Natural England's Higher Level Stewardship scheme, has managed to follow the exact profile of an old scrape

and trackway identified on the 1880 OS map when the area was still heathland. A further five scrapes have been introduced by CWT.

Similar scrapes already established on other sites around the peninsula have been acknowledged as a success. Within a year of one trackway being scraped off the puddles already support healthy populations of pigmy rush *Juncus pygmaeus* and yellow centaury *Cicendia filiformis*.

Creating the pond and scrapes at Predannack is seen as a significant step to encourage rare (and not so rare) species to return, ensuring a secure future for pond loving wildlife, habitat for endemic plants and reinstate a historic feature of the airfield to be enjoyed now and by future generations.

Andy Hancock
Environmental Protection Advisor/
Pollution Control Officer
RNAS Culdrose

County Down

Ballykinler (10)



Common seal and pup at Ballykinler © Sue Wilson

There are two main seal colonies in Dundrum Bay. One is at Minerstown, where the seals haul out on intertidal rocks, while the other is on the sandy beach at Ballykinler, in the Shimna river estuary.

The most important seal species at both Minerstown and Ballykinler is the common or harbour seal, which gives birth in late June and early July and then moults in August through to early September. Over the past ten years, Minerstown has, in terms of numbers, generally been more important for pupping, while Ballykinler is the more important moulting site.

Pupping at Ballykinler reached a maximum of about 14 pups in 2007 and seems to have declined since to five to ten pups. Maximum counts of common seals at Ballykinler during the August moult have remained fairly steady at 150-200. Overall abundance

of common seals in Dundrum Bay as whole in August has remained quite steady, with maximum total counts 212-243, with 236 in the 2011 season.

Grey seals occur in smaller numbers than harbour seals at Ballykinler, but do not breed there. However they add great character with their calling and their activity at the water's edge. Grey seal abundance in 2011 was estimated at 57 seals.

Dr Sue Wilson
Tara Seal Research
www.sealresearch.org



Cumbria

RAF Spadeadam (11)



One of the barn owl chicks © Darren Laidler

In 1999 the Fire Section at RAF Spadeadam were told by the then OC Ops, that a new ornithological project was to be undertaken and that an expert would be coming to assist us in the near future. The new project was to be about owls and could we make and site some owl boxes prior to the expert arriving. So with enthusiasm and using various old crates and wooden fire extinguisher boxes the Fire section soon had 11 owl boxes ready. We then scoured the camp to find suitable locations for them.

The day our allocated owl expert was due to arrive, this red VW Polo pulled up and a man who looked like Father Christmas on his summer holidays emerged with his various sacks. This was Brian Little MBE and licenced bird ringer. Over a cup of tea he told us all about owls, what they ate, what they would look for in a nesting site etc.

Two of our boxes had chicks. This was for most of us our first sighting of these wonderful fluffy creatures that clicked at you as you held them, as Brian determined their gender, weighed, measured and ringed them.

The Fire Section found themselves guardians of nine barn owl chicks during 1999. Brian continued to visit us until they fledged; he also gave us a blueprint of a proper owl box. After the owls had fledged we replaced most of the original owl boxes with the new approved designs and relocated some of them to places that Brian had suggested.

In the new Millennium Brian returned to RAF Spadeadam to check on our owl boxes, during which time he was telling us about his paid *bird watching holidays* over the winter, Hawaii and Antarctica if I remember correctly, jealous us no! In 2000 Brian had weighed, measured and rung seven barn owl chicks on camp. The Owl Project was working.

We resumed the checking of our owl boxes in 2002 (we were unable to check in 2001 due to the outbreak of Foot and Mouth disease), and with Brian's visits that year we weighed, measured and ringed thirteen barn owl chicks.

By 2003 we were in the swing of things, Brian had taught us what to look for in the various owl box locations, was there enough food (shrews and voles) in the immediate area, was there a scrape, (a shallow depression in the nesting material) in the box, but no eggs? This would show that the box was located in a good area, but the food supply was limited, out of the 11 owl boxes on RAF Spadeadam, five of them were being used by barn owls.

2004 turned out to be our best year with a total of 19 barn owls ringed and seven tawny owls, which were too small to be ringed.

This has continued along the same lines every year since, we all look forward to Brian's visits and discussions over what to change, be it type of box or change of location for various reasons.

The following is a quick run down of the owl box statistics from 2005 to 2011.

Year	Barn owl	Tawny owl
2005	10 and 1 adult ringed	2
2006	11	2
2007	10	4
2008	10 and 1 too small	2
2009	6	2
2010	6	7
2011	Nil	10

We all at RAF Spadeadam's Fire Section look forward to Brian's visits and working alongside him during his summer seasons here, before he emigrates for the winter, like most of the birds he loves.

Fire Fighter Darren Laidler
RAF Spadeadam



Devon

Dartmoor (12)

The last year has been a monumental year on Dartmoor Training Area (DTA), firstly, an era came to an end with the retirement of the long serving Commandant DTA Lt Col (Retd) Tony Clark OBE. After a distinguished career in the Parachute Regiment, he was posted back to the South West as Commander Devon and Cornwall Training Areas in 1994, of which Dartmoor is the principle Training Area. Tony threw himself into the job with massive amounts of energy and enthusiasm. His love of Dartmoor put him in the perfect position to take over as Commandant DTA upon his retirement from the regular Army and once in post he did not lose any of his enthusiasm.

Tony was particularly keen on the military's "care" for the moor, and drove through many environmental projects. He chaired the active DTA Conservation Group who met (and still do meet) on a regular basis. He was responsible for ensuring that the Willsworthy Integrated Land Management Plan was the first in the MOD to be written, and for ensuring

that its successor, the DTA Integrated Rural Management Plan (IRMP), which publishes MOD plans for military use, estate management, cultural heritage, ecological management and relationships with the local community. When he retired in November 2011, Tony had been working on Dartmoor for 17 years and his role has been taken over by Lt Col Chris Robinson.

As well as the end of an era, 2011 is also a start of another era. Most of DTA is owned by the Duchy of Cornwall, and the licence to use it for military training expired in September 2012. MOD started negotiating a new licence some ten years ago and a major part of this was the DTA Environmental Appraisal, necessary to prove that MOD was not causing environmental damage by using the moor for military training. This reassured the Ministers so that they could give the MOD permission to negotiate a new licence. Eventually, in July 2011, the new licence was signed, securing MOD's use of Duchy of

Cornwall owned land on Dartmoor until September 2033.

Another provision that the Ministers imposed was that MOD carry out a mid-term review of its impact on the environment. Although 2022 seems a long way away, MOD will now start to carry out formal monitoring to collect the evidence required for the mid-term review.

There is so much more, but insufficient space to write it all in this article. I could write about the archaeological and visitor surveys of Cramber Training Area (also part of DTA), together with the submitted application to renew MOD's planning consent to train on Cramber Training Area. I could also write about the Okehampton Camp landscaping improvements. Or indeed, I could talk about the meetings of the DTA Conservation Group. Unfortunately, these will have to wait for next year.

Nigel Sharpe
DIO Senior Estate Surveyor



Dartmoor Conservation Group with Lt Col (Retd) Tony Clark OBE (centre) © Crown



Dorset

Bovington and Lulworth (13)

With support from two very able volunteers the monthly dormouse surveys at Lulworth continued throughout the summers of 2011 and 2012. A total of 50 dormouse nest boxes were put up in 2009 and they are regularly used for breeding with a family of eight dormice recorded in one box in 2011. Data about breeding is sent to the national monitoring scheme run by the Peoples Trust for Endangered Species. Numerous nest tubes have also been put up in gorse scrub on Whiteways Hill for several years and a number of dormouse nests have been recorded showing that they are using this habitat at certain times of the year.

An extensive programme of heathland management continues across both Bovington and Lulworth. This includes grazing, scrub cutting, bracken spraying, controlled burning of scrub, bare sand creation and Himalayan balsam control. Delivering this work across two busy training areas requires a combined effort between the tenants, MOD contractors, Range Officers and

other DIO staff. The condition of these sites reflects the many years of effort that have gone into them and the maintenance regime is working well.

The River Frome Site of Special Scientific Interest (SSSI) borders Bovington Training Area on its southern boundary. Bovington Stream flows off the training area and enters the river with the risk of carrying sediment and polluting the SSSI. A complex system of silt traps and settlement ponds is designed to prevent excessive silt runoff and MOD has reinstated annual monitoring of macroinvertebrate populations. Monitoring suspended sediment levels is useful but it only provides a snapshot and will change on a seasonal basis subject to rainfall. The invertebrate assemblage in Bovington Stream is a better reflection of the long-term state of the water and initial findings suggest the silt management system is working well.

This year the Lulworth ornithological sub-group of Steve Hales, Luke Phillips

and Maureen Spencer have continued with the on-going nest box scheme along Povington Lane and in Highwood. Early take-up was good and in mid-May approx 80% of boxes had been taken up, predominantly by blue tits, great tits and nuthatch. All the nestlings have been ringed and nest record cards will be sent to the British Trust for Ornithology (BTO).

Dartford warblers are having a very good year on the Range area and for this we have started a special Re-trapping Adults for Survival (RAS) under the auspices of the BTO. Each bird which is trapped and ringed is colour ringed for future identification either in the hand or in the field.

In addition to this the 2012 BTO Nightingale Survey was undertaken which saw the sub-group out early morning and late evening listening and plotting singing nightingales. Fifteen years ago there were some eight or nine nightingale territories along Povington Lane and three or four at Baltington in the Tyneham Valley. Now just a handful of birds remain. The cause of this downturn is not sure but at Povington habitat degradation in the dense blackthorn scrub may have had something to do with this.

Lt Col (Retd) Christopher Donaghy
Bovington and Lulworth Conservation
Group Chairman



Dartford warbler (male) with Lulworth Forward Operating Base (FOB) in the background © Steve Hales



Dorset dormouse © Iain Perkins



Dorset Wyke Regis (14)



Little tern chick © John Dadds

MOD Civil Servants at the Wyke Regis Training Area (WRTA), Weymouth are playing a vital role in helping rare sea birds survive on Dorset's Jurassic Coast. A colony of little terns has nested on Chesil Beach opposite the Bridging Camp for as long as anyone can remember, but in recent years the colony has declined sharply from 100 pairs in 1997 to just ten pairs a decade later.

In 2009 a rescue plan lead by the RSPB and largely funded by Natural England and Crown Estates, who own this part of the Chesil Beach, was put into place to try and stop this decline in what is Britain's second rarest breeding seabird and allow the colony to recover. Part of the plan was to feed the resident kestrels at their nest in the hope that this would reduce the chances of the kestrels preying on the little tern chicks as they emerge from their eggs.

The nearest kestrel nest just happened to be situated under the eaves of the engineer workshops within Bridging Camp. The kestrels have been breeding in the building for many years and it has become routine to see a breeding pair and then the chicks emerging from the nest in May/June each year.

In line with the RSPB rescue plan the staff were asked to become more involved with the kestrels and were to lay food next to the nest to feed them and their parents on a daily basis to reduce the chances of them foraging at the little tern site.

The workshop members of staff embraced this participation and have become very attached to the birds and have even set up their own remote camera to keep an eye on the offspring from hatching to flying the nest.

It is working; this year there are five kestrel chicks in the nest and feeding them and their parents is having a marked effect at the tern colony where kestrel sightings have greatly reduced since the feeding started.

Albeit a small part of a larger plan, this vital conservation work carried out by the MOD workshop staff is now beginning to pay off with the little tern colony having had the best two years in terms of productivity since records began in 1976. Already the colony has doubled in size with some 21 pairs nesting this season.

Maj Ian Drummond RE
Commandant Wyke Regis Training Area

John Dadds
RSPB

Commandant quote:

"I have a great interest in ensuring that we (WRTA) are positively contributing not only to our own immediate environment but that of the wider local area and that where at all possible we work with other groups and societies to provide a collective benefit. This story is a good example of how, with a relatively small effort and working as part of a larger team of stakeholders a problem can become a real success story and we will aim to continue this work until the little terns need our help no more."



Kestrel chicks in the workshop © John Dadds



Dumfries and Galloway

Kirkcudbright (15)



Doon Hill Fort © Crown

Having only recently taken over as the Training Area Safety Officer (TASO), formerly known as the Commandant, conservation on Military training areas is new to me. Prior to my being appointed, I never knew that so much activity by non-military personnel went on behind the scenes in order to maintain and conserve MOD land, and its inhabitants.

I assumed my appointment on 1 March 2012 and on 24 May chaired my first Kirkcudbright Training Centre (KTC) Conservation Group Meeting. It was attended by DIO Land Management and Environment staff; the Royal Commission on the Ancient and Historical Monuments of Scotland and Scottish National Heritage (SNH). There were also experts in the field of archaeology, botany, geology, mammals and a representative from our tenant farmers, and not forgetting the Military representatives - as the reason behind Defence Training Estates (DTE) is for Military personnel to train for operations. Defence Deer Management and the marine representatives were unable to attend. KTC has a coastline of 13.6 kms. Below is a summary of just some of the activities that the conservation group take part in during the course of a year.

Military Training

KTC has seen a steady increase in training activities on the range. We now host five major exercises per year lasting between three and four weeks each; as well as shorter training periods, mainly by Priority 1 units - those about to deploy on operations. However, there are still plenty of windows within the programme for members of the public to gain access to areas of the range, and signs to this effect are now in place.

Archaeological and Historical

A survey of the range has been carried out by Roger Thomas and is awaiting funds to publish the report, which included scheduled monuments, archaeology, military archaeology and military objects.

I have had two requests reference armour on the range - a Tortoise Tank and a Sherman Tank. Both requests were about removing the hulks and renovating them. The person interested in the Sherman hulk wishes to renovate it to a presentable condition, then transport it to France, where it would become a Gate Guardian at a French village.



Mullock Bay within KTC © Crown

The proposer has been authorised to visit KTC and view the hulk.

Botany

The Royal Botanical Gardens in Edinburgh have been conducting a survey of Scottish plants, and there are two new plants on the range. They would like to collect seeds, but as they are in an area of Site of Special Scientific Interest, permission needs to be sought through SNH/DIO.

Geology

A review of the area was carried out in August during the maintenance period. If a new technique is successful, there is a possibility that the rocks on KTC foreshore could be dated.

In summary, a great many activities occur each year on KTC and by the next meeting in November, I am hoping to have entomology and ornithology representatives.

Maj (Retd) Ernie Morgan
TASO



Essex

Defence Training Estate East (16)



Taken from Chapman and Andre map of 1777 with Friday Wood annotated in the centre of the map © Crown

Friday Wood and a notable oak woodland

Situated just south of Colchester next to the Roman River, Friday Wood is the name given to a large open space with public access and notably, a Site of Special Scientific Interest. Within this ancient woodland, signs of historic management can still be seen, for example a few remaining hawthorn hedges marking the site of old wood banks.

Nowadays it is owned by the MOD and managed for military training and also for the benefit of wildlife. The site contains a number of habitats – woodland, heathland, grassland, and wetlands along the Roman River and small streams. As the process of plant succession moves on unerringly, large areas of grassland have developed into secondary woodland which now surrounds the original old woodland site.

The Chapman and Andre map of 1777, shows Friday Wood named, with an indistinct border, next to the more clearly outlined Bounstead Grove which is not named.

The old woodland of Friday Wood is most distinctive, it is an oakwood dominated by sessile oak *Quercus petraea* in the central area, where there are many impressive coppiced trees with an average basal width over 1.5m, aged in the region of 400 years. Within the oak heartland the canopy is closed restricting the understorey to a sparse ground vegetation of bramble and bracken, which creates a pleasant aspect amongst these old trees. Where there are gaps in the canopy clumps of sessile oak regeneration (saplings and poles, up to 15cm diameter) are thriving, showing the wood to be self-perpetuating as it has been in the past.

Amongst this regeneration, beech saplings are widely spread, dispersed by animals from secondary woodland planted 100 years ago and so the story of succession continues on.

Peter Wilson
Colchester Conservation Group



Massive old wood bank © Crown



Fife

RAF Leuchars (17)

It's been a busy time for conservation at RAF Leuchars. In December, members of the Conservation Group braved the wintry weather to take part in a Christmas tree project. The aim was to prevent fragmentation of coastal heathland - an important but vulnerable natural habitat - at the most easterly part of the Station by controlling the spread of self-seeded Scots pine. The team removed the superfluous trees and, in exchange for a charitable donation, distributed them to the RAF Leuchars community for use as Christmas trees.

In February, two members of the team (Vron and George) headed north to participate in the RAF Ornithological Society Winter Duck Survey. This eight day trek over vast areas of inhospitable terrain in the north west of Scotland provides invaluable feedback to the British Trust for Ornithology on the trends and distributions of the wintering wildfowl populations.

Closer to home, the Conservation Group joined forces with the University of St Andrews to plant salt marsh along a vulnerable section of the north shore of the Eden Estuary Site of Special Scientific Interest bordering the Station. With a limited timescale due to the tides, the team worked really hard to transplant the sprigs of donor sea club rush *Scirpus maritimus* to the new planting site, the fact that I'd asked the volunteers to trudge through miles of thick mud in all manner of ill-fitting waders and waterproofs made their good humour in carrying out the task all the more commendable. The long term aim of the salt marsh project is to increase wildlife habitat whilst providing a buffer to the coastline thus preventing erosion. It is also hoped that the native sea club rush will counteract the damage caused to the mudflats by the previously introduced invasive *Spartina anglica* and other alien species. (Does that make them salt martians?)



Conservation Group and University of St Andrews transplanting sprigs of donor sea club rush © Crown

Talking of martians, I had a close encounter myself. Unfortunately, it was with a family of angry buzzards as I inadvertently strayed too close to the fledgling during a site visit. What followed was a raptor flypast complete with swoops and dives spectacular enough to rival that of the Typhoon Display Team based here at Leuchars but I didn't hang around to enjoy the show.

One bird that had a much more peaceful stay on the Station was the starling that made her nest in the engine of a glider launch winch. The winch was promptly taken out of service and the starling was left to successfully raise two broods during the summer months.

Finally, a sea eagle has been spotted near the Station on several occasions. Hopefully, if it doesn't mistake me for breakfast, I'll keep you updated of its whereabouts in future reports.

"KC" Campbell
Conservation Officer
RAF Leuchars



The team after a day of transplanting sprigs of donor sea club rush © Crown



Members of the Conservation Group taking part in the Christmas tree project © Vron Wootton



Hampshire

Defence Munitions Gosport (18)

During December 2011 as part of the Million Ponds for England project, Biffaward, DM Gosport in conjunction with the Ponds Conservation Trust commenced a joint project to excavate seven ponds in a venture to further improve conservation on site.

The Million Ponds Project is designed to create an extensive network of new ponds across the UK. Ultimately the aim is to reverse a century of pond loss, ensuring that once again the UK has over one million countryside ponds.

A critical element of the project is that these new ponds will have clean water. This is important because most countryside ponds are now badly damaged by pollution, and evidence shows that pond wildlife is declining across the UK. Making clean new ponds is one of the simplest and most effective ways to protect freshwater wildlife.

DM Gosport's ponds were designed by the National Coordinator of the Million Ponds Project, Dr Pascale Nicolet and are of varying sizes and depths so as to attract as varied wildlife as possible. Among other species it is hoped that the complex will attract are great crested newts which inhabit a pond adjacent to this site. The original pond is not really conducive to their environment although they survive, it is hoped that the new ponds will provide a better environment for them. It is also hoped that frogs and grass snakes will be attracted.

Planning permission was required because of the size of the project. This was contested by a local wildlife group and Gosport Borough Council Archaeology Department. After much debate and revision of the project authorisation was finally granted with oversight by an archaeological expert.

The excavation was completed by a local building contractor Graham

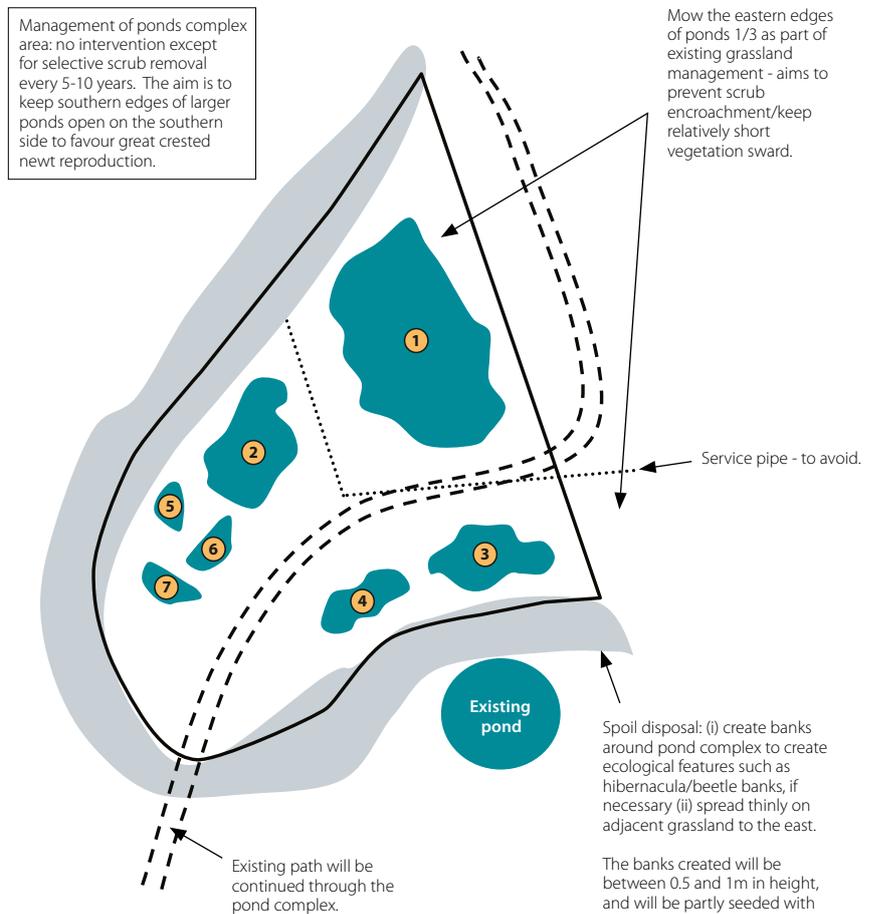
Moyses Contractors Ltd using their experienced excavator driver Alan Busby. Due to the experience of the driver the project was completed within the ten working days that had been allotted. Thus seven ponds had been created with the spoil being used to create a surrounding bank of approximately one metre high to afford shelter for the expected wildlife. Due to the prolonged period of rain this year the ponds have filled with water quicker than expected and the area is now taking shape.



Pond No 1 the largest and deepest at 1.7m © Crown

Kevin Cooper
Environmental Adviser

Outline plan of pond complex



Approximate scale: 1cm = 7.5m



Isle of Wight

Newtown Range and Jersey Camp (19)

An exceptional year here at Newtown. The Camp, Training Area and Range keeping us busy with visiting units but the highlight in July was hosting the Island Games Full Bore Shoot on the Range, using the 300m firing point. Small Islands around the world hold biannual games taking it in turns to be host. This time it was the Isle of Wight. As well as shooting, other sporting activities take place for medals. Shooting teams taking part came from the Isle of Wight, Jersey, Falkland Islands, Bermuda, Guernsey, Menorca, Hitra and Gotland. The visiting teams were impressed with the facility and the conservation setup we have in conjunction with the training estate.

Two rare sights, a mandarin drake duck paired up with a female mallard and they frequented Claydens Pond for a while. The stop butts hosted the emergence of Glanville fritillary butterflies.

We have given permission for the Hants and Isle of Wight Wildlife Trust to dig six new ponds in and around Burnt Wood this will add to our 26 already established. They will also monitor the new ponds and carry out surveys.

A blue tit family decided to take up residence in a cigarette stubbing box outside Jersey Camp. Before moving in they extracted the used cigarette ends from inside the box onto the ground, this nearly caused a telling off for the resident cadet unit for litter. The box was duly cordoned off and 13 eggs laid with a successful fledge around several units being in residence.

We are planning with our group Ornithologist John Willmott the erection of three osprey nesting poles on the training area. Expert advice has been sought on the location of the poles in conjunction with our neighbours the National Trust who have an electronic telescope in a hide across the estuary. They will monitor the poles and any osprey activity. Poles

donated by the electricity board and metal nesting trays paid for from our Conservation fund are now ready to go up. Hopefully by early summer 2012 all will be in place then it's just a case of waiting up to four-six years for the osprey to choose our delightful neighbourhood.

For the green-winged orchid fans the count for 2011 was 86,722 against 43,520 for 2010. They are on the move spreading out across the meadow and some have been sited in Newtown about one mile away.

I am often reminded by envious visitors that this must be the best job going; well I have to agree, it's a privilege to write about this lovely part of the Isle of Wight with the diversity of all that nature could bring to one spot.

Maj (Retd) Dave Maidment
Range Officer and Training Estate
Manager



Osprey platform dressed and ready to be attached to the pole © Crown



Fitting the osprey platform to the pole © Crown



Blue tit nesting in the cigarette stubbing box outside Jersey Camp © Crown



Kent and East Sussex

Defence Training Estate

South East (20)



New Bridge at Dymchurch Redoubt © Crown

Cinque Ports Training Area (CPTA) has undergone a number of changes since the merger with the Home Counties region to form the re-structured Defence Training Estate South East (DTE SE). Although the reduction in resources has caused issues, the commitment of all stakeholders to the natural environment and cultural heritage remains strong.

CPTA Dry Training Areas (DTA)

Tenant farmers continue to manage the calcareous grassland of the DTA through Higher Level Stewardship schemes and have maintained Site of Special Scientific Interest (SSSI) condition targets. The high volume of training on the DTA has created difficulty in undertaking vermin control and rabbits remain an issue despite increased numbers of farmers carrying out shooting through a system administered by CPTA and the DTE SE bookings cell. Reports from Conservation Group members reinforce the evidence that rabbits have a penchant for rare orchid species.

Common Agricultural Policy reform is beginning to loom on the horizon, with

the EU commission publishing its draft legislative proposals for reform in October. Rumblings are beginning to stir amongst our agricultural tenant and licensee farmers on how these reforms are likely to affect future land management. The so called "Greening" proposals are particularly in the spotlight, as the detail on exactly how these proposals are defined is currently unknown, but the effects could be significant. Similarly, little is yet known on the future of the Agri-Environment Higher Level Stewardship Schemes, and we must wait to see what, if any, impact these reforms will have on the management of calcareous grasslands at CPTA.

The "cleaning up" operation of the recently purchased Dibgate Quarry began in earnest last summer. Landmarc undertook the clearance of much of the debris that had accumulated at this site and also installed fencing which meant that for the first time in several years, the quarry is no longer an un-authorized motor cycle track. The metal debris and old quarry plant was removed through the Disposal Services Authority and achieved an income thanks to the high

price of scrap. Future planned management at the quarry includes short rotation alder *Alnus glutinosa* coppicing which should provide small areas of valuable habitat adjacent to the mature, even-age structure, alder located in the Seabrook Stream SSSI. Conservation Group members have already visited the site and 40 species of moth were recorded in two nights including birch bell *Epinotia demarniana*, pearl grass-veener *Catoptria pinella* and yellow shell *Camptogramma bilineata* all associated with damp habitat.

Old Park Canterbury remains the main area of concern within CPTA due to the anti-social behaviour experienced on the site. New signage and fencing erected in 2012 was of limited success due to vandalism and inevitably the viability of grazing the SSSI acid grassland is being questioned. However on a more positive note, scrub clearance on 2.5 ha was carried out through utilisation of SSSI Improvement funding and further clearance is planned this winter.

Lydd Ranges

Sheep grazing re-commenced on Lydd Ranges at West Ripe and Southbrooks last winter for the first time in decades following fencing works funded through SSSI improvement. Continuous grazing was not possible due to live firing on the gallery range (which was rarely used in previous years) however the grazer was thankfully very flexible and moved his ewe lambs on request. It is planned that parts of Dengemarsh are fenced and gated in 2012 to increase the total grazing area on the complex.

Through a combination of grazing and hay cropping, it is hoped that the managed grassland will add to the habitat suitable for the short-haired bumblebee *Bombus subterraneus* reintroduced on the RSPB reserve at Dungeness (which adjoins the

complex) in May by Natural England, the RSPB, the Bumblebee Conservation Trust and Hymettus.

Scheduled ancient monuments

In the summer of 2011, consent was obtained from English Heritage to replace the decaying steel entrance bridge to the Dymchurch Redoubt (Hythe Ranges) which was considered to be an imminent health and safety issue. Landmarc, through use of their annual planned maintenance provision, commissioned ABC Bridges to design, fabricate and install a new access bridge. For affordability, the design was based on a standard bridge unit but modifications were carried out to ensure the new structure was in keeping with the Redoubt's scheduled status. For posterity, comprehensive drawings and a photographic record were produced for the existing bridge prior to removal and Canterbury Archaeological Trust provided a watching brief during works. The removal of the old bridge and installation of the new was completed in less than two weeks thus disruption to military training was kept to a minimum.

Following the completion of the Rural Elements of the Estate Strategy (REES) funded re-asphalting of the Redoubt terreplein, the next phase of works has been agreed with English Heritage. The aspiration is to complete the re-pointing of the inner courtyard and refurbishment of the sangar roofs which will be a milestone in the building's renovation and signal an optimistic future in preserving the structure's fabric despite it still being on the Buildings at Risk register.

Another REES funded monument project involved the installation of wire netting on the whole surface of the bowl barrow at Great Watersend to prevent rabbit damage. These works were carried out by Landmarc to a very high standard in accordance with a tested specification from Salisbury Plain. The need for continuous ferreting and blocking up of burrows should now be negated.

Conservation Groups

June saw the DTE SE (CPTA) Conservation Group's visit to Great Shuttlesfield Farm's SSSI chalk banks. Pyramidal orchids *Anacamptis pyramidalis* and common spotted orchids *Dactylorhiza fuchsii* were

prevalent, but earlier sightings of the late spider orchid proved elusive (rabbits being the likely reason). The summer visit by the Pippingford Group (to Pippingford Park) involved a tour of the Scheduled Monuments led by Vivienne Coad of English Heritage (now retired). Condition improvement due to scrub and tree management carried out by Pippingford Estate Company was clearly evident.

Sea defences

With Lydd Ranges only protected for a one in five storm event and Hythe only marginally better, the risk of flooding to both ranges remains high. Flooding will potentially have a significant and long lasting effect on the flora and fauna at both sites, particularly on the wide variety of species found within the SSSI/ Special Area of Conservation at Lydd.

Both sites now require major sea defence work under what is known as the Folkestone to Cliff End Strategy

(FoCES) which requires the appropriate funding to prime any commencement of works. The Government has implemented the 'New Partnership Funding Model' whereby any stakeholder who benefits from sea defence work will be asked to contribute towards the cost. Due to the high cost of implementing the entire FoCES, the Environment Agency has now split it into smaller schemes which should enable earlier commencement, once funding for that particular part of the scheme has been secured from stakeholders. DIO and DTE personnel are currently exploring the potentials arising from the new legislation with a view to ensuring the risks to business are minimised and coastal protection is enhanced for the MOD and wider communities.

Richard Goslett

DIO Land Management Services
DTE SE CPTA



Late spider orchid © J Gooderham



Lincolnshire

Air Weapons Range Holbeach (21)



Seals found along AWR Holbeach © Graham Wall

Air Weapons Range (AWR) Holbeach is situated on the west bank of the wash north of the river Nene in Lincolnshire. The range covers a large area of salt marsh and an even larger area of mudflats. It is used for fixed wing and helicopter training. The wildlife on the range is very varied with a large seal population, however the main concern of the conservation group is the flora and bird life.

The flora of the range starts with permanent pasture land (couch grass) then to sea aster and samphire and on to marram and zoss grass (eel grass) with intertidal pools before meeting the mudflats and intertidal creeks.

Conflict between aircraft and birdlife is kept at a minimal level because of the cycle of rise and fall of the tide and its variation in height throughout the

month so that the habitat is always on the change and because the range is not in use constantly throughout the week. The two co-exist well with each other. With the main flying activities taking place at the south end of the range there is a vast area of mudflats and salt marsh open to those birds that are less tolerant of aircraft.

The number of wildfowl and waders that are present on the intertidal area of all of the range throughout winter and spring is large. There are other migratory birds using the Wash as a stopover on their migration paths south from as early as August with the grey plover, and on the return journey north in spring. This means that the Wash supports a vast amount of bird life from prey to scavenger and on to predator. There is a high resident bird population also from gulls to waterfowl and all the

smaller birds which like this type of habitat and we must not forget the barn owl whose nest boxes were erected behind the sea wall a few years ago and who have prospered ever since.

On the north end of the range the gull colony is showing signs of decline in the breeding season due to what appears to be encroachment of the couch grass. The birds are moving further out and lower down the marsh away from the grass so are leaving their nests more vulnerable to being washed out when the weather conditions push the tide near the seven meter mark in the egg incubation time.

There are also less redshank nesting on the range. Whether this has anything to do with the overgrown grass or not is not known as they typically nest more commonly in areas where cattle graze the saltmarsh.

Graham Wall
Head Marsh Warden
Holbeach Wildfowlers
Holbeach Conservation Group



AWR Holbeach mudflats © Graham Wall



One of the seals at AWR Holbeach © Graham Wall



Oxfordshire

Bicester (22)

Bicester is situated in North Oxfordshire and merges with the county of Buckinghamshire. The site consists mainly of hard standing storage sheds and has approx 75km of rail link which links certain parts of the sites together. All sites have a vast quantity of woodland, scrub and open areas of grassland. These areas are excellent for all sorts of wildlife from breeding warblers to nightingale.

Both counties have low numbers of grasshopper warblers and nightingales. In total 11 grasshopper warblers were caught last year which were all adults, and it is estimated that there are at least 20 pairs of grasshopper warblers on site, which is extremely high for the geographic location. It is estimated that there are seven nightingale territories

on Training Area South. Again this is extremely high for the geographic location of the site and testimony to the excellent habitat present.

Several of the species caught are considered to be struggling in the UK and are on the list of Birds of Conservation Concern. Song thrush and linnets are listed on the Red List, meaning they declined in population size or range by over 50% in the last 25 years. Bullfinch, common whitethroat, dunnock, reed bunting and willow warbler are all Amber List, meaning they declined in population size or range by over 25-49% in the last 25 years.

Gary Beckett
Conservation Officer



Nightingale on Training Area South © Gary Beckett

Pembrokeshire

Castlemartin (23)



Six spot burnet larva on birds foot trefoil © Crown

Castlemartin Training Area covers just short of 2,400 hectares (ha) of coastal land within the Pembrokeshire Coast National Park. In the past two years the pre-Afghanistan Combined Arms Live Firing Exercise has been held twice a year making the site now one of the most heavily used military training areas in the country.

It is somewhat paradoxical then that during this time of increased military activity the range should be granted additional conservation status in the form of an extended Site of Special Scientific Interest (SSSI). Prior to 2011 Castlemartin's coastal strip had for many years benefitted from a number of National and International Designations; the Castlemartin Cliffs and Dunes SSSI covered 755ha of coastal land, it holds Special Protection Area status for its important seabird colonies and chough population and it is also a Special Area of Conservation status for its sea cliff and coastal vegetation.

In March 2011 however almost the whole of the range (2088ha) was awarded SSSI status by the Countryside Council for Wales. This additional protection was granted primarily

because of the importance of the Ranges' grasslands; they form the largest area of unimproved neutral grassland in Wales. A wide range of neutral grassland communities can be found, often forming complex mosaics and characterised by species such as bird's foot trefoil, black knapweed, rough hawkbit and yellow rattle. In addition are the more species/herb-rich stands of plants typical of old hay meadows. As a consequence 700 species of invertebrates, 27 of which are nationally rare or scarce, bumblebees and butterflies continue to thrive in these extensive, nectar-rich feeding grounds. The site is now known as Castlemartin Range SSSI.

Lisa Payne MRICS
Rural Estates Advisor
DIO Brecon



Somerset

RNAS Merryfield (25)



Chiffchaff © Dr Chris Lewis



Whitethroat © Dr Chris Lewis



Skylark © Dr Chris Lewis

The Satellite airfield of RNAS Yeovilton, Merryfield is a busy aerodrome controlled by the Royal Navy. Built during World War II, all airfield administration buildings were removed in the late 1950s, leaving the areas to become overgrown. These areas, now scrub and trees, provide ideal habitats for wildlife both on the north and south sides of the 240 hectare site.

Very little detailed conservation work has been conducted over the past ten years. Nevertheless, the airfield remains a haven for a thriving wildlife population, with extensive areas of blackthorn scrub, as a result both the bushes and much of the under-story ground flora are relatively undisturbed, despite an active cadet force regularly exercising on the north side of the airfield. To the south of the runway we have at least four singing male nightingales and to the north where the scrub is more extensive, six singing birds hold territory in an area less than the size of a football pitch. This must be one of the highest concentrations of nightingales in the country and the airfield probably provides a major stronghold and sanctuary for this

scarce British species in the south west; lying at the north-western edge of the species' European range.

The airfield also has a healthy population of other passerines, including skylark, common whitethroat, lesser whitethroat, chiffchaff and blackcap; grasshopper warbler has also been recorded on spring passage. Notable breeding non passerines include; common buzzard, green woodpecker and barn owl (for which the conservation group have erected three nest boxes on poles). The barn owls have used one box for the past four years and, at the time of writing (May 2012), are in residence once more. The first cuckoo of the year was also heard on-site in mid May.

The stable roe deer population is professionally managed and is believed to be around 15-20 at present. It is planned for these to be reduced slightly, although it is also anticipated that some younger males may also be 'pushed out' of the area by dominant bucks as the rutting season approaches. The young plantations and hedges provide plentiful food and cover, together with large grassed areas being available around the perimeter of the airfield. Hare are also regularly seen both around the hedge-line and crossing the airfield.

Whilst there is an abundance of resident wildlife with huge potential to nurture many more diverse species, a delicate balance has to be maintained between our love of nature and the safety of the aircrews that record over 60,000 helicopter moves at Merryfield each year.

Lt Cdr Bob Carter
OiC Merryfield
Chairman, Merryfield Conservation Group



Staffordshire

Swynnerton (26)

Situated in North Staffordshire, Swynnerton Training Area has had a rich and at times, a controversial history. In the 1980's it courted public attention by housing overnight stops of nuclear weapon convoys but its origins stem from World War II, where it was the site of a massive ordnance filling factory employing at its peak 18,000 people. Its role diminished in peace time and it finally closed in 1958. In 1960 it was handed over to the army and became a training base, a role it continues to this day.

The infrastructure associated with the ordnance factory, its extensive railway network and outbuildings have long gone, a few foundations and revetments still stand in amongst the grounds as they start to be reclaimed by nature. Large areas of the base could be deemed as brownfield with the rest of the 230 hectares being a mixture of light and damp woodland, grassland, meadows, a lagoon and the River Meece. All of which having benefited from the lack of agricultural management including the use of fertilizers and insecticides, consequently, the botany is far superior inside, than that of the surrounding countryside outside the perimeter fence. Almost a piece of Porton Down in The Potteries.

An ongoing survey of the base by Butterfly Conservation in 2011 found several metapopulations of nationally declining species, namely brown argus, dingy and grizzled skipper. These butterflies were found to occupy both the newly-created brownfield habitat as well as the herb-rich meadows. Dingy skipper and its larval foodplant, common bird's-foot trefoil were very prevalent in sites of recent disturbance and neglect such as overgrown car parks, old foundations etc. The grizzled skipper preferred the sunny roadside verges with their short sward and rich nectaring sources, this habitat being created by the sympathetic mowing



Dingy skipper © Colin Bowler

regime carried out by estate management. The latter species has always been a rare insect in Staffordshire and current records have only ever had it recorded from 15 localities across the whole county and none in North Staffordshire for over 20 years.

During the survey, the nationally notable moth the marsh pug (a day-flier) was found in one of the damper meadows and on the first scheduled moth trapping session the highlight of 84 species was the micro moth *Spuleria flavicaput* which was last recorded in the county in 1950.

In a county famed for its mining heritage, dingy skipper still survives in good numbers on the many brownfield sites dotted across the area. The grizzled skipper hasn't fared so well and its discovery on Swynnerton Training area along with the other two species confirms Swynnerton as one of the most important sites for butterflies in Staffordshire.

John Bryan
Butterfly Conservation



Grizzled skipper © Colin Bowler



West Sussex

Thorney Island (27)

The Wheelyboat Project was initiated as a part of a bigger conservation project on Thorney Island delivered by the Community Development Workers. Chichester Harbour provides a wealth of opportunities for water-based recreation and conservation activities for a wide cross-section of participants. The Army Welfare Service in partnership with Chichester Harbour Conservancy and National Trust, have successfully developed and supported these projects over the last three years. The Wheelyboat project is a key development to ensure access to opportunities to a wide user group including disabled participants, in particular Forces personnel.

One project is seal observation and monitoring where local groups go out and photograph, identify and count the small population of common seals resident in the harbour, with the results being fed back to harbour conservation groups. A similar project has been trips to East Head to monitor coastal erosion. General trips are also organised for nature watching, pleasure boating, picnics and fishing. These activities offer education, rehabilitation, learning new skills and having fun in a safe but challenging environment.

Chichester Harbour Conservancy and the National Trust have supported these activities which have involved more than 260 participants from the service and local communities.

The lack of having access to our own craft for the waterbased activities have limited these trips on the water. None of the hired boats have been available to the extent needed due to having other functions as well in the harbour. So to develop the conservation project further the wheelyboat project was started. This project has two main aims - improving the welfare of the local communities and providing a tool for the therapy of disabled and injured service personnel.



The John Q Davis Wheelyboat, Rick Matthew and Ian McCoy, Army Welfare Service. © Anna Scheutz



Trip out on the Wheelyboat © Anna Scheutz

It will give us a chance to develop the programme of waterbased activities, encourage service families to experience new environments and learning new skills, promote the environment and natural history of Chichester Harbour for people with all kinds of abilities.

The project is a partnership between Army Welfare Service, Wheelyboat Trust and Thorney Island Sailing Club and gives us the ability to offer continuity and sustainability for waterbased projects.

Over the last year funds for purchasing a Sea Rover Mark 4 Wheelyboat has been raised through grants and fundraisers. The boat has over the last month been tested in different kinds of



Ian McCoy and Rick Matthew, Army Welfare Service, and the John Q Davis Wheelyboat © Anna Scheutz

weather and was officially launched on 11 June 2012. It has been named John Q Davis in memory after Lt Col J Q Davis OBE RM who was the Harbour Master in Chichester Harbour. Several people have been involved in securing this project but Ian McCoy, Valerie Davis and Andrew Beardsley should have a special thank you from the rest of us.

Anna Scheutz
Community Development Worker
Thorney Island



Wiltshire

Boscombe Down (28)



Large emerald © Mike Stone

At the end of summer, 'F'Watch of the Boscombe Down Fire Section assisted in helping to put up two new nesting boxes. The crew carried 'ladder drills' against a couple of trees in an area frequented by owls. The boxes were of different sizes and it is hoped that they will both be used, one particularly large beech tree in one of the wooded areas is frequented by tawny owls. It is hoped that this large nest box will be used in the coming year.

Unfortunately one owl that did not last the winter was a barn owl *Tyto alba*, it found dead on the western edge of the airfield. It had been fitted with a metal ring, so the information on it was passed to the British Trust for Ornithology. It transpires that this particular bird was in fact ringed near Great Durnford and found 888 days previously, 4km from the ringing site.

The butterfly transects carried out by Tim Frawley and John England continued to show how (or not) how the butterfly species are faring. Of the possible 29 weeks available to carry out transects, a total of 22 transects were between March - September 2011 (please see the table opposite). Compared to previous years it would appear that these numbers are generally down, these figures on their own do not at first sight appear to be particularly encouraging, however only

when taken into consideration with previous years records and the National trends can any comparison really be made. It is hoped that with continued dedicated monitoring through transects, we will get a better picture of the growth (or decline) of butterflies at Boscombe Down.

Recent mothing nights carried out at Boscombe Down were relatively successful with two new species being added to the already extensive (over 300) macromoth species list. Both were recorded at normal building lights, in this case at the front entrance of the Officers Mess.

The pebble hook-tip *Drepana falcataria* is a moderately common species feeding on predominately birch, but also found on alder. The second species, Brussels lace *Cleorodes lichenaria* feeds on lichen found growing on blackthorn, oak and old fences.

Other species that have been recorded recently are the large emerald *Geometra papilionaria* and the lesser swallow prominent *Pheosia gnoma*, the former being found resting during the day at one of the Police posts around the site and the latter found at lights on one of the airfield buildings. These are not the only records of course, they come with the usual array of 'LBJ's (little brown jobs), the noctuides that frequent any large area of grassland.

Not only are the more popular species recorded (birds and butterflies), but also bugs and beetles are recorded too. Some of these small animals can be just as dazzling as the larger ones, and certainly just as colourful.

The couple that I've chosen to feature here are the sloe bug *Dolycoris baccarum* of the Order Hemiptera, from the family of Heteroptera (shield bugs) and the tawny longhorn beetle *Paracorymbia fulva*, of the Order Coleoptera, from the family Cerambycidae (longhorn beetles), it would appear that this particular longhorn beetle has a somewhat limited distribution in this country at the moment.

Mike Stone
Secretary Boscombe Down
Conservation Group

15	Small skipper	85	Brimstone	6	Green-veined white
20	Dingy skipper	97	Large white	14	Orange-tip
9	Grizzled skipper	82	Small white	9	Green hairstreak
19	Small copper	24	Small blue	16	Brown angus
186	Common blue	2	Chalk hill blue	18	Adonis blue
10	Small tortoiseshell	26	Peacock	1	Comma
11	Dark green fritillary	72	Marble white	34	Gatekeeper
110	Meadow brown	28	Small heath	46	Ringlet



Wiltshire Bulford (29)



Marsh fritillary © Iain Perkins

The hardy enthusiasts of the Bulford Conservation Group continue in their labours with the Botany Sub Group engaging in an ongoing struggle to improve the Site of Special Scientific Interest, and the whorl snail population in particular, around Figheldean Bridge on the River Avon. Whilst battling to cease the incursion by sycamore saplings on a site known as Rectory Chalk above Tidworth.

The invertebrates group, operating under the cover of the Botany Sub-Group, continue to monitor butterfly species in the area, with a particular focus on the Duke of Burgundy, brown hairstreak and marsh fritillary, and there have been some encouraging new discoveries of marsh fritillary sites in particular.

The significant archaeological event in the area comes not from the sub group, but from Operation Nightingale, and is an initiative to introduce wounded service men and women to archaeology in order to assist in their recovery and rehabilitation. Last year's excavation of Chisenbury Midden was a fantastic success and a similar exercise is to due take place at Barrow Clump this summer.

The Ornithology Sub Group suffered a setback when its long-standing continuous effort ringing site was destroyed by scrub clearance. A new site has been identified but will take a

few years to build up. On a more positive note, 2011 proved to be a good breeding season for the stone curlew and they are now back in residence for this season, as are the Montagu harriers, whose nests the Sub Group helps to protect.

The AGM was held in October with Major (Retd) Tony Crease, who kindly agreed to travel down from Yorkshire to visit his old group, giving a fascinating insight in to the creation and running of Foxglove Covert at Catterick - which makes our groups' efforts seem paltry by comparison. Nevertheless, the evening was well supported by the Bulford conservationists who enjoyed some excellent Nepali cuisine provided by the Ghurkha chefs of the Garrison.

Lt Col David Barron SCOTS
Bulford Conservation Group Chairman

Wiltshire Imber (30)

It is nearly the glorious first of June and appropriately Salisbury Plain Training Area (SPTA) is looking just fantastic. That prolonged foul weather in April and May has left the grassland looking very green and luxuriant, quite the best seen for many years. The cowslips have had a great year but the common spotted orchids are only just appearing amongst a very good showing of birdsfoot refoil, butterflies abound as if suddenly released and the sun is shining. Heaven.

It has been a relatively quiet past year for the Imber Conservation Group and we need to get greater participation by

members so we can better support the desk officers at Westdown Camp. We have been running a very successful newsletter for the last seven years, but more is needed so we have introduced a comprehensive password-protected website that we in 'head office' hope will encourage more data collection, discussion and activity amongst our very loyal members.

One of the problems of getting out onto the Plain has undoubtedly been the increased levels of training, but a new approach by Westdown of Super Unit Management Plans or SUMPs allows us to focus on a few smaller

areas each year in more detail rather than cover everywhere and fail.

Due to wear and tear a considerable number of owl boxes are being replaced or removed altogether. Nest box sites are now being checked using a video camera on a pole so that the birds are not disturbed. This allows the team to see if the mother is still sitting on her eggs or if there are chicks to weigh and cleanout. Some very interesting video is being recorded, perhaps for a future showing at the AGM. Tawny owls are active with 17 pairs identified. There are a lot of kestrels about - they were suffering and



Grazing on one of the SUMPS © Crown

a good year is now in prospect. It is hard to find little owls. The raptor team are also leading in the following interesting project on the A303 near Stonehenge. With a number of barn owl nesting sites either side of the road, there have been many incidents of barn owls being killed (15 over the winter) by passing traffic as they fly at low levels to and fro. Leading groups such as the National Trust, Hawk and Owl Trust and Stonehenge World Heritage Site (SWHS) have been approached for support and funding. The proposal is to set up a series of sensors (agreed by SWHS) that emit random sounds on sensing vehicle headlights so as to frighten off the owls.

The ornithology group is fairly active as ever and walks are now drawing in the botanists too. Impressive progress is being made at Imber Church, attracting a few thousand visitors a year when the roads are open. A new gate and some tree planting are planned for this coming year.

A long-term detailed study by Iain Perkins, examined the fairy shrimp *Chirocephalus diaphanus* to determine optimal habitat requirements and distribution on Salisbury Plain, and examined three potential passive dispersal mechanisms, vehicle, animal and wind. Using a series of field experiments to determine whether military vehicle activity does contribute to the distribution and dispersal as has long been believed. The study concluded that the primary role of military vehicles is pond creation and maintenance of suitable pond habitat (i.e. formation of larger ponds through repeated track use) whilst the eggs of



A pair of dayflying cistus forester moths feeding on horseshoe vetch common to SPTA © Crown

Chirocephalus diaphanus can also be dispersed by animals and the wind. These findings may assist in the conservation of the species in the advent of future land management changes and global climate change.

Finally, there has been universal approval of the return of Sanctuary in hard-copy and delight that one of our members, Miles Hodgkiss provided the wonderful picture on the cover last year.

Lt Col (Retd) Mike Jelf
and Sub-Group Leaders



Fairy shrimp © Dave Ovendon



Wiltshire

Larkhill and Westdown (31)

Central Salisbury Plain is looking stunning - the limited amount of training with heavy armour, a shortage of artillery ammunition and some real weather has encouraged the habitat to flourish, the flora to blossom and the countryside to come through the spring rich and abundant.

We have been lucky to 'recruit' one of the planet's great enthusiasts to head-up our Botany sub-group; he is educating us all in the vital need to protect and cherish the stretches of Chalk Heath we have - this nationally rare habitat covers approximately 15 hectares of the Plain and is home to a variety of plants that normally only thrive in slightly acid soil (calcifuges) as well as those only found in alkaline chalk soils (calcicoles). The sub-group has undertaken to carry out a number of surveys in the central region to establish whether or not our colonies of burnt-tip orchid *Orchis ustulata*, early gentian *Gentianella anglica*, bell heather *Erica cinerea*, ling *Calluna vulgaris* and tuberous thistles *Cirsium tuberosum* have survived.

Our bird ringing teams and butterfly surveyors have continued their hard work. The former, among many tasks, have watched over our colony of nightingales (as the population countrywide is in decline ours is growing) and the latter monitored the thriving population of marsh fritillaries (another of our rare residents). This has highlighted the need for sub-groups to consult and compromise; in this case between clearing scrub to encourage the fritillaries and providing the gorse and thick undergrowth preferred by the nightingales.

Our ringing records over the last seven years are now clarifying trends - this year even fewer swallows seemed to have returned from Africa but most of our summer warbler visitors have done. The willow warbler, first ringed in 2005, is holding his own as our oldest visitor.



Willow warbler © Iain Perkins

The high numbers of returning warblers, whitethroat, chiffchaff and blackcap have illustrated the importance of maintaining the isolated areas of hawthorn, gorse and bramble scrub.

Our residents fared better than we had expected, sadly the owls, robins (down 40%) and stonechats suffered badly because of the harsh winter, but the wrens, dunnock, blackbird, song thrush and all the tit species held their own, with sufficient adults surviving to provide a good number of offspring.

Unfortunately we have lost a number of key people over the year - our bat, entomology and bee group leaders have moved on; we still don't have a badger sub-group leader and our main get-together of the year has had to be postponed because of training priorities. However the group is growing and looking forward to another year of doing our small bit to protect the rich heritage on our doorstep.

Brian Nicol
Secretary Larkhill and Westdown
Conservation Group



Burnt tip orchid *Orchis ustulata* © Stephen Davies



East Yorkshire

DST Leconfield Carrs (32)



RAF Memorial Garden © Mike Fairfoot

It has been another interesting year ornithologically. Spring records included a red kite and more than 1,000 golden plover. There were also occasional records of other wading birds such as whimbrel, green sandpiper and snipe. As the weather improved more of the summer migrants arrived and Leconfield played host to a good selection of insect eating birds including: willow warbler, chiffchaff, reed warbler, sedge warbler, blackcap, whitethroat, lesser whitethroat, spotted flycatcher and sand martins. Leconfield also maintained its healthy populations of stock dove, reed bunting, bullfinches, goldfinches and linnets. Scarcer species also maintained a presence on the base, including barn owl, tawny owl and jay.

On the negative side Leconfield ceased to host hunting marsh harriers from a nearby breeding site, which are presumed either killed or displaced by the winter of 2010/11, and may have now been replaced by the arrival of a pair of buzzards this year.

Wintering wildfowl included 17 greater white-fronted geese, a pink-footed

goose, two snow geese, three Canada geese, a black swan and a male goldeneye, along with the regular gadwall, wigeon, mallards, teal, pochard and tufted duck. Unlike many other locations Canada geese are scarce at Leconfield and although the snow geese may have been from wild stock, the black swan certainly wasn't.

On the 29 November Tim Cowley spotted six little egrets at the Catchwater Drain which is a significant inland record for East Yorkshire.

At the beginning of the Winter season a young short eared owl moved in, quickly establishing his new territory with some fairly fierce disputes with our resident barn owls. Thankfully all of them seem to have settled down and are tolerating their neighbours.

The Memorial project which was created to commemorate 70 years of the Military Services at Leconfield, was officially opened in September 2007, by Sir Stephen Dalton (then RAF Pers, now Chief of the Air Staff). At that time the garden had been planted up with special red white and blue grasses, and a large roundel of red, white and blue

pansies kindly donated by Coletta and Tyson, one of the project sponsors. This looked superb and Sir Stephen commented that this was clearly visible to him whilst doing a victory roll over the memorial in a Tiger Moth aircraft in World War II colours, prior to landing to conduct the ceremony. This was the first fixed wing landing at Leconfield for 26 years.

On Remembrance day, it has now become traditional for a special ceremony of remembrance to be held at the Memorial. Whilst the grasses and the rest of the planting still look very nice, the roundel had, over time, reduced to a circle of bare earth.

The DST Welfare Grants Committee kindly approved a request for coloured stones to re-create the roundel in all its glory, but without the high maintenance of replacing plants. Three steel metal bands were manufactured to keep the colours from mixing, and membrane placed underneath to prevent weeds from coming through. The end result looked impressive, but has yet to be checked upside down from a Tiger Moth!

Alan Bakewell MCMI and Maj (Retd) Tim Cowley
DST Leconfield Carrs



Short-eared owl adorns the signage © Tim Cowley



North Yorkshire Strensall (33)



Strensall Military Training Area © Crown

Strensall Training Area is located on the outskirts of the city of York and as such experiences a considerable amount of public access. The Strensall Common Act of 1884 allows the use of the training area for recreation and exercise when the site is not being used for military purposes. This right has potential to conflict with military training, a positive and proactive approach to manage the access has been taken by the Commandant of the site. Working with key partners including Natural England, DIO and Landmarc Support Services a bid was



New way-marked walk signage © Crown

made to the Rural Elements of the Estates Strategy (REES) funding stream to enhance and create a series of way-marked walks.

Planning for the access enhancement project commenced in summer 2011. A series of four way-marked walks of varying length and deviation were agreed by all parties including the Strensall Conservation Group. Way-marking and surface improvements were completed in March 2012. To complement the work on site, an access leaflet and interpretation panels have been completed. The walks provide a managed access route enabling the general public to enjoy the spectacular lowland heath habitat in a safe and sustainable manner.

Our wetland habitats on the training area are a key notable feature especially the Kidney Pond which supports a varied and interesting aquatic flora and fauna. However natural succession has reduced the

surface area of the pond. A new pond adjacent to Kidney Pond was completed spring 2012, again using REES funding. This new pond is part of the natural environment succession planning and will develop into a valuable conservation asset over the coming years.

The Higher Level Stewardship scheme continues to deliver environmental benefits to enhance and maintain the conditioned status of the site. Grazing by Hebridean sheep assist in the prevention of silver birch encroaching and overshadowing the heathland.

Strensall Training Area is a site that all parties involved in its management should be justifiably proud. Excellence is delivered in military training and environmental outputs.

Graham Newcombe
DIO Senior Estate Surveyor





Cyprus

Sovereign Base Areas (34)



Injured vultures in the sanctuary in Nicosia © Pantelis Charilaou

The last griffon vulture colony in Cyprus is located at Episkopi in the Western Sovereign Base Area (SBA), with the last few breeding pairs nest at Tunnel Beach and Zapalo, with the total wild population of less than 15 birds. The SBA Administration (SBAA) supports a protection program led by the Game Fund, Forestry Department and Birdlife Cyprus. This includes nest monitoring, re-introduction of birds from Crete and establishment of feeding stations to secure a safe food source for the species.

The department work in conjunction with the Game Fund of the Republic of Cyprus to take in and rehabilitate injured birds at their sanctuary on the outskirts of Nicosia. Nikos Kassinis of the Game Fund plays a very active part in this relationship: *"The Game fund works closely with the SBAA, the Wardens and the SBA Police; so when a report of an injured bird comes in, we can respond quickly and recover it to the sanctuary."*

A new 'Bat Hotel' has been installed and is in operation up in the Troodos Mountains. The re-location was due to key roof repairs on the joint mess accommodation. A survey, carried out in September 2011, concluded that the building was highly likely to support

significant bat interest. Wing Commander Ken Pudney, the OC of the camp, was a key player in the organisation of this move. *"We have many species of bat here including some rare ones like the long-eared bat, and we take an active interest in the environmental impacts of this station"*. A monitoring system will be put in place to assess the success of the operation.

Thomas Hadjikyriakou is the manager of the Environmental Education Centre in Akrotiri, which has the Salt Lake located on its doorstep. The Salt Lake and its surroundings as well as the whole of Akrotiri Peninsula are very important, not only for wildlife, but also for the local population who use the reeds that grow here for soft basketry. There is also vast potential for eco-tourism, education and research. Local school groups have been visiting the Centre under the Cyprus school curriculum with ever increasing regularity. The Centre proves a mecca for wildlife enthusiasts who regularly drop in to use the facilities, which include a viewing platform on the roof.

The Centre also participates in European exchange programs focusing on environmental, historic and cultural

aspects. The current accommodation is temporary and recently plans have been approved to construct a purpose-built permanent building which will enhance the role of the Centre.

The Environment department uses the Centre as a focal point for the promotion of research in collaboration with Cyprus and UK universities. Research opportunities are identified in environmental plans for designated sites such as Akrotiri Peninsula, with a view to fill knowledge gaps and support the management process for important features.

Samantha Wylie
SBAA Environmental Assistant



Nikos Kassinis and a warden at the sanctuary in Nicosia © Samantha Wylie



Falklands

British Forces South Atlantic Islands (35)



Rockhopper penguin © Roy Smith

Another busy year! August to September saw the Group making several trips to Middle Island in Choiseul Sound to collect blue grass. This was in support of Falklands Conservation's (FC) initiative in helping replant both blue grass and tussac grass in a number of de-mined areas around Stanley recently cleared after the 1982 Conflict. The members then help FC replant the grasses.

The September event supported Worldwide Beach Clean Day - by walking a local Ramsar site - Bertha's Beach - that BFSAI retains stewardship of. Thankfully the beaches that face the South Atlantic remain very much clear of detritus so we just enjoyed a wonderful walk to the gentoo penguin colony with a little litter picking on the way.

Climb Mount Osborne; that was October's adventure! As the highest peak in the East Falklands at 705m, Osborne just trumps Mount Adam on the West by 5m. The Group, led by Leila Griffiths accompanied by James Fenton FC's CEO, drove off road to the base before gallantly braving strong winds

encountered near the summit in an unsuccessful search of an elusive strap fern. Attempts were made too, to visit the site of a crashed F4 Phantom but the weather beat everyone and the ramblers returned to the warmth and serenity of their vehicles.

November's trip to New Island was delayed until early December. Never a place to disappoint, New Island is as dramatic as it is magnificent with the rookery of rockhopper penguins, imperial cormorants and black browed albatross providing perfect opportunities for watchers and photographers alike.

The Falkland Islands are home to around 70% - nearly 400,000 pairs of the world's population of this species of albatross - known locally as "*mollymawks*". With a pure white head and delicate - almost airbrushed - black line over and through the eye creating the "*black brow*" the bird has a yellow and pink hooked bill and large webbed grey/pink feet. Ungainly and clumsy on the ground but wonderful and supremely talented in the air, these birds have a wingspan in the region

of 2.5m. The adult pairs display true affection for one another preening and caressing each other while nesting and raising their young. They lay a single egg which is four times the size of a chicken's in a nest that is reused each year. Their nest consists of a solid pillar of guano and mud that may reach 50cm tall.

Throughout much of the New Year, the Group has been running whale watching trips into Berkeley Sound. Pods of sei whales can be seen with occasional Minke whales making an appearance. The trips include visiting the sea lion near Kidney Island and the penguin covered cliffs at the foot of Mount Low.

We look forward to promoting conservation and the enjoyment of wildlife and scenery of the Falklands.

Roy Smith
Theatre Environmental Protection Officer



Imperial cormorant © Roy Smith



Black browed albatross © Roy Smith

Secretariat

Secretariat maintains the long-term strategy for the estate and develops policy on estate management issues. It is the policy lead for sustainable estate. The Directorate is responsible for Sanctuary Magazine.

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Defence Infrastructure Organisation Environmental Advisory Services

The Environmental Advisory Services (EAS) provides professional ecological, archaeological and planning support to the MOD. EAS acts as a focal point for all environmental needs and enquiries across the Defence estate providing a dedicated team of professional experts in a variety of environmental disciplines.

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EAS Access and Recreation Team

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Defence Training Estate

The Defence Training Estate is responsible for the provision of safe and sustainable facilities for the delivery of military training across the United Kingdom. This now includes most of the ranges and training areas formerly managed by the Royal Air Force and Royal Navy.

Headquarters Defence Training Estate

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Rifleman Davey Averill cleans an animal skull excavated from the burial mound at Barrow Clump as part of Operation Nightingale © Corporal Kellie Williams RLC

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Submissions

If you would like to contribute to Sanctuary Magazine or enter future Sanctuary Awards please contact Clare Backman, Editor at: DIO-Sanctuary@mod.uk



The skeleton of a 6th century male from Barrow Clump, complete with a wooden and bronze drinking vessel onto which an iron spearhead has been placed © Corporal Kellie Williams RLC



Ministry
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