

SANCTUARY

Number 34



THE MINISTRY OF DEFENCE CONSERVATION MAGAZINE



Foreword

The Rt Hon John Reid MP
Secretary of State for Defence



Front Cover:
King Penguins, Falkland Islands
© Andy Rouse/Getty Images

The King Penguin has its most northerly breeding colony on the Falkland Islands. Volunteer Point is home to between 200 and 300 birds which is a tiny fraction of the colony sizes found further south where they can be around 250,000 strong. They are arguably one of the most beautiful penguins, and their weatherproof and insulating plumage makes them ideally suited to life on these rugged and beautiful islands. King Penguins remain in their rookeries year-round and MOD patrols regularly encounter them alongside the other three penguin species that call the islands their home.

Earlier this year, the Government published *Securing the Future*, its strategy for Sustainable Development. The strategy commits all Government Departments to protect and enhance the environment and to consider the wider social and economic impacts of their activities in their policies, plans and projects.

The Ministry of Defence has long been committed to achieving a sustainable estate. The maintenance of the UK's defence capability relies on having continued access to an estate that supports military training. This training enables our servicemen and women to carry out operations to the standard of which we are all so rightly proud. The successful completion of the Defence mission is therefore totally dependent on having access to first class facilities that are sustainable into the future.

For that reason, we are already making real progress in integrating military training and estate development with our responsibilities for natural and cultural heritage and for public access to the estate. But the *Securing the Future* strategy is helping us to redouble our efforts. We are building on our close relationship with the statutory nature conservation and heritage bodies, other government departments and a wide range of partners to ensure that our land management processes and procedures reflect the very best practice.

Finally, I would like to take this opportunity to record my thanks to the hundreds of volunteer members of Ministry of Defence Conservation Groups who support us in so many ways. Regular readers of *Sanctuary* will know the important contribution that these people make from their reports in *Around the Regions*. In this year, the 'Year of the Volunteer', their enthusiasm has not faltered and I am very grateful and impressed with their dedication and results.

I hope you enjoy reading this edition of *Sanctuary*.

The Rt Hon John Reid MP
Secretary of State for Defence

Welcome to SANCTUARY

FROM VICE ADMIRAL PETER DUNT CB

Welcome to *Sanctuary 2005* and to the most varied and highly designated estate in the United Kingdom. Defence Estates is the Ministry of Defence's land and property organisation, delivering construction and maintenance services for the Armed Forces and associated Defence Agencies. The greater part of our £1.1bn annual budget is spent on maintaining and improving defence buildings and military structures on the estate. But, as the Secretary of State points out in his Foreword, a key task is to integrate the Government's overarching objectives for sustainable development into our decision making and management - and at the same time ensure that we continue to deliver defence capability.

The Secretary of State noted that this is the *Year of the Volunteer* and I want to acknowledge the work of the Conservation Groups with my thanks. Volunteering is dedication and I was particularly struck with the commitment shown by Major Nigel Lewis and the Imber Conservation Group with their Owl and Raptor Nestbox project. The results of 25 years of effort are outstanding, and I am pleased they have been recognised by the Sanctuary Award Board. On a sad note I have recently heard of the death of Bob Glover of the Foulness Conservation Group. His photographs of the birds of Foulness Island appeared in many copies of *Sanctuary* and his colleagues will miss him.

Scientific and technical articles from our ecologists, members of Conservation Groups, staff in Universities and Museums, and colleagues in the statutory bodies and non-governmental organisations are a key component of *Sanctuary*. In this way we get fascinating reports on the unusual – the bugs of Castlemartin and insects on Lulworth, trees at Chicksands Priory, changes to the Samphire on the salt flats of the Wash and silt management at Bovington.

Paul Toynton, Defence Estate's first professional ecologist, retires this year but has found time to tell us about the re-introduction of the Great Bustard to Salisbury Plain. We wish Paul 'all the best.' And of course Andy Rouse's contribution is wonderful – I can feel the climate of the Falklands from here! I value the relationships we have with external organisations and individuals and encourage my staff to foster them.

The *Sustainable Development in Government* initiative is probably little known outside government circles. It includes a set of challenging targets for government departments covering the themes of energy, water, waste, travel, purchasing, estate management, biodiversity and social impacts (www.sustainable-development.gov.uk). So you will find articles on the Ministry of Defence Sites of Special Scientific Interest Condition Improvement Project, our response to the Countryside and Rights of Way Act and the Scottish Open Access Code, the potential impacts of climate change on biodiversity, and military heritage. Anyhow, I hope you like this new element – I am sure you will let the editor know if you don't.!!

My final thanks must go to the editor and to the designer for creating this edition. Caroline Frances-King picked up the task of finding material and editing articles for *Sanctuary* from April this year. Chris Roberts, the designer, works in the Ministry of Defence Public Relations Department. You have done a super job in bringing the estate to life in between these covers – dare I say it is the best yet?



Vice Admiral Peter Dunt CB
Chief Executive Defence Estates

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Sanctuary Magazine 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 through its policies and their subsequent implementation. It is designed for a wide audience, from the general public to the people who work for us or volunteer as members of the MOD Conservation Groups.

It is produced for the MOD by Defence Estates, the land and property agency of the MOD.



Submissions

Guidelines for contributors can be obtained by e-mailing the editor at: Sanctuary@de.mod.uk
Editorial proposals should be e-mailed to the editor.

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CONTENTS

Regulars

- 1** Welcome to Sanctuary
- 4** The Sanctuary Awards

Features

- 6** The meaning of LIFE
- 18** Access opportunities on the Defence Estate
 - Epynt Way - Haunt of the Horse
 - Public access at Warcop - a new approach
- 26** Trafalgar - a mighty battle, a mighty outcome
- 42** For Queen and Countryside
 - The Drigg Coast SSSI at Eskmeals, Cumbria
 - Heathland restoration at Ash Ranges
 - SSSI Awards for MOD staff at Otterburn and Warcop
- 50** The potential impact of climate change on biodiversity in the UK
 - Climate change and the MOD
- 70** The heritage of military aviation
- 74** The Falkland Islands a unique perspective

On the Defence Estate

- 12** Treasures of the 'finely moulded downs'
- 14** The return of the Great Bustard
- 24** Marvellous mini-beasties of the Dorset Heathlands
- 30** Martello Tower restoration
- 32** Chicksands - a haven for notable trees
- 34** The Iron Age at Castlemartin

- 36** Dynamic dunes - bare sand and rare bugs
- 38** Marsh Fritillaries on the Castlemartin Ranges
- 40** Salt marsh and sand flats a-wash with Samphire
- 41** Take nothing but photos
- 49** The Sandbowl Snail
- 54** Batty about old bunkers
- 56** A surfeit of silt
 - Sediment on the move
- 60** Woodbridge Airfield re-development works
- 62** Keeping the fairways green
- 64** Lakes - a practical solution to a watery problem
- 67** Raptors and Owls on Salisbury Plain
- 68** Operation Kittiwake
- 73** MOD Biodiversity Day 2005

International Reports

- 78** Expedition to the heart of Australia
- 80** The birds of Pera Marsh
- 81** Protecting the rare species of Cyprus
- 82** Eleonora's Falcon breeding sites in Cyprus
- 84** A 'Green Machine' in Germany

Around the Regions

- 86** Conservation Group Review
- 87** Conservation Group Reports



The aim of the Sanctuary Awards is to encourage group and individual efforts that benefit wildlife, archaeology, or community awareness of conservation on land that the MOD owns or uses, in the UK or overseas. All projects, big or small, are given equal consideration.

As a mark of recognition the winner holds the Silver Otter Trophy for a year and receives £500 to support further conservation work. Runners-Up receive £250 and Highly Commended entries receive £150.

SANCTUARY AWARDS

The Sanctuary Award Board

The Board members for 2005 were Martin Coulson, DE Estate Strategy and Policy, Keith Maddison, DE Operations Directorate, and Marcus Yeo, Director of Resources and External Affairs of the Joint Nature Conservation Committee. Marcus had assisted in the judging for the 2004 awards.

The judges thought that the applications were excellent. The spread of topics covered MOD's work relating to nature conservation, public access and heritage protection. After much discussion by the Board it was proposed that there should be one outright Winner, joint Runners-Up and one Highly Commended award this year.

The Winner

The winner for 2005 is 'The Epynt Way', Sennybridge Army Training Area. This is an imaginative project to construct a 90 km permissive bridle path to encircle the Sennybridge Army Training Area in mid-Wales. The great majority of the route is now open, with some sections suitable for disabled people.

The Board was impressed with the scale of the achievement, in particular the way in which MOD staff and volunteers have worked together to mobilise and co-ordinate land access and financial resources provided by local and regional stakeholders. The Epynt Way provides links between existing paths that currently stop at the MOD boundary. This has created a new series of circular routes. The project will enhance tourism in this under-developed area and will provide benefit to the local economy.

The Board thought that the environmental, social and economic outcomes from this project will be long lasting and had no hesitation in awarding it the coveted Silver Otter Trophy as outright winner. (See *The Epynt Way* – *Haunt of the Horse* page 22.)



Far reaching views from the top of the Epynt Way
Andrew Linnett, Crown Copyright



Andrew Linnett, Crown Copyright

The Epynt Way



Finger post showing the Epynt Way, bridle path and no entry area
Andrew Linnett, Crown Copyright

Runners-Up

A joint award is made to both the Imber Conservation Group - with special mention of Major (Retired) Nigel Lewis - for the Raptor and Owl Nestbox Project, and to the Lulworth Conservation Committee for their achievements in Heathland Restoration and Heritage Protection.

Raptor and Owl Nestbox Project

The Board was impressed by the dedication and sheer hard work that has gone into the Raptor and Owl Nestbox Project. It has made an enormous contribution to wildlife in north Wiltshire. Major Nigel Lewis conceived the project in 1983 when he was serving in Warminster Garrison. He realised that Salisbury Plain was a habitat rich in small mammals but short of suitable nesting sites for the predators. He has led a team of volunteers who, over the years, have converted unusable wooden ammunition boxes into nests to replicate hollow trees. There are today some 300 boxes on Salisbury Plain on MOD land, and some 500 others on private land surrounding the Plain. The boxes have been maintained and his meticulous records show a very significant increase in breeding pairs and chicks. In 1987 he recorded one Barn Owl with three owlets. In 2003 he recorded 73 breeding pairs and the 1,000th owlet was ringed. The records now cover Barn Owls, Tawny Owls, Little Owls and Kestrels. The Board is conscious that Major Lewis is modest about his achievements and is delighted to recognise them through this award. (See *Raptors and Owls on Salisbury Plain* page 67.)



Major Nigel Lewis and Barn Owl
Sgt Jim Hennessey



Stoborough Heath, Lulworth,
part of the Tomorrow's
Heathland Heritage Project
RSPB, DHP

Heathland Restoration and Heritage Protection

The Lulworth Conservation Committee has combined with some 13 partner organisations including English Nature, RSPB, the Dorset Wildlife Trust and Purbeck District Council to enhance the natural and historic environment of the Area of Outstanding Natural Beauty and Heritage Coast of the Lulworth Gunnery Range.

They have worked hard to make safe or convert buildings in the 'lost village of Tyneham' and make them interesting for visitors of all ages. They have also made great strides in improving public access to the adjacent Heritage Coast through the provision of a car park, amenity facilities and footpaths. Their work in conjunction with 'Tomorrow's Heathland Heritage' is particularly impressive. This has seen commercial plantations, self-sown conifers and scrub removed across the estate in areas that will restore the Site of Special Scientific Interest to favourable condition. Heathland is a particularly scarce resource and this project is a most valuable enhancement to the Dorset Heaths. The Board is keen that this dedication to stewardship and public access is recognised through a joint Runner-Up award. (See *Marvellous Mini-beasties of the Dorset Heathland* page 24.)

Highly Commended

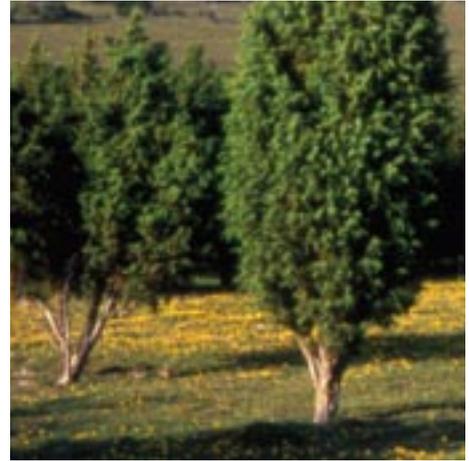


The Ramparts surrounding Bulliber Camp revealed *Cambria Archaeology*

A Highly Commended certificate is awarded to the Conservation Group at ATE Pembrokeshire for their work to get invasive scrub removed at Bulliber Camp, an Iron Age fort within the danger area of the range. It has probably been hidden from view under scrub for 100 years. Mark Tucker and the grounds maintenance team at Castlemartin discovered that

these extensive earthworks are in good condition, with very little disturbance by burrowing animals. Bulliber Camp is now 'on view' as a landmark in the middle of the range. Pembrokeshire Coast National Park Authority now includes it as part of a 'Range Walk' that takes place at weekends throughout the year. (See *the Iron Age at Castlemartin* page 34.)

The Sanctuary Award has traditionally been presented at the winner's establishment. It is expected that this will take place in October 2005.



LIFE:
L'Instrument Financier pour l'Environnement
or *The Financing Instrument for the Environment* is a European Commission programme, administered by the LIFE Unit of the Directorate-General for the Environment.



The Meaning of LIFE



The Salisbury Plain LIFE Project started in 2001 as a major four-year conservation restoration project, centred on Salisbury Plain in Wiltshire, and including Porton Down.

In 1916 Porton Down was purchased by the Ministry of Defence in order to research, at that time, the offensive and defensive uses of chemical weapons. Since 1956 Porton Down has researched only the defensive aspects of chemical and biological warfare in order to provide protection to the military and civilian population.

In the years after 1916, agricultural use of the land was almost entirely abandoned and so, to a degree, the landscape was frozen in the appearance of much of Wessex at that time. The tremendous advances in agriculture achieved during the 20th century did not take place over the majority of Porton Down and so it has become of outstanding, if not unique, importance for nature conservation. The lack of modern agricultural activity means that the prehistoric landscape has also been preserved, including many Neolithic, Bronze Age and Iron Age remains.

Many of the scientists, and others, who worked at Porton Down during its early years as an MOD site knew that the natural history it contained was special. A report produced by the Institute of Terrestrial Ecology in 1976 felt it was necessary to try to ensure that Porton Down's wildlife would be safeguarded for the future (Wells *et al.*). The ranges at Porton Down comprise 2,750 hectares (7,000 acres) of chalk grassland and

1,194 ha were designated as a Site of Special Scientific Interest (SSSI) in 1977. A further 325 ha were designated on 11 July 2000.

The Government has set a Public Service Agreement (PSA) target that 95% of SSSI land should be in favourable or recovering condition by 2010.

In order to begin to address the problems resulting from a historical neglect of suitable management, and the consequent assessment of areas of SSSIs as being in an unfavourable condition, a partnership was formed to apply to the European Commission for funding of a major wildlife restoration project. The partnership was headed by English Nature and includes Headquarters Army Training Estate, Defence Estates, Defence Science and Technology Laboratory (Dstl), Royal Society for the Protection of Birds (RSPB), Butterfly Conservation and the Centre for Ecology and Hydrology (CEH).

On 5 July 2001 English Nature was informed that the application had been successful, and funding was secured from the European Commission (EC) LIFE-Nature fund.

The project title is *Improving the management of Salisbury Plain Natura 2000 sites*. The EC has contributed 50% of the total project cost of £2,130,000 over four years, while the remaining 50% is matched funding from the other partners.

What did we want to do with our LIFE?

The main actions of the project, covering 1,227 ha of Porton Down, were designed to focus on conservation management for chalk grassland, Juniper, Stone Curlew and the Marsh Fritillary butterfly.

The major threat to chalk grassland is encroachment by the scrub which arose during the *myxomatosis* epidemic in rabbits during the 1950s.

- Twelve hectares of scrub were planned for removal to benefit chalk grassland, with re-growth targeted for topping and chemical re-treatment on 80 hectares
- Thirty-two hectares of scrub encroachment, which threatened Juniper stands, was earmarked for removal
- In order to provide suitable breeding habitat for Stone Curlew and reduce the harbourage of mammalian and avian predators, 16 hectares was to be cleared of scrub. In addition, five special semi-permanent breeding plots continue to be managed at Porton Down
- The range of the Marsh Fritillary butterfly has declined by 62% during this century and is continuing to decline by 10% per decade. The declines are occurring throughout its European range. There is a small population of this butterfly at Porton Down. ▷



WHAT IS THE MEANING OF LIFE?

Afforestation is also a significant threat, with 20 hectares of coniferous plantation and 20 hectares of self-sown pine planned for removal from Porton Down.

What have we done with our LIFE?

All of the major actions within the LIFE project are completed. Table 1 shows that all scrub and pine targets have been significantly exceeded within the four years of the project.

Table 1

Summary of LIFE project progress to January 2005							
Year	Scrub action			Scrub Total	Scots Pine*	Topping	Weed-wiping
	Grassland	Juniper	Stone Curlew				
2001/02	2.85	8.67	3.84	15.36	0	0	0
2002/03	2.85	9.65	5	17.5	10	25.5	0
2003/04	4.2	12.5	5.9	22.6	31	49	25
2004/05**	5	8	5.9	18.9	12	15	90
Totals	14.9	38.82	20.64	74.36	53	89.5	115
Project Target	12	32	21.1	56.1	40	40	40
% of Project Target Achieved	124	119	171	132	133	224	288

* Scots Pine figures include conifer plantation and Silver Birch removal
 ** Figures include LIFE plus additional work undertaken

LIFE project actions have led to the further development of techniques that will improve our ability to continue such management in a more efficient way. For example, at the start of the project the use of tractor-mounted flails was regarded as detrimental. During the first winter a 1-hectare area of dense scrub - which was likely to be expensive, time consuming and unpleasant to clear using chainsaws - was flailed. Six months after flailing the amount of woody debris present had declined significantly. By the following year the grassland appeared very similar to others on the site, rabbits having grazed it very hard. The use of the tractor-mounted flail has become accepted as the routine way of dealing with very dense scrub.



Left: Clearance of self sown pine
Stephen Davis, English Nature

Main picture: Juniper berries
Peter Wakely, English Nature

Top right: Dark Green Fritillary *Argynnis aglaja* at rest on Common Knapweed *Centaurea nigra*. The green and silver underwings are a feature of this spectacular butterfly
Stephen Davis, English Nature

Middle right: White Park cattle on Salisbury plain as part of the LIFE project
Paul Glendell, English Nature

Bottom right: Juniper stand at Porton Down
Stephen Davis, English Nature



An additional advantage was gained with its use in areas where there were patches of dense scrub such as Privet amongst the more usual Hawthorn. These patches increased the time taken to clear an area significantly. Using the flail to remove these patches produced scattered Hawthorn scrub which could then be removed rapidly by chainsaw operations. The flail has since been used to begin to open up some areas of impenetrable scrub, creating rides that will become superb butterfly, bird and mammal habitat.

The clearance of so much woody vegetation has resulted in major changes to the appearance of parts of Porton Down. Where scattered scrub or Scots Pine has been removed the chalk grassland appears, to the eye, as if these components had never existed. As density increased, the effects of removal are more obvious until, where very dense scrub was present for fifty years, we are left with an almost plantless soil covered with chipped wood.

Juniper

One of the major aims of the LIFE project was to examine the Juniper population with a view to establishing methods to halt its decline. No significant rejuvenation of Juniper has been noted on the site since the 1970s. Various studies were carried out including the sowing of 10,000 seeds in a trial where the seedbed had been treated in different ways. This has so far resulted in one Juniper seedling (named Jennifer) which was promptly a meal for a passing insect. I am still holding my breath for a more significant emergence but it is becoming difficult after three years.

A complete surprise arose in September 2002 when, examining an area earmarked for flailing to remove young scrub, a young Juniper was found. A subsequent survey found 67 plants aged between three and ten years in this area with another 77 in an adjacent area. Obviously rabbit grazing pressure had declined in these areas, allowing the germination and successful establishment of these plants. The reason for the decline in grazing has been determined as the proximity of a road in one area, with vegetation being less closely grazed nearer the road. The explanation in the other area has not been determined. The areas were re-surveyed in 2004. In this survey the position of all mature female plants

in the northern area was also recorded, using GPS. Rabbit grazing has moved into the southern area with the 26 remaining plants reduced to a central core. The area near the road has not suffered rabbit grazing, strengthening the opinion that the road is the reason for their occurrence.

The location of mature female plants is strongly associated with the presence of new Juniper. This is an important finding as previously it was thought that passage through the gut of a bird such as a Thrush may have been necessary to induce successful germination. If this was so, then knowing where to establish areas to encourage rejuvenation would have been very difficult. These results indicate that rejuvenation takes place amongst existing stands of mature plants, the seeds not always being widely dispersed. The more worrying conclusion is that we might have to build more roads to encourage Juniper!

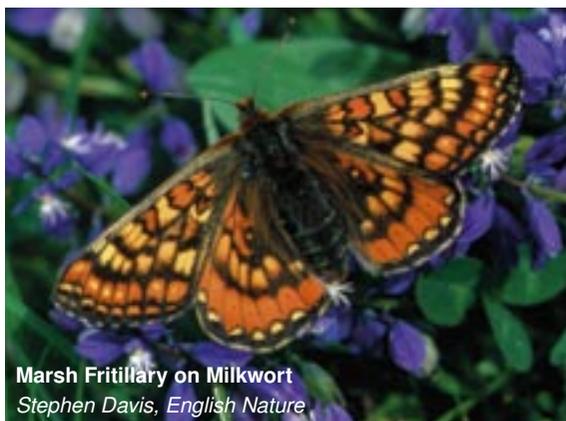
Removal of dense scrub was undertaken using a flail, as already discussed. As with many areas of the LIFE project, avenues for further research have become apparent. The removal of scrub which has been growing for 50 years, and has achieved a very stable situation of complete canopy cover resulting in little light penetration, a non-existent herb layer and sheltered conditions, was seen as a unique field of study. It was decided that an examination of Staphylinid and Carabid beetles, using pitfall traps, should be undertaken to ascertain the species present where this dense scrub was cleared, and the woody debris was, or was not, removed. Results were then compared with areas where scattered or no scrub was present. This 1-year study, involving the identification of 900 beetles, has yielded some fascinating results (Whitehead).

The dense scrub had supported an early-stage woodland fauna but, by May following the winter clearance, some grassland faunal elements had invaded the cleared areas. The grassland Carabids *Pterostichus madidus* and *Calathus fuscipes* were most common where the woody debris was left in situ. The Staphylinid beetles captured allowed comparison between different scrub types in terms of the number of species which specialise in the use of particular niches and, hence, are more common where more niches are present. Table 2 overleaf clearly shows this affect. ▷





Salisbury Plain SSSI
Stephen Davis, English Nature



Marsh Fritillary on Milkwort
Stephen Davis, English Nature



Marsh Fritillary eggs are yellow when first laid, but turn red then brown after a few days.
Peter Wakely, English Nature

Table 2

Scrub type and treatment	% of niche specialist species
Chalk grassland with no scrub	7
Scattered scrub removed 02/03	26
Scattered scrub removed 03/04	24
Dense scrub and debris removed 03/04	88
Dense scrub removed 03/04, debris in situ	65

It is hoped to continue this study to examine how the fauna develops towards one of chalk grassland in the continuing absence of scrub. This study has also indicated the value of scrub in a grassland matrix, increasing the biodiversity of the site. Such data is increasing our awareness of the effects of scrub removal and indicating that we must, during the planning phase, take fully into account the type and amount of scrub that we clear.

Stone Curlew

Over 20 hectares of scrub have been removed specifically to benefit Stone Curlew at Porton Down. Indications of the success of these operations became clear in 2004 during which 15 pairs made their first attempt to breed on downland, three more than in 2002 and 2003 (RSPB 2004). The original aim of the LIFE project action for Stone Curlew was to completely clear large areas of scrub. Intensive monitoring by RSPB is leading us towards an approach which takes more account of the value of scrub to Stone Curlew as cover. Future scrub removal planning will take this into account, leaving small areas of open scrub which will not become cover for predators.

Marsh Fritillary butterfly

Two declining butterfly species have benefited directly from LIFE project actions. The Marsh Fritillary population at Porton Down is low and, until 2003, its larval haunts were not known. Butterfly Conservation, in a survey of the site, discovered its location and the fact that larvae appear to be utilising Small Scabious instead of the more usual Devil's-bit Scabious. Management operations have now taken place to improve this area which was becoming invaded by scrub. Removal of a section of coniferous plantation in 2004/05 will increase habitat for another threatened species, the Pearl-bordered Fritillary. Porton Down is one of only two sites left in Wiltshire where this species still occurs.

Wildlife has not been the only beneficiary of LIFE project actions. In 2004 a section of an archaeological earthwork was cleared of scrub and Scots Pine, turning what had been a tangled mass of woody growth into a clearly visible monument 1km in length. A detailed survey of this earthwork is now planned.

Most of the practical work undertaken during the LIFE project at Porton Down has been completed by the contractors Wessex Woodland Management Ltd. On a site such as this it is essential that the operators understand the constraints imposed by military operations taking place and the sensitivity of much of the habitat present. Throughout the project communication with the manager, Chris Denton, has been superb and this has led to careful but efficient operations producing exactly what the LIFE project required.

The afterLIFE?

A legacy of Dogwood and Privet re-growth means that weed-wiping will be a major preoccupation for many years to come if we are to eventually achieve chalk grassland in good condition over a large area of Porton Down. Scrub removal which took place a

decade or more prior to the LIFE project was not always followed by stump treatment and a lot of the scrub cleared in the last four years was re-growth from this time. In order to prevent this happening again it is essential that management of areas improved by the LIFE project continues beyond 2005.

The rabbit population holds the key to future management requirements on the site. Fluctuations in the population occur despite the generally huge numbers present. This has been highlighted by the rejuvenation of Juniper in some areas and the changes seen in vegetation types over the last decade. We accept that this is a natural phenomenon and that the resultant changes add to the diversity of the site. However, such unplanned changes mean that prescriptive plans for the longer term may not meet future needs. Being reactive to current situations is part of what has made this LIFE project very interesting and enjoyable.

The historical and current land use of Porton Down has resulted in landscapes and wildlife almost unique within the UK. This, together with the recognition of their value to present and future generations, has been appreciated for many years by those with any knowledge of these areas. It is now realised that management by man is necessary to maintain the habitats for which Porton Down is famous. This has led to a drive for the provision of sufficient resources to enable management operations to take place so that favourable conditions can be achieved or maintained.

The successful request for funding from the European Commission, together with equivalent funding from the project partners, has resulted in the opportunity to begin to undertake these operations. The four years of the LIFE project must be seen as a priming mechanism for very long-term correct management of these important parts of the Defence Estate.



Delegates on the LIFE conference at Porton Down
Crown Copyright

Acknowledgements

The success of the project at Porton Down is due to a large number of people to whom thanks are due. They include all members of the LIFE project team at Westdown Camp, all of the project partners, the contractors who carried out works and the staff of Dstl Porton Down.

Stuart Corbett, Dstl

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End of LIFE Conference

The end of the LIFE project was recently marked by a conference held at Bath University between 17-19 August. The Restoration and Management of Chalk Grasslands in Europe conference was attended by 135 delegates from 15 European countries. Delegates had the opportunity to visit Salisbury Plain and Porton Down to see the practical work undertaken by the project. A series of presentations covered a wide range of issues concerning chalk and limestone grasslands across Europe, from France to Bosnia, and Finland to Slovenia. This was a marvellous event and truly proved Salisbury Plain and Porton Down to be of outstanding international importance.

Stephen Davis, English Nature, LIFE Project Manager

A new LIFE for Beacon Hill

Chalk grassland and Juniper conservation work



Pine and scrub clearance on Beacon Hill, March 2005
Stephen Davis, *English Nature*



Beacon Hill 00 Crossing before scrub clearance...



...after works, showing the scattered Juniper bushes
Hanna Etherington

Beacon Hill, with its north-westerly facing scarp slope, lies to the south-east of the Army Training Estate Salisbury Plain (ATE SP). It is an important SSSI with a large population of Juniper which, along with that at Porton, is noted in the SSSI citation as being the “best remaining example of the lowland type of Juniper associated with chalk and mixed scrub in England.”

There are approximately 14,000 Juniper bushes, mainly restricted on ATE SP to Bulford Ranges and Beacon Hill. The area is also a good example of one of the few Sheep's Fescue *Festuca ovina* grasslands on the Plain. These grasslands are typical calcareous grasslands, with stress-tolerant plants on thin, nutrient poor soils. The area is rich in herbs, supporting a huge array of invertebrates and a number of declining bird species including Skylarks.

Chalk grasslands have suffered huge declines, mainly from agricultural changes, but also through the natural process of succession to scrub communities. Sensitive management is therefore important if these remaining habitats are to be conserved.

The Juniper is threatened by encroaching scrub and lack of regeneration,

with a single-age cohort of bushes of 25 to 50 years old. The lack of regeneration is due partly to grazing by rabbits which prevents the establishment of seedlings.

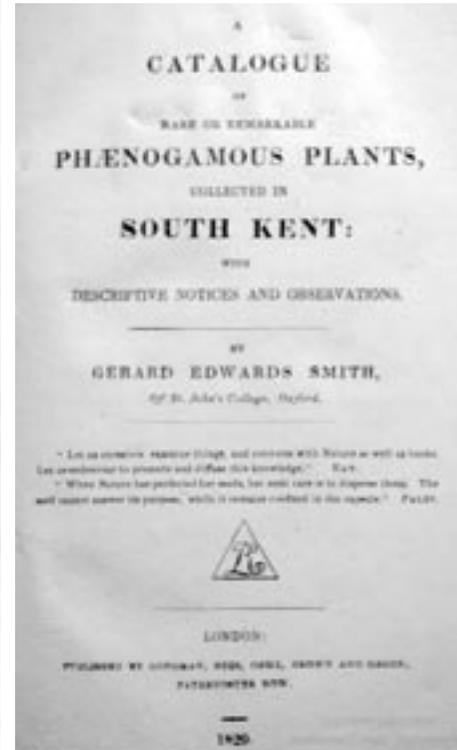
An updated management plan (July 2004) identified all of the management issues, including the military training requirement, nature conservation, archaeology, woodland management and landscape. An additional reason for undertaking the conservation work was the presence of a number of fine examples of WWI training trenches which were being obscured in part by scrub encroachment, and liable to suffer potential damage from wind-blown pine.

The management included the removal of scrub including Privet and Blackthorn and the felling of a large number of Scots Pine. Unfortunately, for many practical reasons, it was not possible to identify a market for the timber and consequently all cut vegetation was burned. Management also includes the establishment of a number of rabbit enclosures within which it is hoped that Juniper seedlings will be able to establish.

This work has brought the area one step closer to realising the long-term aspiration of an open grassland landscape with a mixed-age cohort of Juniper on Beacon Hill.



Early Spider Orchid
Peter Gay



Treasures of the 'finely moulded downs'

Cinque Ports Training Area

In the early 19th century, when parsons ranked among the country's leading botanists, a Kentish rector, Ralph Price, encouraged the young Gerard Edwards Smith of Sandgate to take an interest in the flora of the chalky hills and meadows surrounding his parishes. These were Lyminge and Paddlesworth, on the hills above Folkestone in south Kent.

Smith took to the task with such enthusiasm that in 1829, at the age of 24, he produced *A Catalogue of Rare or Remarkable Phaenogamous Plants Collected in South Kent*. This was a 90-page booklet with five

hand-coloured prints which, by chance, covers much of the Cinque Port Training Area (CPTA) from Hythe to Dover and is even today an accurate guide to its flora.

The Reverend Ralph Price had charge of two historic churches, the old Minster of St Mary & St Ethelburga at Lyminge, and St Oswald's at Paddlesworth. It was probably on pastoral treks to the tiny church of St Oswald's, 600 feet above sea level in the heart of CPTA country, that Price showed Smith some of the rare orchids that occur on the chalky downs - for their route would have taken them along the ancient track through Shuttlesfield

coomb, a CPTA Site of Special Scientific Interest (SSSI) with colonies of Bee and Late Spider Orchids and Adonis Blue butterflies.

With his interest stirred, Gerard Smith began to explore the chalk downs closer to his Sandgate home, finding and recording the Bee and Late Spider Orchids in scattered colonies above Folkestone. But it was a little to the west that the major prize lay. There, waiting to be discovered on ancient south-facing meadows, on the crest of what Smith called "the finely moulded downs between Newington and Lyminge" was the only site in the country where all four British species of *Ophrys* orchids

occurred within sight of each other – the Bee, the Fly, the Early and the Late Spider Orchids.

Today the downs, once used for anti-tank and mortar training and now known as the Arpinge Ranges, are a carefully protected CPTA Special Area of Conservation (SAC) indented with deep coombs formed by snow melt during the last ice-age. Below the hills a rich calcareous bog helps feed the tiny Seabrook chalk stream, home to a recently discovered colony of native White-Clawed Crayfish.

All four *Ophrys* orchids still occur at Arpinge, with varieties or perhaps hybrids which are as intriguing as those described by Gerard Smith in his catalogue almost 180 years ago. Nine other species of orchid, including the Man and Greater Butterfly, can be found on the downs and in Asholt Woods below.

Asholt is another SSSI recently taken under Army Training Estate's south-east wing on a long hiring agreement, and is now being sensitively coppiced, revealing carpets of Bluebells, Bugle, Common Spotted and Early Purple Orchids. These are thriving on the gault clay, a curious surface with the consistency of glue when wet but prone to ankle-twisting cracks during a drought. Bee Orchids flower on the rides and Greater Butterfly Orchids on the embankment of the old Elham Valley railway.

Two flowers recorded by Gerard Smith from the bog at Arpinge, but not seen for many years, may yet reappear thanks to recent scrub clearance by Defence Estates: the lovely Marsh Helleborine and Marsh Lousewort, or Red Rattle as it was once more sympathetically known. Smith also commented on the great hedges of Bullace or Wild Plum which ring the hills and still crop heavily in good years – a blue haze of fruit in the autumn sunlight.

In woods "near the turnpike" to the north of Folkestone, Smith noted Herb Paris. He was probably referring to the CPTA's Reinden Wood where it still thrives today close to fine colonies of Toothwort on the roots of Hazel, and Lady, Greater Butterfly and Fly Orchids, all carefully fenced off to protect them from manoeuvres.

Whilst best-remembered for his descriptions of the chalk flora, Smith reserved his most lyrical prose for the exotic growth he encountered on the less alkaline Sandgate, Hythe and Folkestone beds above the banks of the Seabrook Stream near Dibgate Camp, yet another SSSI within the CPTA.

Here, in the warm south facing valley, he described Great Tufted Pendulous Sedge up to eight feet high (240cm), growing in woodland clothed with Golden Saxifrage

and fringed with Gladwyn, a more polite old English name for Stinking Iris.

Living as we do in an age when the early flowering of familiar plants is often considered evidence of global warming, it is interesting to note from Gerard Smith's records that even in the cold 19th century some plants ignored the rule book.

His records include Yellow-Wort or Blackstonia in flower on 3 January rather than June, Early Spider Orchids fully open in mid-March and Bee Orchids in mid-May, both a month early.

What emerges most vividly from Smith's flora is how little the East Kent landscape of fields, hedgerows and woods has changed over the past 180 years - a point often made today by Dr Francis Rose (the nationally renowned scientist and field naturalist) - and how so many of the most important botanical sites are now in the care and protection of ATE SE.

Peter Gay

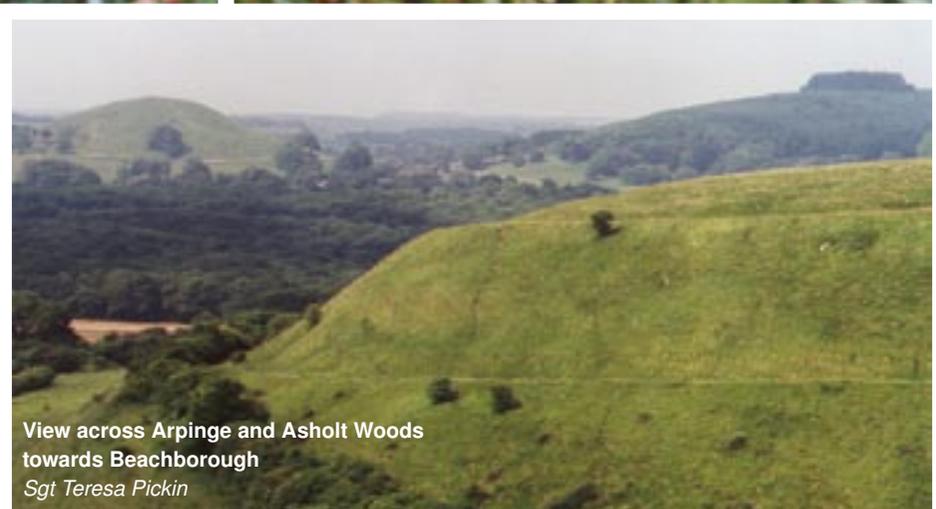
Peter Gay is a former member of the Diplomatic Service. He has been a CPTA Conservation Group member for 25 years and is a member of the Botanical Society of the British Isles.



Pyramidal Orchid and Late Spider Orchid
Peter Gay



Late Spider Orchid
Sgt Teresa Pickin



View across Arpinge and Asholt Woods towards Beachborough
Sgt Teresa Pickin

the return of the
Great Bustard
Flying high over Salisbury Plain

Great Bustards bred in Britain until the middle of the 19th Century with the last stronghold being Salisbury Plain. It is thought that the main reason for their disappearance as a breeding bird was due to hunting and intensification of agriculture.

A captive breeding programme at Porton Down in the 1970s failed to produce any young and the last bird from the attempt died at Whipsnade Wild Animal Park in 1999. After this, the idea was kept alive mainly through the enthusiasm of Dave Waters, who had helped at the Porton site. He now put a great deal of time and energy into resurrecting the idea of reintroduction and a feasibility study was commissioned in 2000. As a result Great Bustards were released on Salisbury Plain in 2004, building on recent successful re-introductions such as Red Kite and Sea Eagle.

Status and distribution

The Great Bustard *Otis tarda* is the largest of its family, of comparable size to a turkey, and is currently widely but patchily distributed. The range extends from Iberia and northern Africa, across central and southern Europe, Asia Minor, southern Siberia, Turkestan, Mongolia and Manchuria to parts of eastern China. This range is likely to have reached its maximum extension towards the end of the 18th century, partly due to an increase in open landscapes resulting from forest clearances. Since the turn of the 19th century until very recently, the species has been in decline globally. This decline has seen the extinction of the Great Bustard from countries such as Britain and France, and has led to the species being listed as endangered or threatened across most of its remaining range.

Positive conservation action in countries such as Spain and Germany, and changes in agricultural practices in Russia, may have helped in reversing some of that decline with population increases being reported. Other countries such as Slovakia, Hungary, Bulgaria, Poland and Romania still demonstrate a decline in the species. Even if actual numbers are greater than 20 years ago (which is doubtful), the birds are becoming concentrated within a few countries and this contraction of range is a cause for concern. Throughout Europe declines are primarily attributed to the intensification of agriculture and habitat loss. Of particular concern are pesticide use, nest destruction, and continued persecution through hunting and collision with power lines.

The re-introduction

A study was commissioned in July 2000 by the Great Bustard Group (GBG) to examine the issues surrounding the proposed reintroduction of Great Bustards to England. ▷

Great Bustard numbers in Europe 1980 - 1995			
Country	1980	1995	Increase/ Decline (+/-)
The former Russia	2,560		+5,742 to 7,842
<i>Russia</i>		8,000 to 10,000	
<i>Ukraine</i>		300 to 400	
<i>Moldova</i>		2	
Turkey	200 to 1,000	2,000 to 3,000	1,800 to 2,800
The former East Germany	500	90	-410*
Poland	25	0	-25
The former Czechoslovakia	300		-275
<i>Czech Republic</i>		15	
<i>Slovakia</i>		10	
Austria	180	55	-125
Hungary	3,400	1,200	-2,200
The former Yugoslavia	35		-27
<i>Serbia</i>		8	
Romania	300	10	-290
Bulgaria	40	10	-30
Portugal	670	550	-120
Spain	4,600 to 7,000	15,000	+8,000 to 10,400
Totals	12,810 to 16,010	22,750 to 30,350	

*Recent increase Source: *Naturschutz und Landschaftspflege in Brandenburg (1996)*

A quick summary of Great Bustard biology and ecology		
	Male	Female
Wing measures	60-68 cm	47-50 cm
Weight	5-16 kg	3-5 kg
Breeding age	5-6 years	3-4 years
Life-span	20 years	20 years
Visual appearance	Males are similar in size to a Mute Swan with white underparts, wings mostly white with black tips. Greyish head, long barred brown and black tail with white edging.	
Call	Generally a silent bird, but makes a gruff bark or grumbling snore/rattle.	
Habitat	Steppe-adapted with a preference for undulating topography not flat ground and favours the herbage and crop growth generally found on well drained and moist soils. Recent adaptation to the pseudo-steppe habitat created by European agriculture, in particular the habitat mosaic created through crop fallow rotation.	
Feeding	Feeding is diverse but seasonal. In summer, terrestrial insects e.g. grasshoppers and crickets; in autumn plant intake especially seeds and berries; in winter and spring plant matter e.g. legumes, olives and bulbs. Invertebrates are essential for chicks in the first two months.	

Great Bustard chicks in quarantine pen. Note the goose decoy covered in fur fabric acting as a mother figure for the chicks
 Dave Kjaer, Great Bustard Project

Below Right: David Waters, feeding with a glove puppet to prevent imprinting on humans
 Dave Kjaer, Great Bustard Project



The report recommended that the Great Bustard's reintroduction should be taken seriously because:

- it is a globally threatened species
- it is a former breeding species
- it would be a flagship species for grassland conservation
- it is important in local culture and tradition.

Working with the University of Stirling, the Great Bustard Group consulted with Defence Estates and local and national conservation organisations and agencies. The resultant plan of importing, rearing and releasing young birds from Russia is being implemented on a trial basis.

A collaborative research and conservation project in Russia is also underway, and the lead partner is the Saratov Institute of Ecology, a part of the National Academy of Science of the Russian Federation. In 2002, Dr Patrick Osborne of Stirling University, Paul Toynton from Defence Estates and David Waters, Chairman of the Great Bustard Group, visited Saratov Oblast in Russia to discuss the project. In summer 2003 David Waters, Dr Patrick Osborne and Tanya Osborne returned to work in Serrate. Saratov is about 1000 km south east of Moscow and borders Kazakhstan.

Scientists in Saratov have been collecting eggs from endangered or abandoned nests for several years. In the past, the chicks raised were sent to Zoos or Animal Parks but because they were raised in contact with humans the chicks were not fit for release into the wild. Last year the Great Bustard Group developed the use of isolation-rearing techniques: rearing chicks without regular human contact. Great Bustards chicks need to be taught how to feed, so this is done by the use of glove puppet with an artificial bill. Humans that have to associate with the chicks are disguised by special costumes that are made by the Great Bustard Group. If the chicks imprint on these costumes it should not compromise their ability to survive in the wild, as they will not see anything like them once they are released. These isolation-rearing techniques were used for the birds which were released in Wiltshire in autumn 2004, after an absence of 170 years.

Salisbury Plain as a release site

Salisbury Plain is a large area of calcareous grassland in the heart of southern England. The dominant land cover is grassland of varying quality mixed with scrub. Although one of the largest tracts of gently undulating grassland in the country, the Plain is not a single contiguous area but is fragmented to a degree by roads,

tracks and plantations. There are clear views across the surrounding countryside, which comprises largely arable farmland rather than built areas. The literature and documented sightings record Salisbury Plain as one of the last areas in Britain where the bird was found in reasonable numbers. Precisely why the birds remained so long is unknown but it was possibly due to the Plain being less affected by the intensification in agriculture or the Enclosure Acts than other parts of the country.

Salisbury Plain area offers the following advantages as a potential release site:

1. Of all known Great Bustard sites it has changed the least in the 200 years since birds bred in the UK. This does not mean, however, that the Plain has not changed and, in fact, it was almost certainly sheep-grazed at the time bustards ceased to breed. The key issue is how different it is today and whether this difference matters.
2. Although there is public access to parts of the Plain, the military presence discourages visitors to much of the training area.
3. The structures are in place for possible support with land management (i.e. through ESA or CS) although the prescriptions would need to be defined (cf. prescriptions for Stone Curlew).
4. The Plain already supports closely related Stone Curlew restoration work.
5. There are strong historical and cultural ties between the bird and the area and there is a high level of local support from a variety of stakeholders.

6. There is tremendous local interest in the project. The Great Bustard features on the Wiltshire County Coat of Arms, and numerous local badges, including the Girl Guides (who kindly share their badge with the Great Bustard Group). A school has the bird as its badge, and a local Brewery, Stonehenge Ales, is producing Great Bustard Beer!

The project so far: transport of chicks to UK and quarantine

Thirty birds were reared in Russia, but the transfer of birds was held up for some time so they were older than anticipated when sent to the UK. Two died en route from Saratov to Moscow, a further bird died in transit to the UK, and there were three further fatalities during quarantine. After 30 days in quarantine birds were put in 'soft' pens. They were now flying with males weighing more than 5 kg. However, two birds damaged their wings in the pens and consequently a decision was made to release the birds earlier than planned.

All of the chicks are ringed and have a large tag fixed to each wing to aid identification once released. The tags are never removed and don't cause any discomfort for the bird, who completely ignores them. All birds bar two were fitted with a radio transmitter.

On 21 September, 22 birds were released. One left the area immediately and did not return although it is still alive. Of the others, foxes and fences have accounted for three birds, and at 1 May 2005 there were five birds living freely on the Plain, many of them still returning to the release pen regularly.

Two birds are surviving in captivity as a result of injury. These may be used as a basis for captive breeding in the future.

This may seem to represent a huge loss, but in the wild there is about 80% mortality in the first year and it was expected that there would be lessons to learn in the first year. Having six birds at this stage is, in reality, very encouraging.

2005 release programme

The second batch of 37 chicks arrived in the UK in July 2005. They have a voracious appetite and grow rapidly. In the wild they would feed mainly on invertebrates. In captivity the diet is somewhat different: during the first week they consumed 1,000 crickets, 1 kg of mealworms, 20 tubs of cottage cheese, 60 lettuces, 10 kg of spinach, 500 mice and seven Ox hearts, providing a good balance of calcium and protein.

Different coloured wing tags have been attached and a range of transmitters used including ones applied to the tail, or in a pouch around the neck. These can only be applied to females as they would obstruct the male during their spectacular mating displays. Eighteen birds were released into the wild on 26 August, all of which are doing well, and the remainder will be released at the end of September.

Controlled viewing of the birds is welcomed by GBG once the chicks have left quarantine in early October, and appointments can be made by phoning David or Karen Waters: 01722 710779.

**Paul Toynton, Environmental Adviser,
Nature Conservation**

Quarantine pen on Salisbury Plain

Dave Kjaer, Great Bustard Project



Fitting a radio transmitter to a bird - the head is covered to keep the bird calm

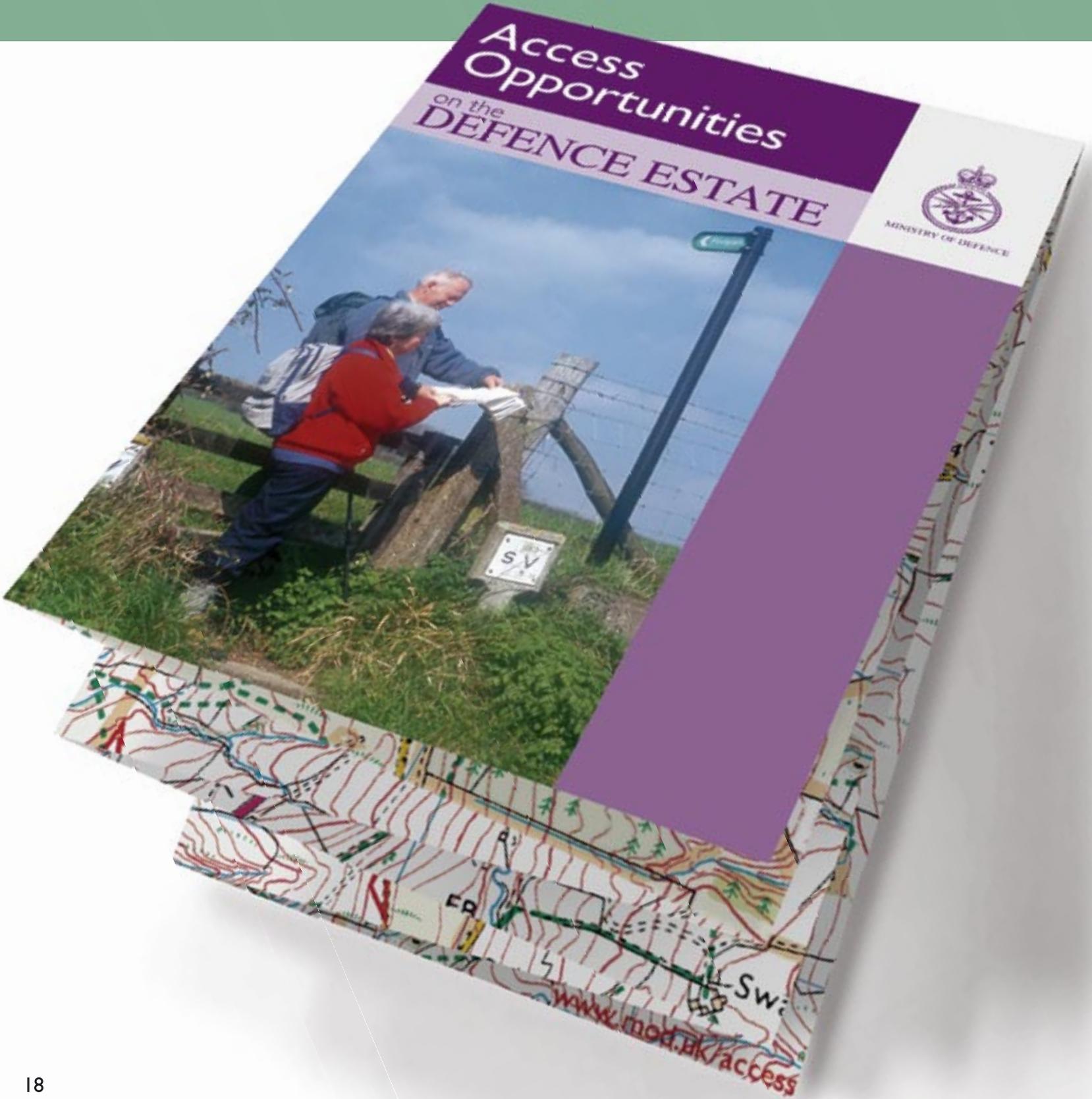
Dave Kjaer, Great Bustard Project



In 'soft' pen following quarantine

Dave Kjaer, Great Bustard Project

ACCESS OPPORTUNITIES ON THE Defence Estate



The subject of public access onto the Defence Estate has always been a challenge. There are many who feel that, as one of the UK's largest landowners, and certainly the largest Government landowner, we have to lead by example and fully embrace the drive for greater access opportunities to the countryside. However, there are some who feel that as the sole purpose for holding our estate is for military training and related activity in defence of the nation, it is unreasonable for the public to access these areas of land because such access could lead to the disruption of military activity and endanger the public.



The Open Access Logo

Roof of England Walks Festival 2005 - Warcop
North Pennines AONB Partnership Staff Unit
Opposite page: Julia Bayne, Countryside Agency



Lucy Fairfax
on Jessey, a
Dales pony and
endangered
species on the
vulnerable list on
a newly opened
bridleway
Andrew Linnett,
Crown copyright

The truth, of course, is a fine balance. The overarching access and recreation policy of the Ministry of Defence (MOD) is a presumption in favour of public access across the estate wherever it is compatible with military and operational training needs, safety, security, conservation and the interests of our tenants. To achieve this balance means that access has to be carefully managed and monitored, and in some cases controlled.

Access to the countryside has moved up the political agenda over the past few years. The MOD has risen to the challenge and manages public access in a positive and proactive manner. Locally, access is managed by service personnel and Defence Estates (DE) staff in conjunction with contractors, local councils, organised groups and others. At a number of sites such as Otterburn and Castlemartin staff have been appointed to manage access opportunities. (*See The Ranger, Castlemartin, page 96*). At a national level a Countryside Policy Adviser has worked to develop policy and strategy on access and recreation. Operational specialist advice is provided by Richard Brooks, Environmental Adviser (Access and Recreation) through the Environmental Support Team (EST).

In terms of public access and recreation, 2004/5 has been a particularly interesting and busy time. This article outlines the effects of recent changes in Government legislation and how this is being managed in practice on the Defence Estate.

Countryside and Rights of Way (CROW) Act 2000

The CROW Act Part 1 set out to give the public a right of access on foot to mountain, moor, heath and down, to undertake activities such as walking, climbing and bird watching. Other activities such as fishing and camping were not included in the Act. The Countryside Agency (CA) and the Countryside Council for Wales (CCW) undertook a massive mapping and appeals exercise across the whole of England and Wales. The resulting maps depicted areas meeting the criteria for 'access land'.

There are a number of exceptions to this access land, and areas covered by military bylaws is one. It was apparent right from the start of this legislation that the large areas of our estate would be excepted from access rights under this legislation – however, large parts were mapped. In some areas this was not an issue because of the benign nature of the military activity. Open Access has taken place with the regional rollout programme. There are, therefore, new areas of land onto which people now have access rights under CROW - including parts of Otterburn Training Area and RAF Spadeadam.

In a small number of cases there have been instances where open access was simply not appropriate due to the defence requirement. In this situation the Secretary of State for Defence (delegated to DE) may apply a direction to exclude or restrict rights and, where this will be 'indefinitely', to remove these areas from the access maps. Each individual request for such a direction has been accompanied by a military justification. A review as to whether or not this direction would proceed ▷

is then made, thereby ensuring a reasonable and consistent approach is maintained. Our policy is to keep such directions to a minimum.

It is important to remember that although military bylawed land meeting the habitat criteria is not subject to access rights under CROW, this does not preclude further access opportunities being available on these areas in England and Wales. Indeed there are huge access opportunities.

In order to highlight this fact, MOD has devised, in conjunction with OS, a new map symbol highlighting 'Managed Access' areas. These are areas of MOD land which have significant access opportunities but where access may be restricted either at times or to certain routes etc. The hollow red triangle symbol that can be seen on the map of Leek and Upper Hulme below was developed to depict the exact boundaries of such areas and to allow the public more information about the sites. The maps not only show the extent of these areas but also give a website address and/or telephone number so that the public can check what restrictions apply at any given time. There may be further information about these areas on the website or details can be gained by contacting site managers. In addition, there may be further informal access opportunities available at a local level.

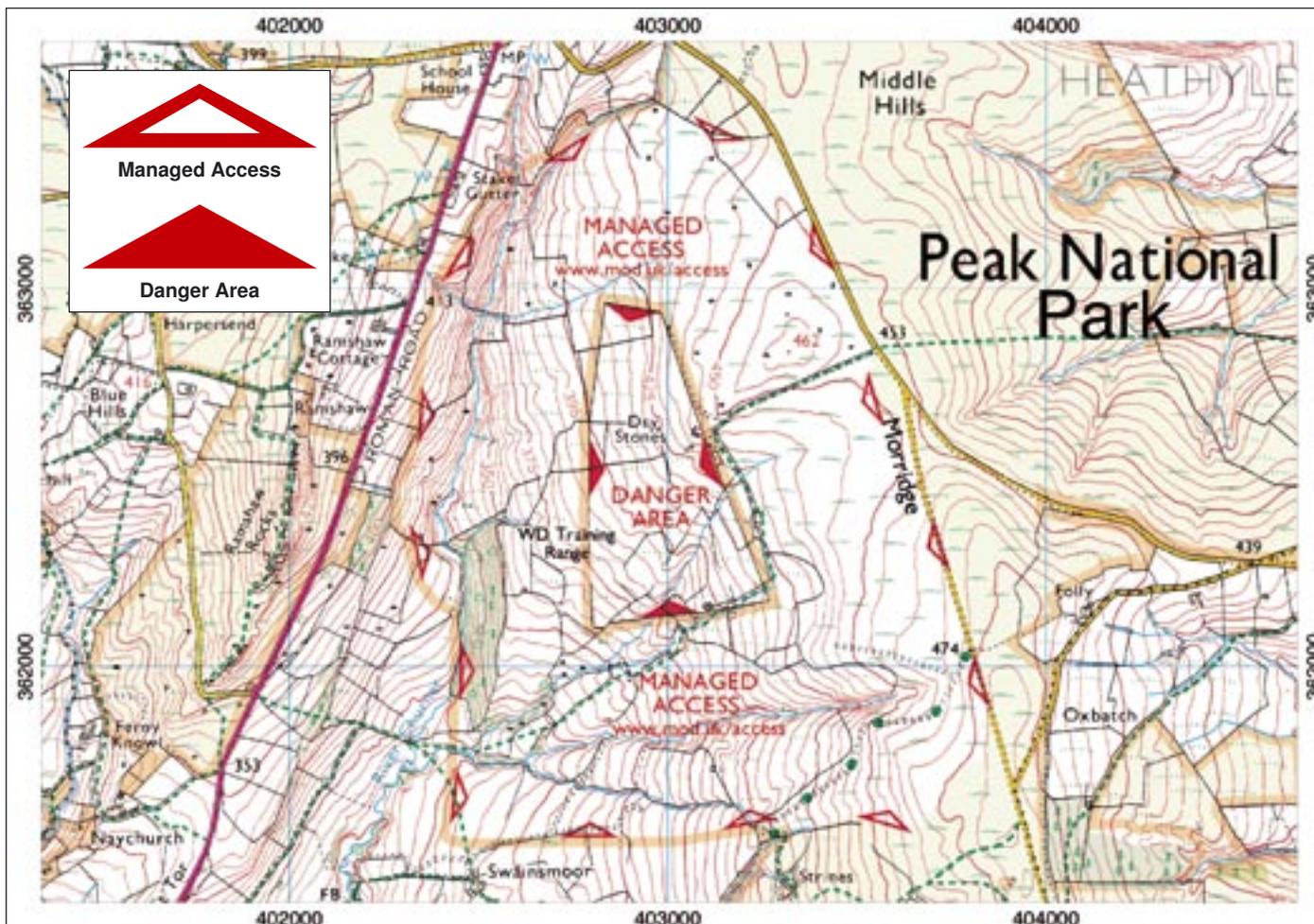
Land Reform (Scotland) Act 2003

In Scotland the access legislation is further reaching. Having come live on 9 February 2005, Part 1 of the LR(S)A allows for most forms of recreation on, over and under land and inland water - so although motorised activity is not allowed, recreational pursuits such as horse riding, biking, caving, canoeing parascending, camping and lighting fires are. Scottish Natural Heritage (SNH) have put the emphasis firmly

on responsible behavior by both the public and land managers and have issued the Scottish Outdoor Access Code (SOAC) to promote the new access rights and responsibilities. The SOAC is based on three key principles of; respecting the interests of other people, caring for the environment and taking responsibility for your own actions. It details what is regarded as responsible behaviour by both the public and landowners. For details of the LR(S) Act and the SOAC please follow the links on the SNH website. www.outdooraccess-scotland.com

Within the SOAC, Military Lands are described and the public warned to take heed of notices and directions on sites, including red flags. They are warned not to touch suspicious objects and to be aware of sudden noises and movements that can startle people and horses. The public is excluded from areas where red flags are flying because of the dangers caused by live firing or other associated risks, but at other times may enter our land including areas being used for training. There are obvious compromises to be made between complete open access and military training, a good example of this being horse riding and sudden noises resulting from the use of pyrotechnics. However, within the Act and SOAC, MOD has the right to direct the public around activity and indeed can close areas altogether should this prove necessary.

Because of the nature of this legislation each site in Scotland has had an Access audit. These have been undertaken by DE Scotland in conjunction with the Access and Recreation Adviser and the military users. The reviews have enabled access management issues to be highlighted and addressed. A good case study exists in the Pentland Hills Regional Park where we are providing horse routes across Castlelaw Training Area away from the firing range and where troop



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activity is minimal. This enables horse riders to cross the area and enjoy the stunning scenery whilst minimising interference with military activity. By following these routes and not straying the horse riders are acting responsibly within the SOAC. The military user can also plan activity away from the riders - a happy balance!

Access management under this legislation is still in its infancy and we will be learning a great deal over the next few months about responsible access provision and responsible behaviour by the public.

Linear Access

Of course access to the Defence Estate is not just about open access. Amazingly, MOD land contains approximately 1300 kms of Public Rights of Way accessible to the public, with at least another 100 km of permissive path. At least half of this network is on bridleways or byways open to all traffic which means that access is not only limited to walkers but allows for horse riding, cycling and other activities.

The MOD is continuously striving to improve linear access opportunities where this is compatible with the military use of an area. One of the best examples of this can be found on Sennybridge Training Area in Wales where a partnership driven by MOD and including CCW, Welsh Tourist Board and Powys County Council is funding and implementing a 90 km permissive bridleway around the edge of the training area, called the Epynt Way. The first section of this was opened in 2004 and further work continues.

With all this activity going on it has been a busy time for those involved with Access and Recreation across the Defence Estate. Is it time now to sit back and take it easy? Most definitely not. We are aware that further Government initiatives such as 'Discovering Lost Ways', the Core Path Planning process in Scotland, and the possible expansion of access rights under CROW to include the coastline are heading our way. All of these will require a proactive approach to ensure that both military and legislative requirements are met.

Ultimately we are committed to working towards delivering the presumption in favour of public access where this is possible, and are striving to achieve better quality and greater public access opportunities.

Richard Brooks, Access and Recreation Adviser, Environmental Support Team

With thanks to Ceri Daugherty, former Senior Countryside Policy Adviser ES&P



The Disabled Ramblers Association on the Castlemartin Range
Pembrokeshire Coast National Park



Tina Stallard - The Countryside Agency



Tina Stallard - The Countryside Agency

Contacts within the MOD:

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Senior Countryside Policy Officer: 01213 113642

Websites:

MOD with link to DE Access site
www.mod.uk/access

Countryside Agency's Open Access
www.countrysideaccess.gov.uk

Countryside Council for Wales
www.ccw.gov.uk

Scottish Outdoor Access Code
www.outdooraccess-scotland.com

For full details on CROW Act 2000
www.hmsso.gov.uk

For details on the Epynt Way www.mod.uk/epyntway or contact John Clifford, Project Officer: 01874 635511

Warcop freephone for information up to seven days in advance: 0800 783 5181 or the Range Office: 01768 341661

Epynt Way - Haunt of the Horse



Brian, Eleanor and Tyler Cuddy cross a newly constructed bridge over a small ravine at Blaen Bwch.
Andrew Linnett, Crown Copyright



John Clifford attaches the Epynt way symbol to a new finger post at Fedw, at one end of the northern section.
Andrew Linnett, Crown Copyright

Due to military activities, most of the Sennybridge Training Area (SENTA) is subject to strict bylaws prohibiting access even along public rights of way. It was felt, however, that a suitable route could be established where year-round public access would co-exist with military operations.

This project was conceived in response to Government policy set out in the CROW Act 2000, together with the MOD initiative to allow public access to its land where operationally feasible.

The Epynt Way is a circular permissive bridleway following on, or near to, the SENTA boundary, a total distance of about 90 km over the mountainous plateau of Mynydd Epynt, known historically as *Haunt of the Horse*. It links with external public rights of way leading to the boundary to provide opportunities for circular excursions of varying length. The route avoids areas of intensive military activity and circumvents other areas of sensitivity such as Sites of Special Scientific Interest (SSSIs) and archaeological sites.

In January 2003 a forum was set up with representatives from Defence Estates, Powys County Council, the Countryside Council for Wales, the Welsh Development

Agency, the Wales Tourist Board, Ramblers Association, British Horse Society, Cyclists Touring Club, Bunkhouse Owners, Forest Enterprises, local volunteers, Epynt Riding Club, Campaign for the Protection of Rural Wales, Brecon Beacons National Park and the Army Orienteering Club.

The first four of these organisations (MOD, PCC, CCW and WDA) who are the principal stakeholders, have pooled resources to support a special post of Epynt Way Development Officer (EWDO). This partnership agreement is set to continue beyond the initial 2-year development phase and it is hoped to attract extra support from the Mid-Wales Tourism Partnership and European Regional Development Fund.

During 2004 a series of well-attended public meetings were held in local community halls. Some local people came forward to help with the project and, as a result, nine volunteers have been trained and are proving to be of great assistance to the EWDO with planning and maintenance.

The first 18 km section of the bridleway was opened to the public on 25 October 2004. Although use was limited by the winter conditions, it is reported that there were riders or walkers on it most days. In

addition to the waymark posts along the main path, finger posts have been erected at junctions with external public rights of way.

Four more of the eight remaining phases have been opened for the summer season. This completes the Northern arc of the route joining the junctions above Upper Chapel on the B4519 road with that above Llywel on the military road. Links are provided with the Forestry Commission Crychan Forest Trails network. October 2005 is the target for completion of the four southern phases covering the remaining 43km, including seven river crossings.

This project demonstrates a new approach to public access to the Training Estate. We see the Epynt Way as a focal attraction to the local area. An attractive *Haunt of the Horse* logo/trade mark has been produced and registered. A website domain has been registered and set up. Merchandise and literature are being produced to promote the walk. The publicity material and web site also tell the users, and the public at large, that the Training Area has been carefully managed to conserve a unique eco-system, and that there has been no use of modern agrochemicals and practices for over 65 years.

John Clifford, Epynt Way Project Officer

Public Access at Warcop - a new approach



Roof of England Walks Festival 2005 - Warcop
North Pennines AONB Partnership Staff Unit



High Cup Nick
Jez Kalkowski



Roof of England Walks Festival 2005 - Warcop
North Pennines AONB Partnership Staff Unit

Warcop lies in the North Pennines Area of Outstanding Natural Beauty and forms part of Appleby Fells SSSI, North Pennine Moors Special Protection Area, and the Moorhouse-Upper Teesdale Special Area of Conservation. There are also many sites of archaeological and geological interest, making Warcop a popular place to visit.

Warcop Training Area (WTA) is situated off the A66 between Appleby and Brough in Cumbria. Tank training was established in 1942, with heavy weapons training by the Royal Armoured Corps continuing until 1994. Since 1995 the main user of WTA has been the Infantry Training Centre (ITC) at Catterick. The introduction of the CROW Act has raised concerns over public safety as the training area is used for live firing six and a half days a week and there is a real risk of unexploded ordnance.

There are 11 footpaths and four bridleways on the Training Area, with the majority linked to former mines or part of historic routes between settlements. Consequently there are long linear paths such as the Scordale bridleway, and short dead end tracks such as the path to the White Mines. Access to the Public Rights of Way (PROWs) within the Danger Area is restricted to non-firing

periods by way of the bylaws. Use of PROWs outside the Danger Area is unrestricted.

The Warcop Integrated Land Management Plan, which was published in 2003, outlined various public access objectives. From this, and with the CROW access legislation affecting the area from mid May this year, work has commenced on WTA to enhance public access where it is compatible with training, safety and conservation. The driving force behind this being the concept that managed access routes will facilitate safer use of the Training Area.

Following consultation with the local access working group which includes members from the British Horse Society, the Ramblers, Friends of the Lake District and the Hilton and Murton Heritage and Rights Group, a list of prioritised access projects has been agreed. This includes waymarking, the creation of new routes, communication of access opportunities across WTA and guided walks.

Waymarking existing routes has started, with care being taken to design these appropriately for different landscape areas: those routes crossing the impact area will be highly visible, with those on the high fell being more discrete. In addition, four new routes have now been agreed. These "managed access" paths will benefit both

users and wildlife alike, enabling walkers to navigate across the area without straying into danger areas, and keeping disturbance to ground nesting birds to a minimum.

Communicating access opportunities on the Training Area has proved challenging, and has been addressed in a variety of ways including a freephone answer service, distribution of information directly to interested third parties, the posting of notices and use of local media. Discussions are also underway as to how this information, often only available at very short notice, is best communicated via the web.

A number of guided walks on the Training Area have been agreed, with two taking place last year, and three this year. One of this year's events which took place in July, was the Roof of England Walks Festival, an initiative of the North Pennines AONB partnership and an event which normally attracts between 80 to 100 people.

It is hoped that through these types of projects people will become more aware of the public access opportunities at Warcop, whilst understanding the necessity of the constraints imposed by military training.

Clare Louise Hetherington, Rural Estates Advisor ATE North (Western Area)

You could be forgiven for thinking that the heavily used training areas of Bovington and the Lulworth Ranges would have little interest from the naturalist's point of view. After all, there are tanks and armoured vehicles of various shapes and sizes criss-crossing the vista, heavy 120mm guns boom across the airwaves and explosions from demolition training that almost rattle your teeth loose.

Not your typical surroundings for a quiet bit of "botanising" or listening to the magnificent Woodlarks singing the day in. However, many species - and invertebrates in particular - have a real liking for military training as this activity creates the micro-habitats that many of these very rare and special insects need for their continued survival. But to appreciate them you must first of all get down on your hands and knees.

Since the RSPB Dorset Heathland Project started to carry out management, survey and monitoring work at these sites, numerous notable species have been recorded including many that are priority species under the UK Biodiversity Action Plan.



Heath Tiger Beetle *Cicindela sylvatica*
Andy Schofield RSPB

Marvellous mini-beasties of the Dorset Heathlands

The Project, along with the Defence Estate Foresters, has returned large areas of pioneering heathland communities back to favourable conservation status mainly by the removal of the invasive self-sown pine scrub.

Heath Tiger Beetle *Cicindela sylvatica*
Biodiversity Action Plan (BAP) Species, which is categorised in the UK as Nationally Scarce

This ferocious, predatory ground beetle occurs on open, dry, sandy soils with heather communities, and along the edges of coniferous woodland. The adult beetles are active in warm, sunny weather and will fly readily, although it is not known whether this leads to long-range dispersal of individuals, or movement between smaller areas of suitable habitat. The larva live in vertical burrows within exposed ground and are highly predatory on many surface-active invertebrates, although they do seem to show a preference for various ant species.

This, the largest of the British Tiger beetles, will either lie in ambush or chase down its prey with no remorse, expertly dismembering and consuming its meal using its jaws with incredible dexterity.

At the beginning of the last century, this handsome beetle was found to occur widely on the heathlands of southern England, from Dorset to Kent, as well as a single site in Lincolnshire. Since 1970 it became localised in Surrey, Sussex, Hampshire and Dorset and, more recently, this species has decreased markedly. The Dorset heathlands are now the UK stronghold for this species.

Many of the abandoned tank runs on the Bovington Training Area prove to be a real haven for the Heathland Tiger, fulfilling their habitat requirements of bare, hot open ground. This pioneering stage of succession is often not specifically created on other heathland sites in the county.

Mottled Bee Fly
Thyridanthrax fenestratus
Biodiversity Action Plan (BAP) Species, which is categorised in the UK as Rare

The Mottled Bee Fly is a species found in open, heather-dominated heathland, where it is often found along sandy paths and other sparsely vegetated sandy areas. It is considered a parasite of the Sand Wasp *Ammophila pubescens*, or of the caterpillars that the wasp collects to feed its own larvae in burrows found in bare sand. The bee fly has a requirement for hot microclimates and for flowers, which the adults visit for nectar. This species is now confined to southern heathland in Dorset, the New Forest and the Weald in Hampshire, Surrey and West Sussex. This species has seemingly disappeared from many former sites and has become very scarce at many other localities. Although some good populations remain, the distribution has become much more restricted in recent times due to open heathland areas becoming smaller and more fragmented.



Mottled Bee Fly *Thyridanthrax fenestratus*
Andy Schofield RSPB



Purbeck Mason Wasp *Pseudepipona*
Andy Schofield RSPB

Heath Bee Fly *Bombylius minor*
Biodiversity Action Plan (BAP) Species, which
is categorised in the UK as Vulnerable

The Heath Bee Fly is a species found in open lowland heathland where it is parasitoid on solitary bees of the genus *Colletes*, especially *C. daviesianus*. It can be seen during mid summer around these solitary bee aggregations, often egg-flicking into their burrows!

It does this by means of having an egg “pouch” on the front of its abdomen usually containing many eggs, which are coated in sand before it embarks on its egg bombing sorties. This masterful flyer will hover in front of the associated bee colonies and, with consummate precision, start to flick its eggs down the entrances to the burrow of the chosen host, which is often a very narrow target in a vertical sand exposure.

In the UK, this species is mainly confined to southern heathland, where it has suffered a huge contraction in range; it is currently only known from a few sites in the county of Dorset (mainly western). Here it is highly localised and in most cases only occurring at very low population densities. The Bovington Training Area features highly in its distribution picture, no doubt due to some of the past training activity that was carried out upon the site. Tank training has created large steep-sided gullies and erosion runnels which the host bees seem to colonise quickly.

The Heath Bee Fly often “zips” around between open areas and nectar sources so quickly that it could be easily overlooked and the first indication that one is nearby is often the very high pitched whining that offers the clue that this species may be present. It utilises its long proboscis in a similar way to a humming bird, hovering with great precision whilst deftly manoeuvring from one flower to the next in search of energy-rich nectar.

Purbeck Mason Wasp *Pseudepipona herrichii*
Biodiversity Action Plan (BAP) Species, which
is categorised in the UK as Vulnerable

The Purbeck Mason Wasp is a large, red, black and cream mason wasp that provisions its nest with the caterpillars of a Tortricid Moth, which feeds on heathers. The host caterpillar is most common on plants of Bell Heather *Erica cinerea* in early to mid-successional heathland. The flowers of the Bell Heather are also a major nectar source for the adult wasps. The nest is dug in exposures of clay within heathland communities, and searching for these is often the best way of locating this striking species.

This Mason Wasp has long been known to be restricted to a few heathland sites in the Poole basin area. By the outbreak of the Second World War it was known from only seven sites and then, in the late 1940's the range had contracted dramatically. By 1980, this species was only thought to be surviving at a single locality. Much research and effort has been put in to trying to further our understanding of this species. It has recovered to its former status with approximately seven sites now holding viable populations. So there was great excitement when the Dorset Heathland Project discovered a small nesting aggregation on the Lulworth Ranges in 2003.

These selected species are by no means the only rare or scarce invertebrates that occur on the Bovington and Lulworth areas - they are only a fraction. Other specialities include the Hornet Robber-Fly, Kugelaans Ground Beetle, Bee Killer, Southern Damsel Fly and many, many more that share their habitats with the military activities, which sculpt their surroundings.

With military occupation, these sites are heathlands that have retained their viability and function and are still very much alive and very much used. The military activity has created and continues to maintain these habitats, which would otherwise be lost to the UK.

Andy Schofield, Purbeck Team Leader,
RSPB Dorset Heathland Project



Heath Bee Fly *Bombylius minor*
Dante Munns RSPB

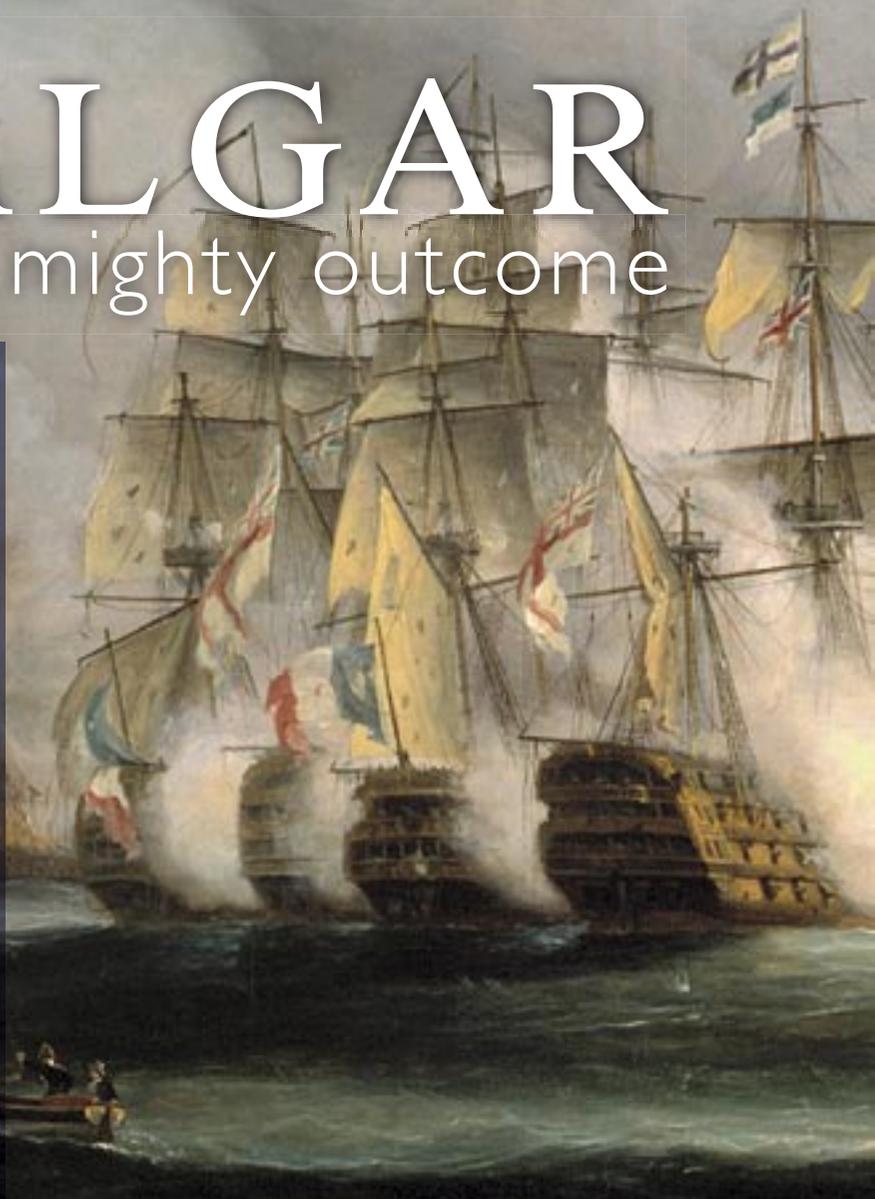


Rob Neal, DHP team leader,
monitoring Heath Bee Fly
RSPB, DHP

TRAFALGAR

a mighty battle, a mighty outcome

During 2005 the 200th anniversary of the Battle of Trafalgar is being celebrated under the title Trafalgar 200. In 1805 the British fleet, commanded by Admiral Lord Horatio Nelson, faced a battle that was critical to Britain's survival. The outcome resulted in the Royal Navy's domination of the seas for over 100 years and led to the greatest Empire the world has ever known. Portsmouth further grew in scale and importance as the Royal Navy expanded and today remains one of the Royal Navy's pre-eminent dockyards.



The Battle of Trafalgar

Across the channel, Napoleon was preparing to invade England having already conquered much of Europe. His plan was to defeat the Royal Navy and use the Combined Fleet of the French and Spanish Navies to escort the invasion barges across the English Channel unopposed.

In August 1805 he wrote to his Admirals: "Come into the Channel. Bring our united fleet and England is ours. If you are only here for 24 hours, all will be over." All that stood between Napoleon and the shores of the south coast was the Royal Navy.

It was obvious to both sides that a decisive battle would have to be fought between the smaller Royal Navy and the Combined Fleet led by the French Admiral Villeneuve. A British victory would reduce the size of the Franco-Spanish fleet and lessen any future invasion threats; but a heavy defeat would leave England at the mercy of Napoleon's army.

To thwart the invasion the Royal Navy blockaded the main French and Spanish ports. By late summer 1805 Villeneuve and his fleet were in the port of Cadiz with the Royal Navy offshore. However, Napoleon then changed his plans and postponed his invasion of England in favour of invading Austria. Villeneuve was

then ordered to sail for Naples to counter a British force which, as a diversionary tactic, had landed on Sicily in support of the Austrians.

Villeneuve received his orders to sail to Naples on the 27 September, but it was nearly a month later, on October 19, with a fair wind, that he finally left. A chain of British frigates stretching from Cadiz to the main British battle fleet off the Spanish coast quickly passed Nelson the intelligence of Villeneuve's movements.

Villeneuve sailed south to try and reach the Straits of Gibraltar but on sighting the British turned round and headed back to Cadiz. In light winds the Combined Fleet took two hours to change direction and many ships fell out of formation. In the meantime the British fleet, commanded by Nelson, bore down upon them with the wind in their sails. The two fleets finally engaged at a point 30 miles south-west of Cape Trafalgar.

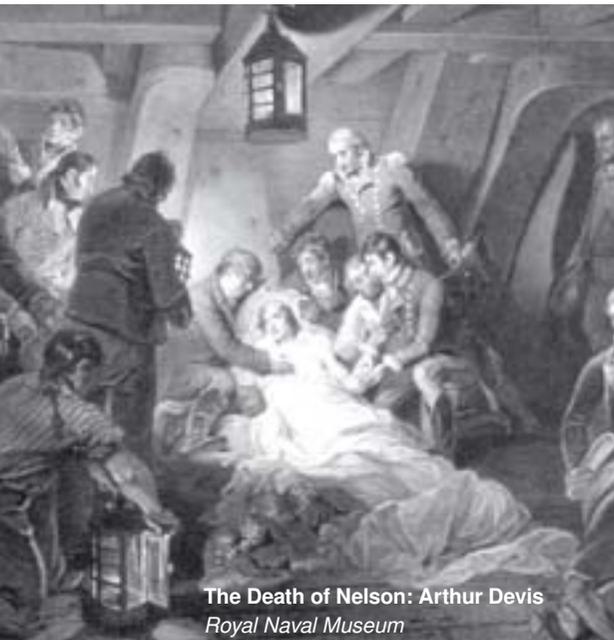
The normal mode of sea battles in the 18th century was for the two forces to sail parallel to each other and blast away until one side won. At Trafalgar this would have been a dangerous tactic for the British because the Combined Fleet of French and Spanish ships considerably outnumbered the British fleet. Nelson decided on a





The order of sailing of the fleets *Royal Naval Museum*

The Battle of Trafalgar: Thomas Luny *Royal Naval Museum*



The Death of Nelson: Arthur Devis
Royal Naval Museum

revolutionary new tactic. He formed his ships into two columns and sailed at right-angles to the Combined Fleet, thereby cutting the enemy into three segments. Although the Combined Fleet was bigger, Nelson knew the front section would find it almost impossible to turn around in the light winds and join the battle.

One after the other the British ships sliced through the line of the Combined Fleet and soon close fighting ensued between individual ships. One of the fiercest engagements in the early part of the battle took place between Nelson's flagship, HMS *Victory*, and the French ship *Redoubtable*. The two ships crashed together and French marines in the rigging threw grenades and fired muskets onto the deck of HMS *Victory* below. Before the battle Nelson had had a premonition that he would die: a premonition which became true when

a musket ball fired from the rigging of the *Redoubtable* struck Nelson on the shoulder and smashed into his spine. He was carried below as the fighting raged on the upper deck.

As the battle continued, the Royal Navy slowly gained the upper hand and at 4.30pm (after four and a half hours of battle) Captain Hardy reported to Nelson that the battle was won. Nelson uttered his last words "Thank God I have done my duty" and then died.

The consequences of the British victory were profound. First of all the imminent threat of Napoleonic invasion subsided. There was also a longer-term result: British naval superiority over the world's oceans for over 100 years. This dominance allowed expansion into other areas of the world and supported the colonisation and defence of the largest Empire the world has ever seen. ▷

Trafalgar 200

To celebrate the achievement of Trafalgar there are a host of events taking place this year, the highlight of which was the International Fleet Review on Tuesday, 28 June. The Review included warships, tall ships, merchant vessels and a host of other ships, with an air display and a grand firework finale in the evening followed by the illumination of the Fleet. On Trafalgar Day itself – 21 October – a chain of beacons will be lit across the country and two days later, on Sunday 23, there will be celebrations in Trafalgar Square under the watchful eye of Admiral Nelson, high up on his column.

That the main naval events of Trafalgar 200 are taking place at Portsmouth marks the importance both of the dockyards during Nelson's time and the modern day naval base. The link between Nelson's era and today is highlighted by the fact that the dockyard is the permanent home of Nelson's flagship HMS Victory. Recent research has enabled us to fill in many of the details about Nelson's last hours on shore. His last walk through Portsmouth can be traced with some accuracy and he also visited the dockyard, where he would have seen many buildings which are still standing today.



Her Majesty the Queen inspects a Royal Guard of Royal Navy and Royal Marine personnel prior to embarking on HMS Endurance for the Royal Fleet Review in the Solent. Her Majesty was greeted on arrival at HMS Victory by the First Sea Lord, Admiral Sir Alan West
Crown Copyright



Tall Ships and Warships alongside HMNB Portsmouth, on preparation for the Queens Fleet Review
Crown Copyright



A warship sits at anchor during sunset, ready for the International Fleet Review
ABPH Joanne Edwards FRPU (East) Crown Copyright



Portsmouth – from dockyard to naval base

The oldest structure familiar to both Nelson and today's visitor is not in fact a building, but the mast pond which dates from 1665. The mast pond was used to store timbers which were held under the water by chains on the bottom of the pond to stop them drying out and splitting. When a mast was required, a piece of timber was removed and allowed to dry out in the drying sheds and then cut. Once complete the mast was put back into the pond and towed out through a channel to the waiting ship. The work of digging out the pond was started by Dutch prisoners of war who were paid 1½ pennies a day but, following complaints by local people who wanted the work, the prisoners were sent to the nearby Portchester Castle.

As the naval base grew in importance it became obvious that a larger site was required. Ten acres were reclaimed from the harbour to the north of the site which now contain a series of docks dating from between 1698 and 1803. Elsewhere on the site a major building campaign started in 1760 has left an incredible historic landscape within the heart of the dockyard.

The Great Ropehouse

One of the most visually impressive buildings is the Great Ropehouse which was built in 1770 and is 1095 feet long and three stories high. It forms the heart of one of the largest integrated groups of 18th century industrial buildings in the country. The reason for its length was that the ropes were made in one piece: if they were merely spliced together they may have come apart during the rigours of sailing.

A previous ropehouse once stood on the same site, but was burnt down. In order to stop such a fate occurring again, the Great Ropehouse was built of brick. This was fortunate as on 8 December 1776 a fire started by James Aitken gutted the building. Aitken had also started blazes in Plymouth and Bristol and quickly gained a notorious reputation. A recent biography described him as "the world's first modern terrorist." Aitken's aim was to help the American War of Independence by crippling the naval dockyards. He was caught and as a warning to others he was hanged on 60-foot high gallows at the dockyard gate.

The Block Mills

It was, however, a slightly later building constructed in 1803/4 which became the wonder of the age. Today the Block Mills stand empty and from the outside look like a medium sized brick building of little importance. This appearance belies their phenomenal place in the history both of the navy and also of the Industrial Revolution. The original structure was a small building which housed the Royal Navy's first steam engine. The steam engine was primarily used to empty the dry-dock system, but as it had surplus power it was agreed that it could also power wood cutting saws. Therefore two parallel, east-west, buildings were built (the higher sections of today's building) with an open storage courtyard in the middle which encased the earlier building. However, as well as the wood mills, the Admiralty also agreed to use the buildings and central courtyard to make blocks.

Blocks were of vital importance to the Royal Navy as the ropes of ship's rigging were fed through them to manoeuvre the sails, guns or other equipment. Between 1799 and 1801 the Admiralty purchased on average 100,000 blocks a year for its ships, and the contract to make the blocks was worth about £34,000. HMS Victory alone used 768 blocks for the rigging and a further 628 blocks for the guns, as well as many others for ship's boats, ground tackle and spares.



Top: Boat Pond, Portsmouth Naval Dockyard - 1956
Eric de Mare, English Heritage

Above left: Number 18 Storehouse, Portsmouth Naval Dockyard - the gable end of this 18th century building was formerly the Ropehouse - 1956
Eric de Mare, English Heritage

Above right: Ropery Archway, Number 18 Storehouse
L Furbank, English Heritage

Right: Internal view of Boathouse Number 7 - 1991
L Furbank, English Heritage



Interior of Blockmills showing remaining machinery
Chris Daniell, DE EST Historic Building Advisor



The Blockmills as they look today
Andrew Linnett, Crown Copyright

Marc Brunel (the father of the famous engineer Isambard Kingdom Brunel who was born in Portsmouth in 1806) designed the revolutionary block making system. Marc Brunel had a fascinating, if chequered, career. He was brought up in France, the son of a prosperous farmer, and eventually joined the French navy. At the height of the French Revolution his French royalist sympathies resulted in him leaving France and journeying to New York where he became the city's chief engineer. In 1799, having invented his scheme for making blocks, he sailed for England to put these plans to the Admiralty. These were accepted and thereafter Brunel stayed in England. As well as block making machinery he also designed other equipment, involving machines for sawing and bending timber, boot making, stocking knitting, and printing. However, his various business ventures collapsed and in 1821 he was imprisoned for debt and only released when his friends bailed him out by raising £5,000. Thereafter his career went from strength to strength and he completed the first tunnel under the Thames – a task thought previously impossible – and for which he was knighted.

The block making system designed by Brunel was revolutionary in concept and used the very latest inventions of the age. Innovations included the use of a production line system, steam power and large all-metal machinery. Previous large machinery had wooden frames but the use of metal meant the drills and saws could be more precise in their cutting: thereafter use of metal became standard practice in large machine tool development. By 1807 three sets of machines had been installed in the Block Mills, one each for small, medium and large blocks. In 1808 there were 45 machines, worked by 10 men, producing 130,000 blocks. The machines and their operators replaced the 110 skilled block makers previously required. Not surprisingly the new system generated great interest and the Block Mills saw a succession of dignitaries pass through its doors, including Princess Victoria aged 12, Admiral Nelson the day of his embarkation onto HMS Victory and officials from foreign governments. Despite this interest, and long descriptions – Rees's *Cyclopaedia* devoted its entire section on 'machinery' to it, amounting to 18 pages and 7 plates – the system was never copied by other governments. Perhaps it was too radical and innovative for others to follow.

The machinery in the Block Mills was so important that duplicate sets of machine frames were made and stored in a fireproof room in the new Chatham sawmills. Whilst many of the original saws and machinery survived in the Block Mills (21 original machines were still in use in 1964), the duplicate set at Chatham have since disappeared – their eventual fate a mystery. Their re-discovery or knowledge of their fate would be of enormous interest, so if anybody knows anything about them there are many experts awaiting information.

A modern-day approach

Today the naval base is still developing and evolving, following a pattern of development which started with King Henry VII's foundation of the dockyards in 1495-6. The earliest phases of the dockyard's history have still to be unearthed: a challenge and opportunity for archaeologists and developers alike. At present Defence Estates is assessing how best to incorporate the incredibly significant historic environment of the dockyards into current naval requirements. Part of this process will be to seek opportunities to restore the Block Mills and eventually to bring them back into use, as well as facilitating better public access to more of the historic areas of the site.

Whilst there are still many hurdles to overcome, a successful result will reveal even more of Portsmouth dockyard's fascinating historic estate to a wider audience.

Christopher Daniell, Historic Building Advisor, Defence Estates Environmental Support Team

Visit the Historic Dockyard at www.flagship.org.uk

Martello Tower 15
Ilan Barnes

Martello Tower Restoration

Two hundred years ago, Napoleon was threatening to invade the relatively undefended coast of Britain. He had amassed an army of 130,000 men with 22,000 landing boats just out of sight in the port of Boulogne, and the Royal Navy were desperately trying to keep them there.

A number of schemes had been proposed to strengthen the inadequate defences along the south coast of Kent. Amongst them was a proposal to build a series of 74 towers, approximately 600 yards apart, each with a 24 lb cannon with a range of 1,000 yards located on a gun deck at the top.

The inspiration behind these towers went back to 1794 when the Royal Navy was sent to Corsica, the birthplace of Napoleon, to capture the island from the French. The British attempts were frustrated by a single tower, with just one gun, located at Mortella Point. This tower was manned by just eight to ten personnel, yet still managed to hold out against two British warships with a combined firepower of 106 guns, only surrendering as the rest of the island fell. The ability of this tower to defend itself so impressed the British

that they decided to build 74 of them around the south Kent coast. However, Col John Moore, who orchestrated the attack on Mortella Point, spelt the word wrongly in his diary, and the mis-spelt name of Martello stuck.

The towers were to be built to a standard design, which was agreed by 1804. They were entered on the first floor by a ladder: the ground floor consisted of a magazine where munitions were stored, with the first floor providing accommodation for 24 men and one officer. Above that, and forming the roof, was a gun deck on which was mounted a cannon which could fire through 360 degrees. The location of the towers was such that if a French ship attempted to land on a south Kent beach, it would come into the range of up to 16 towers.

Ironically, and perhaps luckily for the British, the towers were never needed: the

British had effectively removed the French threat of invasion at the battle of Trafalgar in 1805 before they were finished.

All 74 of the towers were built, with the last one finished in about 1810 and many of them remain today. Some have been converted into round houses, some are derelict and a few have been preserved. The others have all been undermined by the sea through coastal erosion and the remains washed away.

Today, within the Army Training Estate South East's Live Firing Ranges at Hythe, two towers of the original eight are still standing. They are both Scheduled Monuments and are unused by the Army because their design and location makes an alternative use very difficult. They do, however, form very striking features in the landscape, and appear on postcards in every newsagent's window in the town of Hythe.



Martello Tower 15 under repair
Nigel Sharpe



Martello Tower 15 completed
Nigel Sharpe

The towers are in an exposed location, often with stormy seas breaking around the bottom of them, and they were beginning to show the scars. The brickwork outer skin was falling away: the first stages of decay, which would lead to eventual collapse.

English Heritage was sufficiently concerned about the structures to put them on their Buildings At Risk Register and, left alone, this story could only have a sad ending. However, their fortunes changed when the Defence Estates' Training Estate team in Hythe, in consultation with English Heritage, scoped works required to repair the brickwork of the towers and obtained the necessary scheduled monument consent.

The Army Training Estate paid for the programme of repairs as part of their Rural Elements of the Estate Strategy (REES) funding stream. This has resulted in the replacement of the outer brickwork skin on one of the towers during January 2005, and a programme to repair the other tower during 2005/6. The works were arranged through the Army Training Estate's private partnering firm, Landmarc Support Services, and carried out by a local builder.

The original 200-year-old bricks are impossible to obtain in the numbers needed to carry out the repairs, so a modern alternative, which matches the original, was sourced. Programming the works was very difficult as the towers are within the live firing Danger Area of Hythe Ranges, and this meant suspending firing on some of the ranges. However, these difficulties were overcome and the scaffolding was erected in early December 2004 with works starting during the Christmas range closedown period. By reorganising the use of the ranges it was possible to allow the building works to continue until the end of January 2005, but after that date they were back in use and the towers back within the Danger Area. The works proceeded well and were completed on time. Once the scaffolding was removed the tower was exposed in its former glory – a fitting 200th birthday present.

***Nigel Sharpe, Defence Estates,
Senior Estates Advisor, Army
Training Estate South East***

Chicksands

A haven for notable trees

Not only does Chicksands have a 12th Century Priory but it is also has one of the most important collection of trees on the MOD estate. Planted between c.1500 and the present day, this notable collection includes venerable, rare, and irreplaceable specimens.

A magnificent English Oak and two extraordinary Sweet Chestnut trees, each with a circumference of around 7 metres, may well have been planted before the dissolution of the Priory in 1538. Concealed within a spinney, the two venerable Sweet Chestnuts had stood unnoticed for at least a decade until their discovery by the writer in 2004. They are now to feature in the forthcoming revised edition of David Alderman's *Champion Trees of Bedfordshire*.

During the latter part of the 16th century the Osborne family purchased the Chicksands estate. Residing in the Priory for more than 300 years, before selling the estate to the Crown in 1936, successive

generations of Osbornes acquired and planted trees in order to enhance the appearance of the Priory and its setting. The selection was determined by fashion, availability and the visual effect required.

The planting of notable trees that have survived, include:

c.1700 – 1800, possibly earlier:

- Sweet Chestnut and English Oak

c.1750 – 1800:

- Cedar of Lebanon, Common Lime, London Plane and Oriental Plane

c.1800 – 1850:

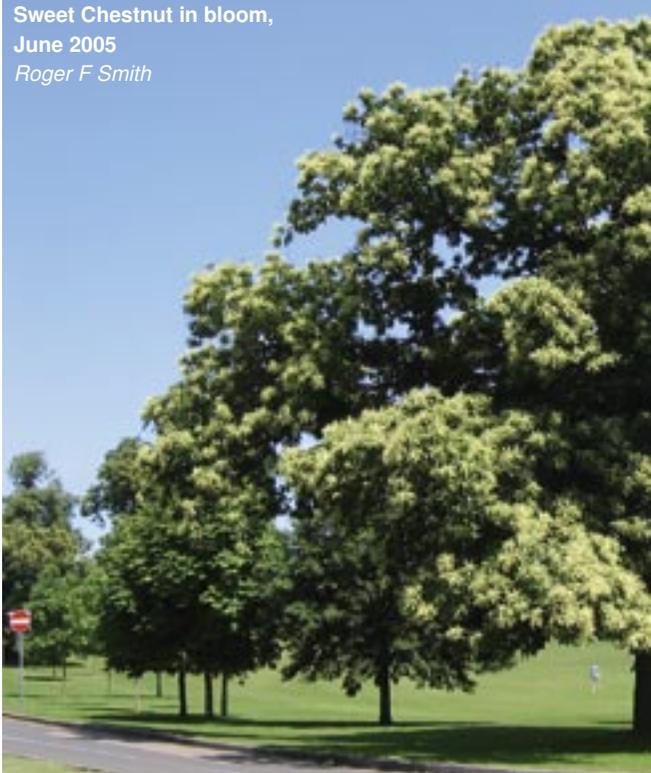
- Holm Oak, Sycamore and Common Yew

During the late 19th and early 20th centuries:

- Katsura, Mirbeck's Oak, Turkey Oak, Yellow Buckeye, False Acacia and Coast Redwood Sequoia.

Several of the above named species, including the nationally uncommon *Katsura Cercidiphyllum japonicum* and Mirbeck's Oak

Sweet Chestnut in bloom, June 2005
Roger F Smith



One of two venerable Sweet Chestnut trees concealed within a spinney
Sgt Teresa Pickin

Oriental Plane - often planted for shade, the deeply lobed leaves of this superb tree can be seen together with characteristic suckers sprouting from the trunk
Roger F Smith



London Plane planted in the 18th century. An unusual and perfect example, this specimen tree has not been mutilated
Roger F Smith





Ely Cathedral at sunset
English Heritage



Quercus canariensis do not appear in the site's tree register. A tree survey is now underway to ensure that unusual species are correctly identified and recorded.

Trees have not always been grown at Chicksands for ornamental purposes. For the Priory's religious community, trees were also a source of timber and income. A commercial transaction of particular note is the sale of timber to Ely Cathedral in the 14th century. Following the partial collapse of the cathedral's tower in 1322, twenty oaks belonging to the Priory were felled at Chicksands, to provide the massive timbers needed to build a new tower – Ely Cathedral's famous octagonal 'Lantern'. The Priory was paid £9 for the oaks.

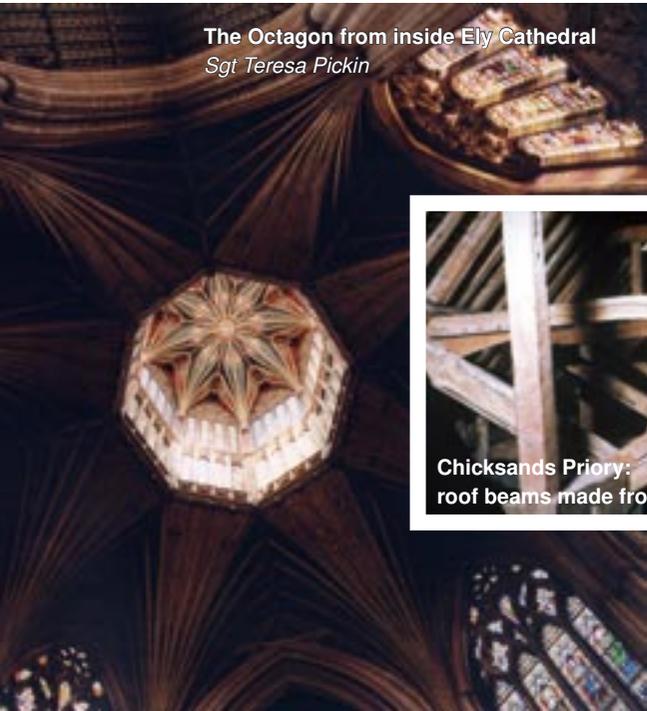
Oak timbers used in the construction of the Priory's roof were also probably grown on the Chicksands estate. Tree ring analysis by the Ancient Monuments Laboratory (English Heritage) has demonstrated that they were cut from trees felled at various dates in the 13th, 14th, 15th and

16th centuries. Surviving ancient and semi-natural woodland with coppice stools on the Chicksand's estate may relate to medieval woodland management and exploitation.

Centuries-old trees at Chicksands, with their numerous cracks and cavities, also provide important habitats for insects, roosts for bats and homes for hole-nesting birds including Little Owl, Tawny Owl, Barn Owl, Green Woodpecker and Great-Spotted Woodpecker.

Visually pleasing, and of considerable ecological importance, Chicksands' notable trees enrich the landscape and provide a living link with the history of the Priory and its former residents, both military and civilian. With sensitive and intelligent management, these irreplaceable trees should be here for future generations to enjoy into the next century and beyond.

Squadron Leader Roger F Smith DPhil,
Chicksands Conservation Officer,
Defence Intelligence Security
Centre (DISC), Bedfordshire



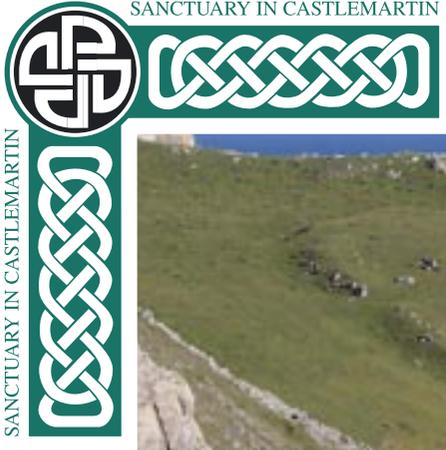
The Octagon from inside Ely Cathedral
Sgt Teresa Pickin



Chicksands Priory:
roof beams made from local oak

Chicksands Priory in its parkland setting in winter. The veteran Sweet Chestnut provides homes for hole-nesting birds and summer roosting bats. Little Owl and Great Spotted Woodpecker are frequently seen on this tree
Roger F Smith





Crockysdam Camp. Contrast the simple construction of this site with the more complex ones at Flimston Bay
Cambria Archaeology

The Iron Age at *Castlemartin*

The Castlemartin Army Training Estate, Pembrokeshire, is well known for the importance and diversity of its natural environments. Visitors to the range often talk about the ‘wild’ and ‘natural’ landscape which encourages so much bio-diversity. In fact, what they are seeing is the result of centuries of land management dating back to the Iron Age.

There is a wealth of Iron Age sites at Castlemartin including five coastal and two inland Iron Age forts. Six are designated as being of national importance and are some of the finest examples in Pembrokeshire. Uniquely, at Castlemartin, these forts do not survive in isolation but are surrounded by evidence of their contemporary landscape.

The ‘Iron Age forts’

The ‘Iron Age forts’ are often referred to as if they are a coherent group, all sharing the same characteristics. However, although both hill and promontory forts were occupied in the Iron Age (600BC – 43AD) the construction of some of them dates back into the late Bronze Age (2000 – 600BC), suggesting that they were used over very long periods of time. The sites differ in size and complexity, but they are all ‘defended’ on one or more sides by man-made ramparts - banks with external ditches. Far from being the empty, grassy spaces seen

today, excavations of both coastal and inland forts turn up evidence of buildings, often in considerable numbers: at Buckspool Down Camp and Flimston Bay Fort the footings of roundhouses are still visible inside the forts, showing up as small, circular depressions.

Castlemartin’s promontory forts reflect the diversity seen across the rest of the county. Crockysdam Camp appears to be a very simple promontory fort, with the defences consisting of a single bank and ditch cutting across the neck of the promontory. By contrast, Buckspool Down Camp has a complex system of banks and ditches and appears to have an outer ‘annex’ – another small enclosure next to the main banks.

Another interesting difference is the position of these sites in the landscape. Traditionally they are considered to have been sited so as to dominate the surrounding landscape. This is certainly true of some of the forts which give exceptional views both land-ward and sea-ward. However, one of the most impressive of

all, Bulliber Camp (also known as Castle Lady Fort), is located in a very odd position at the head of a low valley and overlooked by higher ground. Interestingly, this echoes the positioning of another famous Pembrokeshire hill fort: Castell Henllys “dominates its landscape not by being sited on the highest available point, but rather by appearing to be the centre of a natural amphitheatre to those parts of the landscape higher than it” (Bennett, 2001). This is perhaps similar to Bulliber Camp, whose occupants would have had a commanding view out to sea, as well as being in a natural ‘bowl’.

What makes the Iron Age sites at Castlemartin so exceptional is the survival of evidence of the surrounding Iron Age landscape. On Range West, an area of open land is criss-crossed with the remains of a field system thought to be contemporary with the forts. These squared fields were incorporated into later farmland with their boundaries being re-used. Such land divisions were probably once very common

across the Pembrokeshire countryside, but only survive at Castlemartin due to the lack of modern intensive farming.

The way the fields are laid out suggests that the promontory forts were sited on open ground and that the coastal slopes were not enclosed into fields and farmland. This open ground was probably used for grazing in the Iron Age just as, in places, it still is.

Experimental archaeology

Experimental archaeology carried out at Castell Henllys can help inform us about the landscape surrounding Castlemartin's Iron Age forts. Castell Henllys is owned and managed by Pembrokeshire Coast National Park Authority (PCNPA) and contains a number of reconstructed roundhouses; it is managed as a visitor attraction and education centre, giving people a glimpse of life in the Iron Age.

PCNPA and the University of York have excavated a number of roundhouses within the hill fort, some of which have also been reconstructed in their original locations. This process of re-building has provided insights into Iron Age land management. The building of the largest roundhouse on the site required: "...the equivalent of over 30 coppiced oak trees for the rafters, posts and ring beams and around 90 coppiced hazel bushes for the wattle walls. Two thousand bundles of water reed were used for the thatched roof and around two miles of hemp rope and twine" (Bennett, 2002).

Extensive woodland management and coppicing would have been required to ensure a dependable supply of wood suitable for building, while managed reed beds and wetlands would be needed to obtain materials for thatching - if water reed was used.

These findings have implications for how we regard the Iron Age landscape at

Castlemartin and, indeed, elsewhere. Even if only a handful of the hill forts and promontory forts were occupied at the same time, we are still beginning to see a landscape which was carefully managed and controlled.

Evidence from Castlemartin and Castell Henllys suggests that we need to picture a landscape where the promontory forts were filled with buildings and people. Grazing animals could have roamed the open coastal slope keeping scrub and vegetation low and encouraging diversity in the animal and plant species which thrived there. A short distance inland would be a patchwork of fields – some for livestock, and some sown with wheat and barley, and maybe oats and rye. The fields were probably interspersed with other buildings and dwellings. Further afield there would have been extensive stands of woodland with people working to manage them – coppicing, collecting firewood and charcoal burning.

The impact of Iron Age people went far beyond simply building hill and promontory forts. By their management of their landscape, people would have influenced which species of plants and animals flourished and which declined. Some of this influence will still be felt in the distribution of plant and animal species which we monitor today.

Research opportunities

Investigation into the Castlemartin forts has so far been limited, but the potential for them to inform us about the landscape and society of the Iron Age is enormous.

One of the key questions is whether all of these forts would have been occupied at the same time. Are they all contemporaries? Or were they used successively? If so, do construction styles change over time?

Some clues are already visible. An eroding cliff at Linney Head Camp has cut

a section through the main bank and ditch across the neck of the promontory. This has allowed us to see the construction; it is a massive, flat bottomed ditch cut straight into the rock. The spoil from this was heaped up to form the basis of the bank. Interestingly, the section also suggests that there may have been an earlier ditch – perhaps an earlier incarnation of the fort? Was it modified whilst in use? Or was it abandoned, and then re-modelled when people returned to it?

The exposed section has been archaeologically recorded, and will now be monitored to ensure that any new information revealed is recorded before any more of the site crumbles into the sea.

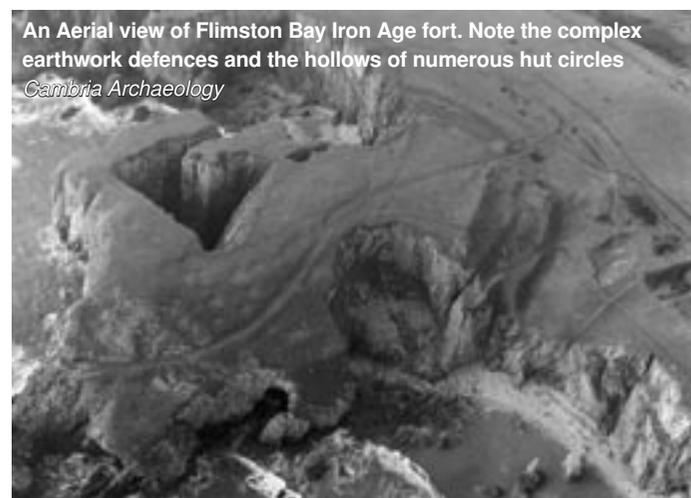
The 'natural' environment

With the development and implementation of the Integrated Land Management Plan (ILMP), Castlemartin Range is increasingly becoming a carefully managed landscape for nature conservation, military use, landscape value and the preservation of archaeology. But this is not new – what we see now is the result of centuries of different types of land management. Understanding the history and archaeology of the range will help us to understand why it appears as it does today, and will help us to manage it to ensure its unique properties are retained.

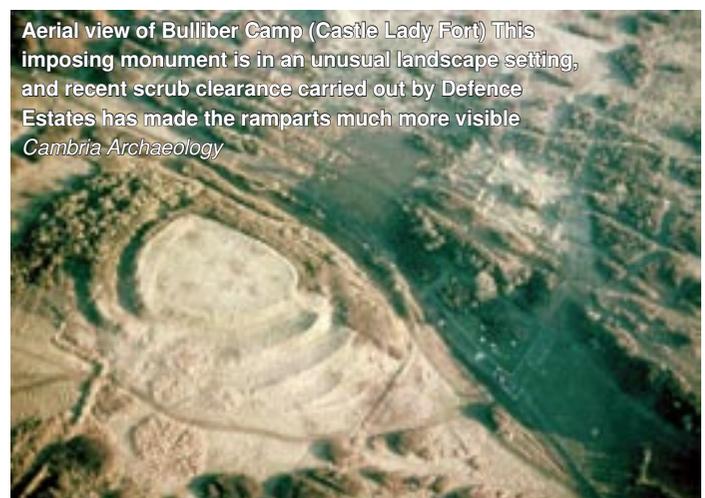
Polly Groom (Pembrokeshire Coast National Park Archaeologist)
Louise Austin (Head of Heritage Management, Cambria Archaeology)

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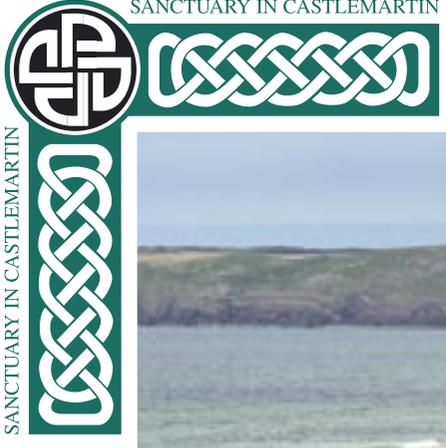
Bennett, P: 2002: Roundhouses in the Landscape (forthcoming)
Bennett, P: 2001: Approaching the Past – reconstruction and interpretation at an Iron Age Fort (abridged version published in The Archaeologist, 2001)



An Aerial view of Flimston Bay Iron Age fort. Note the complex earthwork defences and the hollows of numerous hut circles
Cambria Archaeology



Aerial view of Bulliber Camp (Castle Lady Fort) This imposing monument is in an unusual landscape setting, and recent scrub clearance carried out by Defence Estates has made the ramparts much more visible
Cambria Archaeology



Dynamic Dunes

bare sand and rare bugs

The summer of 2003 was nearly over when I received a telephone call from Bob Haycock, the South Pembrokeshire Warden for the Countryside Council for Wales (CCW), asking me to undertake a survey of two rare bugs on the Castlemartin Peninsula, including the Castlemartin Army Training Estate. This is a spectacular site that I visited earlier in the year - and a place that I couldn't wait to return to.

The estate includes the sand dunes of Gupton, Brownslade and Linney Burrows, where fixed and semi-fixed dune communities dominate and are edged on the seaward side by a narrow band of mobile dune with small patches of embryo dune. The area is predominantly wind-blown sand over limestone, with an open structure.

The dune systems on the Castlemartin Peninsula are known to support a rich invertebrate fauna and are the UK centre for the Red Data Book listed Shield Bug *Odontoscelis fuliginosa* and Seed Bug *Pionosomus varius*. A key feature of these dunes is the presence of bare and partially-vegetated sand which supports the preferred foodplants of these bugs, such as Stork's-bill *Erodium spp.*, Restharrow *Ononis repens* and Wild Thyme *Thymus polytrichus*. Most

open sand habitat results from grazing pressures by rabbits, winter sheep and cattle, military activities and past sand extraction. The extent of bare and partially-vegetated ground present at the site is around 15%.

However, in recent years there has been a loss of this habitat due to vegetation succession creating fixed dune grassland, changes in grazing regimes and most importantly, reduced rabbit populations. This could have serious consequences for the survival of the two rare bugs and other invertebrates, and it was hoped that my survey would be able to provide valuable information to CCW and for the Castlemartin Range Integrated Land Management Plan. The aim of the survey was to:

- assess the habitat requirements of both bug species
- map their distribution in relation to site maps and aerial photographs
- provide an assessment of the extent of bare ground and the current status of the bug assemblages.

Throughout the survey I was accompanied by Chris Felton, my Liverpool Museum colleague. We used a variety of different searching techniques which to us seem quite

normal, but would appear very strange if you didn't know what we are doing. A lot of time was spent flat on our stomachs in bare sand and crawling through partially-vegetated ground, carefully looking for the insects and inspecting their foodplants. Both species are well camouflaged but whereas the slow-moving Shield Bug is quite easy to spot once you get your eye in, the much smaller Seed Bug is hard to find. To overcome this problem we sieved suitable vegetation and litter over a tray to search for the Seed Bug and, more successfully, used a suction sampler – a modified garden vacuum.

A total of 17 locations were searched at Castlemartin Range together with a further 40 at the adjacent Broomhill and Kilpaison Burrows SSSI and Stackpole NNR and nearby Freshwater East, between 8 - 12 September 2003 and 8 – 9 September 2004.

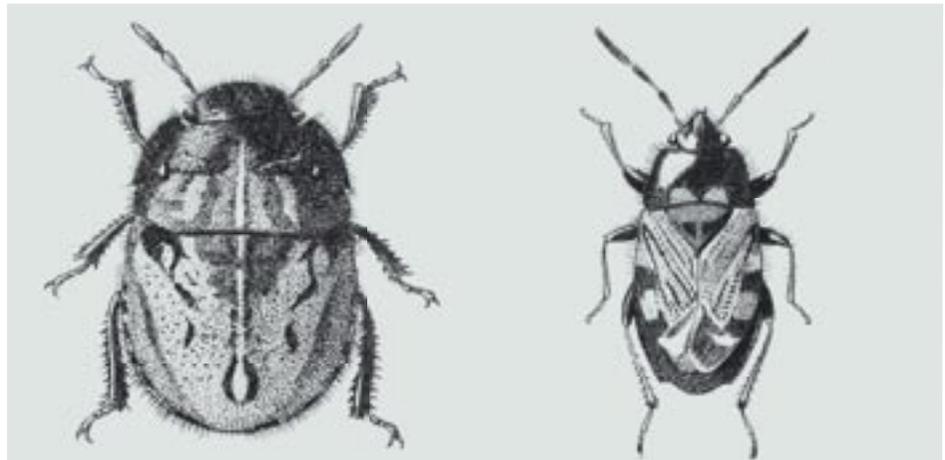
The survey findings were very encouraging. The Shield Bug was recorded for the first time from Castlemartin Range and subsequently found to be widely distributed across the site, where it was recorded from ten separate sampling locations. Different habitats included sandy sills on soft rock cliff at Great Furzenip, a quarry floor at Brownslade Burrows and a high, semi-fixed

dune at Linney Burrows. The majority of records, however, were from small rabbit scrapes edged with Common Stork's-bill *Erodium cicutarium*. Only three sightings were made for the Seed Bug at Castlemartin Range - all at Linney Burrows on south-facing 45° slopes with small areas of disturbed sand and rabbit scrapes and very short, rabbit-grazed turf with moss and Thyme.

Across the Castlemartin Peninsula the Shield Bug was recorded from a further 11 locations and the Seed Bug from another 10 locations including new site records for both species at Freshwater East. An additional 158 invertebrate species were recorded from bare sand habitat, including 12 nationally scarce species. Two of these, the Ground Beetle *Harpalus servus* and the Weevil *Sitona waterhousei* were found on Castlemartin Range.

It is pleasing to record that both the Shield Bug and Seed Bug are widely distributed across the dune complex on the Castlemartin Peninsula with populations on Castlemartin Range. The only localized extinction appears to have been for the Shield Bug at Barafundle Bay and this is balanced against new findings for both species at Freshwater East. The long-term survival of these rare bugs is dependent on the provision of a more dynamic dune system with larger areas of bare sand and short, herb-rich, rabbit-grazed grassland.

**Dr Steve Judd, Head of Zoology,
National Museums Liverpool**



The Shield Bug
Odontoscelis fuliginosa

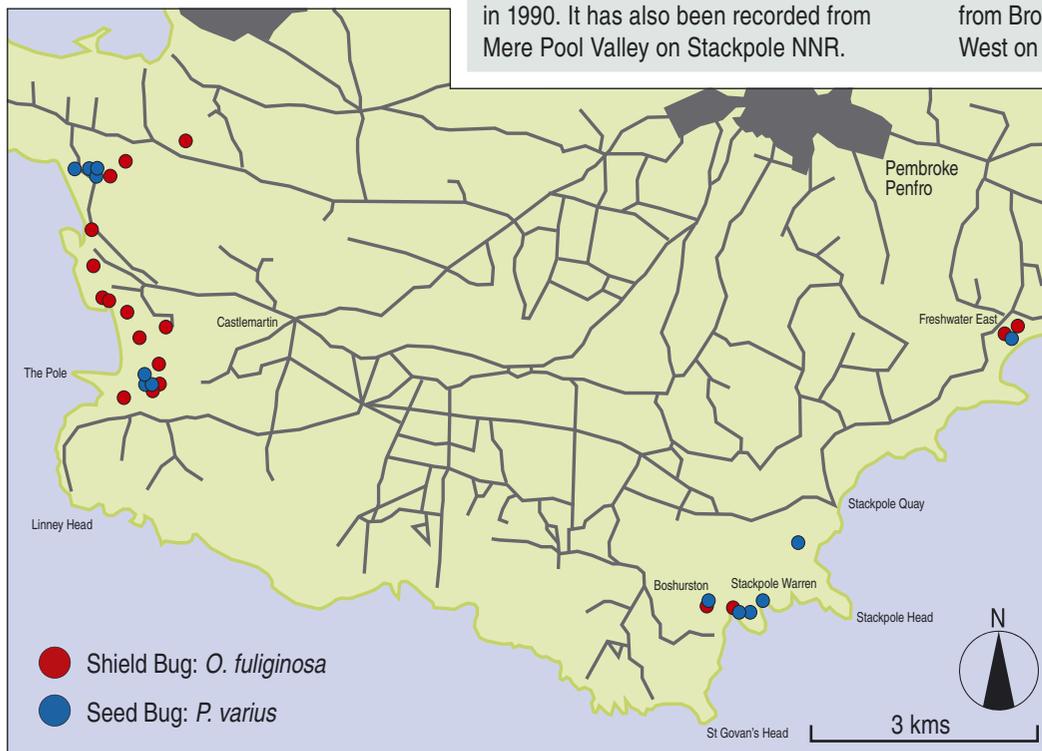
This medium-small (total body length 6 - 8mm), ground-dwelling Shield Bug is known in the UK only from coastal dunes where it is associated with Stork's-bill *Erodium spp.*, on open fairly stable, dunes. Adults are found from June to August and tend to form small discrete colonies, burrowing in sand close to the roots of Stork's-bill. Unlike most Shield Bugs, it overwinters as a nymph.

There are no modern records from historic sites for this species in Cheshire, Cornwall, Hampshire Norfolk and Suffolk and it appears to be restricted in the UK to Sandwich Bay in Kent and the Castlemartin Peninsula. The last British records for the species were from Broomhill Burrows and Stackpole NNR at Barafundle Bay in 1990. It has also been recorded from Mere Pool Valley on Stackpole NNR.

The Seed Bug
Pionosomus varius

This small (total body length 2 - 3mm) Seed Bug is confined to coastal sand dunes in the UK where it occurs in small, localised colonies in areas with sparse vegetation and bare ground. Its exact host requirements are uncertain but it has been associated with Little Mouse Ear *Cerastium semidecandrum*, Biting Stonecrop *Sedum acre*, Common Stork's-bill *Erodium cicutarium* and Shepherd's-purse *Capsella bursa-pastoris*. Over-wintered adults occur from late May and their offspring take about eight weeks to mature, with new adults present from late July onwards.

Modern records are restricted in the UK to Kent, Glamorgan and Pembrokeshire. It was last found in Wales 10 years ago on the Gower Peninsula when it was recorded across Stackpole NNR and also from Broomhill Burrows and Freshwater West on the Castlemartin Peninsula.



Based on Ordnance Survey © Crown Copyright reserved

Acknowledgements:

I would like to thank: The Commandant of Castlemartin Army Field Training Centre, Lt Col Johnny Rogers OBE for allowing access to the Range. Bob Haycock and Mike Howe (CCW) for commissioning this project and for their advice and support. Chris Felton (Liverpool Museum) for assistance with fieldwork and identification. Guy Knight (Liverpool Museum) for assisting in the preparation of this report. Carl Clee for site photographs. The line illustrations are by E.W. Robinson (1864) and are taken from the Ray Society publication on British Hemiptera by JW Douglas & J. Scott (1865).



Marsh Fritillary butterflies mating
Stephen Davis, *English Nature*



Marsh Fritillaries

on the Castlemartin Ranges

A population explosion or a previously overlooked species?

The Marsh Fritillary *Euphydryas aurinia* is one of the most beautiful butterflies to be found in Britain. Once widely distributed, it is now one of the most threatened species with the Millenium Atlas of Butterflies in Britain and Ireland recording just 432 colonies in the UK. The rate of decline gives even greater cause for concern with an estimated 10% of colonies lost each decade in the last century.

Other European countries have suffered a similar rapid decline with over 50% of colonies lost in the last 25 years, prompting the inclusion of the Marsh Fritillary on Annex II of the EC Habitats Directive, affording the species and its habitat special protection.

A number of important Marsh Fritillary sites are now designated Special Areas of Conservation, including Salisbury Plain Training Area (SPTA) which supports the largest population in Britain - estimated in some years to be tens of thousands of individuals (see *The Meaning of LIFE* page 6).

The Marsh Fritillary requires a network of colonies covering an area of at least 2-ha to support a pattern of extinction and re-colonisation that will ensure the long-term survival of local populations. This is known as a metapopulation. Its conservation therefore relies on a landscape-scale approach. Pembrokeshire has a number of fairly well known Marsh Fritillary metapopulations, but the closest are about 16 kms north-west and 19 kms north-east of the ranges.

The caterpillars are entirely dependent on Devil's-bit Scabious which is quite abundant in some areas, so perhaps it shouldn't have been such a surprise when in late May and early June 2003 the first few adult Marsh Fritillaries were recorded on the range. The sightings, in two separate areas of herb-rich maritime grassland approximately 3 kms apart, caused much excitement amongst members of the South Pembrokeshire Ranges Recording & Advisory Group (SPRRAG), and led to the establishment of a project involving Defence Estates (DE) and SPRRAG members. The project's aims were twofold. Firstly, to establish whether any of the habitats (mesotrophic grassland, maritime grassland or coastal heath) that occurred across the ranges could be considered suitable breeding habitat for the butterfly, and secondly, to search for evidence of breeding success by surveying for Marsh Fritillary caterpillars. This is best done during the stage of the lifecycle when the caterpillars (or larvae) are found in colonies of up to 100 or more in larval webs.

The DE Environmental Support Team provides advice and support to the army and is experienced in recording Marsh Fritillary and its habitat. Through their work on SPTA DE ecologists have developed a method for evaluating grassland habitats and their ability to support the butterfly based on the abundance of the food plant and the structure of the sward. The same approach was used



Typical coastal heath on Castlemartin Ranges
Andrew Linnett, Crown Copyright



Marsh Fritillary larval web
Stephen Davis, English Nature



Defence Estates ecologists surveying transects along coastal grassland
Olly Howells



Devil's-bit Scabious
Stephen Davis, English Nature

at Castlemartin at three different scales (within 0.25m², 1m² and 4m²) along a 50-metre transect. Sward height was recorded as a measure of sward structure. Notes were also made about the presence of scrub or bare ground where this was appropriate.

The timing of the fieldwork was critical. The caterpillars occur in their conspicuous larval webs in August/September. They feed furiously on the leaves of the food plant for a few short weeks before hibernating, often at the base of a dense grass tussock. They then re-emerge in March/April, when they can still be seen in their webs, before pupating and emerging as adults in late May or early June. The vegetation survey therefore took place in September to coincide with searches for the larval webs.

Two DE ecologists surveyed 12 transects along 6 km of coastal grassland and heath in Range West where Devil's-bit Scabious was most abundant and where most sightings of the butterflies had been made along this coastal fringe. The results were very encouraging: Devil's-bit Scabious was recorded on each transect, almost certainly in densities high enough to support breeding. The search for larval webs proved rather more daunting given the scale of the site, but two separate larval webs were identified providing concrete evidence that the adults seen earlier in the year had been part of a breeding colony. But how many of the autumn caterpillars would re-emerge in spring and go on to become adults?

Mortality rates during the larval phase can be high due to the weather, predation

or parasitism but the larvae recorded at Castlemartin faced another unknown factor. During the winter months about 12,000 hill sheep are brought on to the Ranges. This heavy grazing pressure would inevitably alter the sward structure and there were concerns about how this would impact upon the larvae as they emerged from hibernation. To assess the pre and post grazing impacts and re-survey for larval webs it was decided to repeat the vegetation survey in April 2004.

Concerns about grazing impacts proved well founded, with the average sward height far lower than in the previous September. However, anecdotal evidence suggests this didn't have a detrimental impact on the larvae, except that they may have been forced to forage over a larger area. Indeed, many more larval webs were recorded than had been spotted the previous September. It soon became apparent that what was thought to be a relatively new and small colony was more likely to be a large and established population. This was confirmed in late May and early June of 2004 when DE staff and SPPRAG members carried out timed counts to identify and record the Marsh Fritillary adults. Large numbers of butterflies were recorded during these counts with approximately 600 adults recorded in 2½ hours on 30 May.

It has been a rapid rise to prominence for the Marsh Fritillary population on the Castlemartin Ranges. The origins of the population continue to be something of a mystery whilst the size and extent of

the colony needs further investigation.

Could it be that a small colony has always existed at the site and a combination of factors have led to a recent population explosion? The work done to date confirms that a large part of the ranges provide suitable habitat for this butterfly. The initial investigations suggest winter grazing is not having a detrimental impact and may in fact be responsible for maintaining a sward with abundant Devil's-bit Scabious for the caterpillars and nectar sources for the adults.

A programme of annual surveillance will monitor the status of the Marsh Fritillary population into the future. This, along with information about the larvae, vegetation and grazing management, could provide valuable information that may help extend the range of one of our rarest butterflies. One thing is certain: the sight of this graceful butterfly gliding along the cliff-tops of south Pembrokeshire is a valuable addition to the list of natural wonders that can be experienced across the MOD estate. With continued hard work and a little bit of luck, long may this be the case.

Olly Howells
DE Environmental Support Team

Reference:

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Salt marsh and sand flats a-wash with Samphire



Frampton Marsh sea wall, enriched dyke and reclaimed arable land. SSSI, The Wash National Nature Reserve
Peter Wakely, English Nature

Grazing marsh behind sea wall SSSI, North Norfolk Coast National Nature Reserve, Blakeney
Peter Wakely, English Nature



Dunlin frequent mud flat habitats.
Mike Hammett, English Nature



Dense Samphire growth in the pioneer zone, July 2004
R A Brocklebank

The Wash saltmarshes are a vital habitat whose loss could have an impact on local bird life. As well as being a resource for birds and other wildlife, they are a resource for land-owners, ornithologists, wild-fowlers, the general public and potential commercial exploitation.

This project - to explore the extent of Samphire *Salicornia spp.* as an instrument of change in the green marsh and inter-tidal flat habitats on the Air Weapons Range at RAF Wainfleet - was undertaken as part of Open University Course U216 on the Environment.

The site is owned by the Duchy of Lancaster and is a SSSI, subject to various regulations such as the Conservation (Natural Habitats &c) Regulations 1994 and the Habitats Directive and Birds Directive. Activities on the site are monitored by statutory bodies.

Historically, land reclamation and accretion has seen expansion of the green marsh at the expense of the inter-tidal sand and mud flats. Earlier research concluded that there was a steady rate of accretion of 15mm to 30mm per year, in addition to the horizontal movement of the green marsh. The boundary between this green marsh and the outlying sand and mud flats is the pioneer zone for Samphire,

so a small-scale survey to monitor growth as an indicator of change was undertaken. This survey showed that the green marsh continues its historic seaward movement at a rate of about 30 metres per year.

Samphire is a valuable resource for human users and non-humans such as Twite, which feed on Samphire seeds and is on the Red List for high conservation concern due to a decline in breeding numbers. However, its unchecked growth and subsequent loss of sand and mud flat habitat would reduce the feeding area for Dunlin, which is on the Amber List of medium conservation concern.

Humans value the marsh for potential as agricultural land and extension of the sea defences, and Samphire for its potential as a valuable commercial food resource. The frontagers, who own the sea bank, have an interest in expansion of the green marsh as they will acquire additional land, and thus additional income. Expansion would please wildfowler groups who shoot over the green marsh, whereas ornithological groups value both marsh and mud flat. It may be seen therefore that there is a potential for conflict of interest and a contest over its value to humans and non-humans alike.

There are a number of options for change. The easy option is to do nothing, which would obviate the need to seek change. The area has been changing for hundreds of years, and will continue to change. However the “do nothing” option is not viable in the long term. Although commercial operations are constrained by European legislation and policed by statutory bodies, it may be necessary to accept positive intervention to control the expansion of the green marsh. At the moment, however, there is insufficient data and what is unknown cannot be policed properly.

The other option is to undertake a more extensive survey to confirm the dynamics of the green marsh and the growth of Samphire. One possible driver here would be political discourse by commercial interests lobbying for legislation change. It is recommended that the Wash Estuary Strategy Group seek funding for a project to determine the extent of the Samphire beds, and that they sponsor a larger survey to confirm the potential for harvesting of Samphire.

R A Brocklebank

The author has served as the Officer Commanding the Air Weapons Range at RAF Wainfleet since 2001.

Take nothing but photos

Protecting the Wash and North Norfolk Coast

A new guide to the Wash and North Norfolk Coast has been launched to help make visitors aware of how important the site is and how their behaviour can help protect it.

The area is an internationally important coastal habitat known throughout the world for its birdlife. It also supports important marine life, including a breeding colony of common seals. Some of its features are unique to Britain; for example, the North Norfolk Coast is the only example of a classic barrier beach system, with vast areas of saltmarsh, laced with creeks, behind sand and shingle bars.

Extensive areas of the Wash are used by the MOD for military training and as bombing ranges. In 1996 the Wash and the North Norfolk Coast were designated as a European Marine Site (EMS) by the European Commission, with more protection for plants and animals and stronger responsibilities placed on public authorities and agencies to work closely with local people and organisations to safeguard the site.

In order to achieve this, a management group was set up and a management scheme launched in 2002 to safeguard the nature conservation interests, while encouraging sustainable use. This has resulted in *The Good Practice Guide* being put together through the Wash and North Norfolk Coast European Marine Site Management Scheme, working with local advisory groups which include the MOD, fishermen, watersports enthusiasts, conservation site managers and local people with an interest in the natural environment.

The guide encourages people to:

- avoid damaging this special environment and harming its wildlife
- be considerate of other peoples' enjoyment
- stay safe by following simple guidelines

The guide contains:

- information about the importance of the European Marine Site
- a factfile on seashore awareness
- a series of guidance notes
- a Seashore Code
- useful contacts

Peter Rushmer, Project Manager, said: "Every year, thousands of visitors and local people take part in a variety of traditional activities, hobbies and recreational pursuits along the coast. We hope *The Good Practice Guide* will raise awareness of the importance of this site and promote responsible use of the coastline among those who are less familiar with it."

The first edition of *The Good Practice Guide* is sponsored by The Crown Estate through its Marine Stewardship Fund, also a member of the management group.

The Fund was established in 1999 to provide grant-aid to practical projects and programmes which make a significant contribution to the environmental management and stewardship of the Marine Estates.

The Crown Estate is a richly diverse portfolio of assets reflecting the UK's heritage managed on a commercial basis, guided by the principles of social responsibility. Its assets are valued in excess of £4.5 billion and last year it paid over £176 million to the Treasury for the benefit of the UK taxpayer. The Crown Estate's marine holdings include more than half of the UK's foreshore (17,000 km), 55 per cent of the beds of tidal rivers and estuaries and almost the entire seabed out to the 12 nautical mile territorial limit around the UK. It also includes the rights to material in the UK Continental Shelf, with the exception of oil, coal and gas.

Copies of *The Good Practice Guide* will be available at local tourist information centres, libraries, managed nature reserves and sites, education and study centres, holiday sites, partner authorities and from the Project Manager. It is also on the European Marine Site website at www.esfjc.co.uk/ems.htm, which also shows the latest annual report of the management scheme, detailing progress to date.



Reserve extension **Beast Sand area SSSI, The Wash National Nature Reserve**
Peter Wakely, English Nature



Marram grass colonising dunes at Spit Holkham Bay SSSI, North Norfolk Coast National Nature Reserve Peter Wakely, English Nature

For Queen & Countryside

Defending the UK's most important wildlife and geological Sites

What are SSSIs and ASSIs?

Sites of Special Scientific Interest (SSSIs) across England, Scotland and Wales, and Areas of Special Scientific Interest (ASSIs) in Northern Ireland represent the best examples of land which are important for rare or vulnerable wildlife, geology or land formations.

These nationally important sites come in a wide variety of shapes and sizes. The smallest SSSI is a roof space used by the endangered Lesser Horseshoe Bat as a breeding site, and the largest SSSI is the Wash, which covers thousands of hectares of

inter-tidal habitats, supporting thousands of sea birds and a host of other coastal wildlife (*see Take nothing but photos... protecting the Wash and North Norfolk coast, page 41*).

Rare woodlands, grasslands, heathlands and uplands are also designated SSSIs or ASSIs. On a landscape scale, whole river catchments and coastlines have been designated and many are selected because of their geological interest exposed by human activity such as former stone quarries, or as natural landforms like limestone pavements. SSSIs and ASSIs may be selected for



Top: Green-winged orchids *Orchis morio*
Peter Wakely English Nature

Above: Not all SSSI works are agri-related. Works to protect important bat hibernation sites are also essential to meet SSSI objectives. This image shows a grilled entrance to a bat cave in the Stanford Training Area
Ian Davidson-Watts

Left: Daubenton's bat *Myotis daubentonii* regularly roosts on the MOD estates and are found in good numbers at RAF Chilmark and Stanford Training Area bat caves
Ian Davidson Watts

Glossary of Terms

- SSSI:** Site of Special Scientific Interest – designated in the UK by English Nature, Scottish Natural Heritage, the Countryside Council for Wales and Northern Ireland’s Environment and Heritage service
- ASSI:** Area of Special Scientific Interest - designated as above
- SAC:** Special Area of Conservation - EU Habitats Directive
- SPA:** Special Protection Area – EU Birds Directive
- SdiG:** Sustainable Development in Government targets
- QinetiQ:** is a defence technology and security company and a Public Private Partnership between the MOD and The Carlyle Group



Adonis Blue Butterfly
English Nature

single rare or endangered species using discreet habitats, others are selected for sites representing the 'best example of' certain more abundant habitats or species. Currently nearly 10% of England's, 12.8% of Scotland's, 10% Wales' and 6% of Northern Ireland's land area is SSSI or ASSI.

In the UK, the statutory bodies English Nature (soon to become part of Natural England), Scottish Natural Heritage, the Countryside Council for Wales and Northern Ireland's Environment and Heritage service are responsible for selecting and 'notifying' (the legal term for designating) these special sites. They also aim to work with the landowners and a wide range of statutory bodies to protect and sustain the special features for which the sites were designated by providing advice, funding and in some cases legal measures afforded by legislation. Another key role of these organisations is to assess and monitor the condition of SSSIs and ASSIs and report to Government on whether the special features are being sustained.

Through the umbrella organisation, the Joint Nature Conservation Committee (JNCC), the statutory bodies use a series of categories to describe the condition of an SSSI/ASSI:

Favourable

A feature of interest is recorded as favourable when its condition objectives have been met

Unfavourable recovering

A feature of interest can be recorded as recovering after damage/neglect if it has begun to show, or is continuing to show, a trend towards favourable condition and all measures are in place to bring about favourable condition

Unfavourable no change

An interest may be retained in a more or less steady state by repeated or continuing damage/neglect

Unfavourable declining

Decline is another possible consequence of a damaging activity. In this case recovery is possible and may occur if suitable management input is made

Partially Destroyed/Destroyed

Self-explanatory

A range of issues can influence the condition of SSSIs and ASSIs. Many of these sites require appropriate management from

the landowners or land users, which may include the minimisation of certain types of management or equally the intensification of others. Financial support from the statutory bodies is often required to support these actions. Many 'off site' factors also have a major influence on the condition of these sites such as water quality, adjacent land use, air pollution and the management of the UK's continually changing coastline. These will often require the action of other public bodies and Government Departments to meet the requirements. The scale of some of these issues presents all those involved with the management of SSSIs and ASSIs a considerable challenge of ensuring the protection of these special sites.

How does this affect the MOD?

Since the end of the 19th century the armed forces have required increasingly larger areas of land to enable the effective use of longer-range weapons and to train using more mobile tactics, and by the end of WWII the MOD held vast areas of land to meet these requirements. The majority of the land held by the MOD at this time remained unaffected by the major changes in agriculture and water management taking place all over the UK during the second half of the 20th century. ▷

As a result, when SSSIs started to be designated from 1949, the MOD estate still contained many areas unaffected by intensive agriculture, pesticide use and drainage and thus still supported what were becoming increasingly rarer habitats and their associated species. The MOD estate provides for many species and habitats a secure and peaceful place to exist, particularly in the 'danger areas' where human disturbance is kept to a minimum. Some species and habitats require the disturbance of tanks and shellfire on a regular basis to thrive. However, in practice, the great majority of MOD land use is low impact.

The Ministry of Defence now has the greatest area of SSSI/ASSI land under management of any landowner in the UK. Spread across nearly all the armed forces and support agencies throughout England, Scotland, Wales and Northern Ireland, the MOD is responsible for the management of over 176 SSSIs and ASSIs covering approximately 83,700 hectares. The types of SSSIs and ASSIs on MOD land vary considerably and reflect the national picture. For example the MOD has coastal SSSIs and ASSIs in Cornwall, Kent, East Anglia, South and West Wales, Northern Ireland and as far up as Cape Wrath and St Kilda on the North Coast of Scotland.

On land the MOD holds extensive areas of lowland heath in Dorset and in the Home Counties and vast areas of unimproved lowland grasslands on Salisbury Plain, Porton Down and in the 'Brecks' of East Anglia, as well as a range of lowland wetlands and ancient woodlands. In the uplands the MOD is responsible for large areas of moorland, upland woodlands, limestone pavements and montane habitats.

There are the more discreet sites too. Internationally important populations of bats use former bomb dumps, rare grassland communities are maintained between runways on active airfields and a host of other features exist on 'backdoor' training areas of many MOD establishments.

In summary and using the words of the former Chairman of English Nature, Lord Cranbrook: "The MOD Estate is the finest estate for wildlife in one ownership."

Roles and Responsibilities

All SSSIs and ASSIs are protected under law, and landowners and public/Government bodies have specific duties to ensure the protection and the sustainable future of these special sites. If necessary, the statutory bodies can impose management orders on landowners of SSSIs/ASSIs to bring about favourable condition.

More recently the UK Government published its Sustainable Development in Government (SdiG) targets, one of which built on an existing target relating to SSSIs in England, requiring all Government Departments to ensure that 95% of SSSIs/ASSIs were in favourable or unfavourable recovering condition by 2010.

As the largest landowner of Government managed SSSIs and ASSIs this target presents a real challenge to the MOD, particularly as the first comprehensive condition assessment of England's SSSIs by English Nature in April 2003 showed that 39% of MOD SSSI land area was failing to meet this target. Although not yet comprehensively assessed, sites in Scotland, Wales and Northern Ireland were showing a similar trend.

The MOD SSSI Favourable Condition Project

With the support of MOD Ministers and senior management in Defence Estates, and with representation from all major land owning parts of the MOD, the MOD SSSI Favourable Condition Project was established in April 2003. Its aim is to investigate factors affecting the condition of SSSIs/ASSIs on MOD land and identify solutions and likely costs in order to meet the Government's SSSI target.

In April 2004 the SSSI audit for England was complete after investigating influences and management of SSSIs at 107 MOD establishments.

The key conclusions from the audit were:

- The MOD needed to ensure that the statutory bodies had accurate information on MOD land holdings and management arrangements



Fishponds in winter, Catterick Training Area
Photographs on this spread
Jez Kalkowski



Warcop Training Area



Holcombe Moor



Scordale Valley, Warcop Training Area



Rushes at Catterick Training Area



- MOD needed to confirm the condition assessments made by the statutory bodies on approximately 13% (10,500 ha) of MOD SSSI land as improvement works had been undertaken since the last assessment, some of which were undertaken 5-6 years previously
- The MOD considered that it was directly responsible for the condition of approximately 75% of its SSSI land. Other factors such as the management of sites by long-term tenants and third parties, pollution and over fishing, were influencing the condition of sites not in their direct care.
- Approximately 8% of MOD SSSI land area was affected by military constraints.
- The largest constraint to meeting the SSSI SDiG targets was funding to undertake specific improvement works
- Total costs to improve the condition of MOD SSSIs in England were estimated at £6m for 'one off' works, and £2m per annum to maintain improvements undertaken.

Audits have yet to be undertaken of Scotland and Wales, following a comprehensive assessment of the condition of SSSIs by the statutory bodies in these countries. However it is considered that many of the factors affecting SSSI condition in England will be similar.

Big spender?

By July 2004 English Nature had reassessed the condition of MOD's SSSIs in England, taking into account land ownership issues highlighted by the MOD audit. The MOD met approximately 70% of the SDiG target. After considering the conclusions of the initial phases of the MOD SSSI Favourable Condition Project, Defence Estates reallocated funds to support improvement works on SSSIs/ASSIs throughout the UK during the winter of 2004/05.

In the four months between December 2004 and April 2005, Defence Estates' Estate Advisors, members of the Defence Estates Environmental Support Team, MOD armed forces and agency representatives and local MOD commercial and contractor staff, delivered over £2.5m worth of improvement works on a wide range of MOD sites.

Due to the efforts of all the staff involved in this massive work programme it is likely (yet to be confirmed by the statutory bodies)

that 87 SSSI units covering nearly 5000 ha of SSSI in England will be improved. This potentially increases MOD's SSSI condition in England from approximately 77% to over 82% of its SSSI area meeting the required target. In Wales, Scotland and Northern Ireland over 40 SSSI/ASSI features have also been improved.

It will be important for all of these improvement works to be followed up, as the types of habitats that the MOD has been protecting for so long require continual management. Working closely with the statutory bodies, the DE Environmental Support Team has already developed an SSSI improvement programme for 2005/06 to build on improvements made over the last year. A 5-year programme to take us up to 2010 is currently being prepared.

We're getting there

With all the targets, policy statements and legislation associated with these special sites, it is sometimes easy to forget what they are all about. There will be a significant increase in lowland heath and chalk grassland and their associated flora and fauna in the lowlands. In the uplands there will be more habitat for Black Grouse and Mountain Hares, and on our coasts many species of bird and a range of marine life will benefit, making a real difference to some of the UK's most threatened and rarest habitats and species.

Of course the land the MOD holds is not intended to be a nature reserve. It is held to support the functions of the MOD and that will always be the priority. However, in almost all situations the interest of the special sites has benefited from the protection of the MOD. The pro-active management of these sites is key to their future and the greatest challenge to those responsible for them.

Meeting the SDiG targets for SSSIs/ASSIs on the MOD estate will require the continued interest and support of MOD senior management, continued clear and supportive advice of the statutory bodies, and the hard work and determination of those on the ground continuing to make a permanent change. ▷

Ian Davidson-Watts, Head of Natural Environment, Defence Estates Environmental Support Team, and Project Manager of the MOD SSSI Favourable Condition Project.

The Drigg Coast SSSI at Eskmeals, Cumbria



Sea Buckthorn

All photographs Jez Kalkowski



Invasive Sea Buckthorn dominates the dunes



Dunes, after clearance



The mechanical flail used in scrub clearance

The QinetiQ managed Test Ranges at Eskmeals include a significant part of Drigg SSSI and SAC.

Two areas of conservation work have been prioritised for this area: the removal of scrub on sand dunes and the extension of breeding pool habitats for the nationally threatened Natterjack Toad.

Scrub clearance

English Nature (EN) has strongly recommended the removal of dense Sea Buckthorn and small areas of pine woodland on the 50 hectares or so within the Qinetiq managed part of the SSSI. This work is considered essential for the protection and restoration of a natural dune system.

The ultimate nature conservation picture for the Eskmeals Range is a mosaic of dune types that can move with coastal processes. These include bare, newly vegetated, and established dunes, with grassland

and heath interspersed with naturally wet hollows or slacks. This 'vision' has to be balanced against other land uses and the practicalities of removing acres of thick jungle and preventing re-establishment of scrub.

The SSSI scrub clearance has been based on the DE Heritage Lottery Fund Bid Plan 2000, produced as a partnership with Cumbria Wildlife Trust (CWT), Lake District National Park Authority (LDNPA) and EN. Although the bid was unsuccessful, the plan has been very useful to agree the capital works programme.

Malcolm Guyatt, Lake District National Parks Authority, said: "I have some idea just how much effort went into the HLF bid. It was working with Defence Estate's Sarah Jupp on that project that led to the idea of the formation of Ravenglass Coastal Partnership - and agreement from a disparate group of organisations on the good conservation management of the SAC area."

About three hectares of scrub has been cleared during the past two years, and the works have allowed QinetiQ, DE and EN to experience first hand the issues in clearing scrub on a fragile substrate where health and safety issues prevent the digging out of the entire root system. As such, all areas recently cut require follow-up chemical treatment to prevent regeneration. The possibilities of using stock as an additional management tool are being explored, such as a flexible grazing programme using temporary enclosures that can fit around the research and firing programme.

The work has marked a turning point in the management of the internationally important dune system at Eskmeals - after years of damage and suppression by the introduced Sea Buckthorn - and has received favourable comment from the Ravenglass Coastal Partnership comprising statutory bodies, NGOs and parish councils.

Natterjack Toads

The Drigg Coast SSSI is an important stronghold for the Natterjack Toad - a nationally declining species - and the Eskmeals Range forms part of their still active breeding and foraging grounds. It is a national Priority Biodiversity Action Plan, and local Biodiversity Action Plan (BAP), species. It is also protected under the Wildlife and Countryside Act 1981 and Conservation (Natural Habitats &c.) Regulations 1994.

The works to improve the breeding pool network have been discussed in detail with the Herpetological Conservation Trust, EN, CWT and the local grazier. The aim is to protect and enlarge a core breeding area of seasonal pools at the northern part of the range.

In March 2005, within the fields let to a MOD grazier, three new pools were dug and four parts of existing, large natural hollows deepened. The fields are managed in accordance with an in-house agri-environmental scheme, with one of the objectives to create an appropriate sward for foraging Natterjack Toads. This has been warmly welcomed by the local Herpetological Conservation Trust representative as these pools are an addition to the existing breeding and foraging grounds in the CWT Reserve part of the site.

Sarah Jupp, Natural Environment Advisor, Defence Estates



Deepening natural hollows
Sarah Jupp



Young Natterjack Toad
Tony Mundell

Heathland Restoration at Ash Ranges



Longhill, before and after heathland conservation restoration



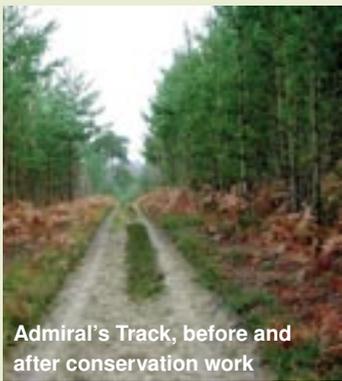
The Range Danger Area (RDA) at Ash Ranges near Aldershot, Surrey, encompasses over 800 hectares of lowland heath, scrub and woodland. The importance of the site is well recognised, and the RDA itself forms a significant part of the Ash to Brookwood Heaths SSSI, Thames Basin Heaths SPA and Thursley, Ash, Pirbright and Chobham SAC.

The small arms ranges are in use eight hours a day for up to 45 weeks of the year, with all access prohibited during these times. As a result, the RDA offers a rare heathland refuge for wildlife but presents Defence Estates with limited windows of opportunity in which to carry out the management work necessary to maintain this special habitat.

Extensive areas of heathland such as Ash Ranges are now rare in the London Basin and the few sites that remain need continuous management to prevent the otherwise inevitable succession to secondary woodland. The RDA heathland is no exception and is now suffering from the cumulative effect of many years of unrelenting advance of birch and bracken.

Numerous fires have resulted in dense swathes of self-sown pine enveloping former tracts of open heath. In recent years, the attempts by Defence Estates and the Surrey Heathland Project to control this invasion of the heath have made significant impacts on certain areas but, due to the sheer size of the site, a much larger scale effort is required. Due to scrub and bracken invasion the majority of the SSSI within the RDA is classed by EN as in unfavourable condition.

When presented with the opportunity to take advantage of extra funds late in 2004 there was no question about the location or type of work required at Ash. Acting quickly to take advantage of the ▷



Admiral's Track, before and after conservation work



View from Frimley Ridges - burning scrub cleared as part of the heathland restoration

funding, ATE, Landmarc and Defence Estates staff worked together to ensure that Ash Ranges received a sizeable proportion of the fund and that sufficient contractors were secured in a short time-scale. In just two and a half weeks during the Christmas closedown period of 2004, contractors - armed with chainsaws - descended on the site and worked every available daylight hour with the impressive result that 85 hectares of trees and scrub were cleared.

With regard to tree cover, the age and density was varied across the site; some areas supported a healthy heather carpet with only a light scattering of trees, other areas had long given way to woodland succession. In these latter areas further mechanical intervention may be necessary to remove some of the deeper layers of litter. Louise Bardsley, Conservation Officer for English Nature, said: "The views opened up across the site reveal a beautiful and interesting landscape with fantastic opportunities for Nightjar and Woodlark and, surprisingly, for Dartford warblers on the mature heather under-storey which has been revealed by the tree works."

There is still plenty more to do in terms of scrub clearance just to get the site into a recovering status. In the long term, maintenance will be ongoing, particularly to keep on top of pine and birch regrowth and bracken control. Opportunities to graze the heath are currently being explored in partnership with Surrey Wildlife Trust.

Liz Rowan, DE EST Environmental Adviser

SSSI Awards for MOD staff at Otterburn and Warcop



Warcop Conservation Group
Sarah Jupp



Duncan Glen, Otterburn
Sarah Jupp

English Nature's SSSI Award Scheme

is an opportunity to recognise the excellent work and achievements of owners and occupiers of SSSI land. The awards are in various categories:

- habitat management
- creation or restoration
- monitoring and surveying
- BAP achievements
- people and wildlife.

Nominations are made by the local English Nature teams, and MOD staff at Warcop and Otterburn are recipients this year of the award for Habitat Management for work 'above and beyond the call of duty' to SSSI management. MOD's existing duties under the Wildlife and Countryside Act and Countryside and Rights of Way

Act means the recipients have made a significant contribution beyond MOD's existing duties as a Section 28G authority.

At **Otterburn** there are 12 distinct SSSIs on the training area, covering 1,458 hectares and including species-rich hay meadows, semi-natural woodland, heather moorland, blanket and raised mires, a river and a geological site. In 2003, a number of these sites were in unfavourable condition. Working with English Nature over the past two years, undertaking damming of drainage ditches, fencing and grazing, woodland regeneration, and heather and bracken management has meant that Otterburn Training Area is now 96% favourable condition and has reached the Government's SSSI target five years ahead of schedule.

The **Warcop** Training Area supports 26 hectares of ancient semi-natural woodland in Helbeck Wood SSSI. In addition, some two thirds of the WTA falls within Appleby Fells SSSI and includes blanket bog, woodland, limestone grassland, and heath. The majority of these SSSIs are now assessed as unfavourable recovering. Work has also gone beyond SSSI management to provide habitat improvements for BAP species including Black Grouse, Red Squirrel, Water Vole and Great Crested Newt.

Our congratulations go to Duncan Glen at Otterburn Training Area, and Jeremy Kalkowski, Clare Hetherington and Lt. Col. Andrew Drake at Warcop Training Area for these awards; and their dedication to ensuring we have an estate that is both important for military training and able to support the UK's biodiversity.



Sandbowl Amber Snail



Braunton Burrows



Typical habitat for the snail

The Sandbowl Snail

Catinella Arenaria at Braunton Burrows, North Devon

Braunton Burrows, on the north Devon coast, is a popular coastal resort with long sandy beaches and imposing dunes. It is owned by the Christie family better known for their association with the Glyndbourne Festival at their house in Sussex. The southern two thirds are leased to the MOD for a wide variety of essential military training.

While the area is widely visited for walking and beach access by local people and holidaymakers, the Burrows are also important for wildlife conservation as they support rare flowering plants, lichens and mosses as well as the rare snail, known scientifically as *Catinella arenaria*.

Catinella arenaria, which is about 8 mm high when fully grown, is also called the Sandbowl Amber Snail. This is because it lives in low lying 'bowls' or dune slacks, which occur among the dunes, and also because it has an amber coloured shell. In the photograph the shell's colour is not obvious because the dark mantle of the animal makes its translucent shell look black, but after death the amber colour of the empty shell is seen. Large numbers of empty *Catinella* shells can be found at Braunton Burrows scattered over the bare sandy surface in some of the dune slacks. Only the fresher shells will still be glossy or amber coloured, the majority of older shells appearing dull and whitish after having been bleached by the sun.

Catinella arenaria has been known at Braunton Burrows since the early 1930s. Elsewhere in Britain, it is now only found at a few sites in Cumbria. Further afield in Europe it is known from a scattered sites in Ireland, a number of coastal locations in Brittany, the Netherlands, islands of the Baltic Sea, and from mountains in Scandinavia and eastern Switzerland. This rather strange distribution pattern is a relict from the last glacial stage of the Pleistocene, about 10,000 years ago. Fossils show that the snail was more common and widespread across the lowlands of Europe at that time. Today it is a scarce species throughout Europe, and so rare in Britain that it is been given special protection under Schedule 5 of the Wildlife and Countryside Act 1981.

At Braunton Burrows *C. arenaria* is usually found in those dune slacks which have sparse, low vegetation with substantial patches of bare sandy soil. Such dune-slacks may flood during the winter months, but with a high water-table throughout the year the sand surface remains moist in the summer months.

These open damp habitats have declined in many of the dune-slacks at Braunton Burrows since the early 1970s, as many of the slacks have become drier with vegetation covering the patches of formerly bare ground. These environmental changes may be due to a combination of factors including falling water tables and a lack

of rabbit grazing following outbreaks of *myxomatosis* and *viral-haemorrhagic* disease. Nowadays, rabbit grazing is still effective in maintaining the short open vegetation in some of the slacks. In many slacks, however, grazing pressure is no longer sufficient to stop the encroachment of the taller vegetation which can eventually develop into scrub eliminating the open habitat required by *Catinella*.

Maintaining open habitats at Braunton Burrows therefore requires active conservation management. Scrub clearance and mowing are amongst the measures used for some years by the MOD working together with English Nature, in an ongoing programme to maintain open habitats. Additionally it has been realised that over the last few years more drastic measures are required, involving the excavation of shallow 'scrapes' in several of the slacks.

Between 1999 and 2004 around five hectares of scrapes have been excavated at Braunton Burrows. These scrapes replace the open habitats lost through lack of grazing and they provide moist habitats by exposing the water-table. At each scrape the vegetation has been removed and the surface excavated to depths of about one metre creating pool-filled hollows. Initially this management process creates areas of loose, bare sand, but plants soon colonise to establish a sparse vegetation cover. These scrapes have proved to be particularly successful in creating 'new' open habitat, both for *Catinella*, which is thriving in several recently cleared areas, and also for several rare plants. The amount of good *Catinella* habitat at Braunton Burrows has therefore increased by the creation of these scrapes, although these will require periodic 're-scraping' in future to maintain their open, sparsely vegetated condition.

Finding *Catinella arenaria* at Braunton Burrows can be difficult because they are small and well camouflaged. Additionally the outer shell surface may become coated with muddy particles, breaking up the shell's outline against the sandy soil, an effect not dissimilar to a camouflaged Army combat uniform. Because of this ability to blend in with the surrounding sand-surface, searches for the snail requires close examination of the ground whilst on 'hands-and-knees'. To successfully locate *Catinella* it helps to firstly locate the whitened 'dead' shells and then search for living snails in damp areas nearby: the places where your knees get wet. If you do look for *Catinella* when you visit Braunton Burrows, note that your crawling may attract attention: some visitors may apprehensively walk the other way, whilst others might approach to help you find whatever you had lost!

John Breeds, David and Geraldine Holyoak, and Martin Willing



Water abstraction and drought problems.
Fowlmere, Breckland
Peter Wakely, English Nature

The potential impact of



on biodiversity in the UK

Changes in the Earth's climate have occurred naturally ever since the Earth was formed. However, climatic shifts now appear to be occurring at an unprecedented rate: for example, the 1990s were the warmest decade in the last 1,000 years.

There is an overwhelming scientific consensus that climate change is linked to human activities, in particular the release of high concentrations of carbon dioxide and other 'greenhouse gases' into the atmosphere.

The headline figures are sobering. Projections from the Intergovernmental Panel on Climate Change indicate that average global temperatures will rise by between 1.4°C and 5.8°C within the coming century (IPCC 2001). In the UK, temperatures are predicted to rise by an average of 2 - 3.5°C by the 2080s. But a general increase in temperatures is only part of the story. Other symptoms of climate change in the UK are likely to include rising sea levels, changes in precipitation patterns (wetter winters and drier summers), and an increase in the frequency and intensity of extreme weather events such as floods and storms. Changes of this magnitude will have major impacts on all aspects of the natural world and human society. It is therefore not surprising that the UK Government's recently revised Sustainable Development Strategy highlights climate change as 'the greatest threat'.

There is evidence that plants and animals in Britain are already responding to changes in climate. For example, warmer temperatures appear to have led to an earlier onset of springtime events, including trees coming into leaf, amphibians spawning and birds laying eggs. Conversely, autumn events, such as leaf fall, are occurring later. Species' distribution patterns may also be changing, e.g. several butterfly species have extended their range northwards across Britain in recent decades.

Changes of this sort may appear fairly benign, but climate change could potentially have a very damaging impact on Britain's biodiversity. Recent changes in seabird populations may be an example of this. The numbers of several species, including Kittiwake *Rissa tridactyla* and Guillemot *Uria aalge*, have shown a marked decline in recent years (JNCC 2004), an issue of serious concern as Britain holds internationally important populations of these birds (see *Operation Kittiwake*, page 69). The decline in seabird populations appears to be reflecting wider changes in the marine environment, possibly associated with recent warming of the North Sea, which have affected the birds' food sources.

If climate changes of the magnitude currently predicted do in fact occur, it is highly likely that population declines of this sort will become all too common. The main reason for this is that many plants and animals are unable to adapt to major environmental perturbations. In theory, as temperatures increase species could migrate to more northerly latitudes and/or higher altitudes, but in practice their ability to do so may be severely constrained.

A major barrier to dispersal for many species is the lack of suitable habitat. Most landscapes in Britain have been heavily modified by agriculture, urban development and other human activities, with the result that semi-natural habitats are now highly fragmented. Plants and animals characteristic of high altitudes on mountains may quite simply run out of suitable space to move to as temperatures increase. The mobility of different species is also a factor – species that can disperse readily (e.g. some insects) may be able to expand their range, provided that there is suitable habitat for them to move to, but less mobile species (e.g. trees) are unlikely to be able to keep pace with climatic changes.

The MONARCH (Modelling Natural Resource Responses to Climate Change) project, funded by a range of statutory bodies and non-governmental organisations, has attempted to model how the distributions of selected plants and animals may alter in response to climate change (UKCIP 2001). ▷

Beech high forest, the Mens SSSI, West Sussex
Peter Wakely, English Nature



will our southern Beech forests turn from this...

...to this?



Denny Wood SSSI, The New Forest, Hampshire
in 1993 following 1987 storm damage
Peter Wakely, English Nature



Snow over Cam Fell, Yorkshire Dales National Park
Paul Glendell, English Nature

Some of the key findings are set out below:

- The distributions of many mountain species are likely to contract. For example, Trailing Azalea *Loiseleuria procumbens* is predicted to become increasingly restricted to the Scottish Highlands, and may become extinct at its southerly outposts in England.
- Beech woodland may be lost from southern and eastern Britain as soils become too dry.
- In response to rising sea levels, salt marshes may move inland - as long as this is not prevented by artificial barriers such as sea defences.
- Peat bogs and other wetland habitats may be lost from southern England due to summer droughts, but may benefit from increased rainfall in the north and west.
- Some birds and insects with southerly distributions in Britain are likely to expand their range northwards. Examples include the Reed Warbler *Acrocephalus scirpaceus* and the Large Skipper butterfly *Ochlodes venata*.
- Most semi-natural habitats will persist but their species compositions may change.

Climate change clearly presents a major challenge for nature conservation, as well as more widely for human society. In response to this, most attention has been focused on attempting to mitigate the potentially damaging impacts by reducing greenhouse gas emissions, most notably under the Kyoto Protocol. However, even if these initiatives are successful, existing atmospheric concentrations of greenhouse gases mean that climate change over the next few decades is unavoidable. Strategies to adapt to climate change are therefore essential.

In the case of nature conservation, adaptation to climate change will require a greater recognition of the dynamic character of the natural environment. Traditional approaches to nature conservation in the UK have concentrated on identifying sites containing uncommon habitats and species and protecting

them by preventing damaging development and ensuring appropriate management.

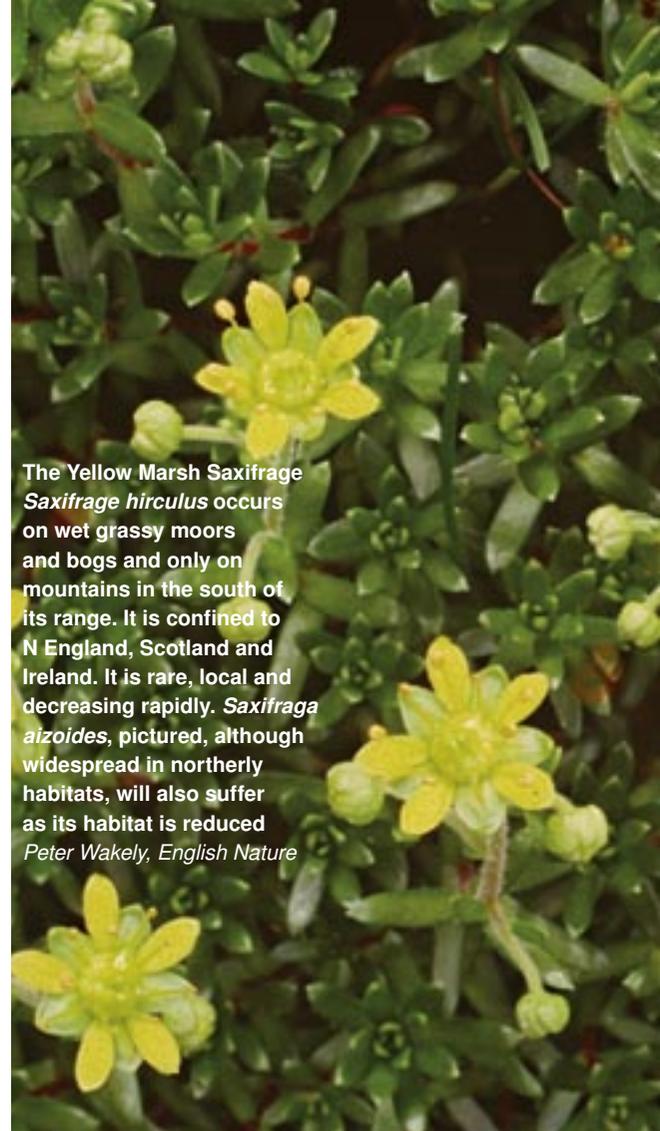
Site-based protection will remain an important strand of nature conservation in the future – sites that are special now are likely to remain special in the future, even if their habitats and species change – but it needs to be complemented by management at a landscape scale. The aim should be to enhance the quality of habitats in the wider countryside (e.g. through the adoption of less intensive agricultural practices) and to establish connections between protected sites (e.g. by means of ecological corridors). This will help to build a more robust countryside that can more readily adapt to the effects of climate change by allowing natural movement of species.

One specific way in which this might be achieved is through application of the ecosystem approach, as promoted by the Convention on Biological Diversity. The ecosystem approach is a management strategy that aims to maintain or restore functional ecosystems by integrating the various demands placed on the environment, in other words balancing environmental, social and economic concerns in a sustainable manner. It explicitly acknowledges that environmental change (whether natural or caused by humans) is inevitable, and that a long-term perspective is required. As such, it provides an important mechanism for adapting to the impacts of climate change.

Marcus Yeo, Director of Resources and External Affairs, Joint National Conservancy Council – JNCC

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The Yellow Marsh Saxifrage *Saxifraga hirculus* occurs on wet grassy moors and bogs and only on mountains in the south of its range. It is confined to N England, Scotland and Ireland. It is rare, local and decreasing rapidly. *Saxifraga aizoides*, pictured, although widespread in northerly habitats, will also suffer as its habitat is reduced
 Peter Wakely, English Nature

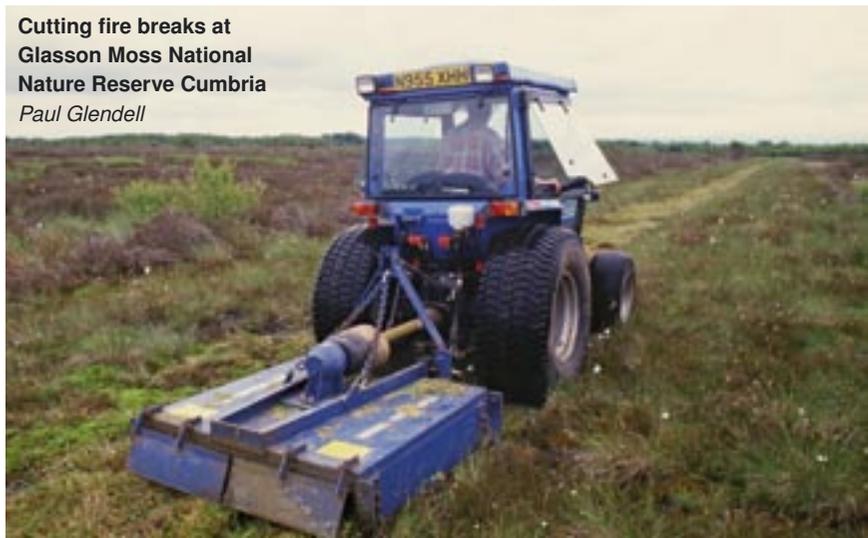


Large Skipper butterfly *Ochlodes venata* is likely to increase its range northward
 Peter Wakely, English Nature

Coastal erosion, Lulworth Ranges
 Andrew Linnett, Crown Copyright



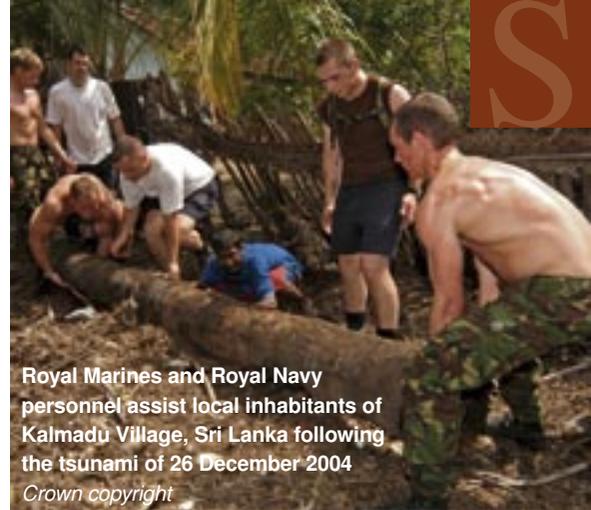
Cutting fire breaks at Glasson Moss National Nature Reserve Cumbria
 Paul Glendell





Army Landrover being put through its paces on the Long Valley test track, Aldershot Trials Development Unit
Crown copyright

Climate change and the MOD



Royal Marines and Royal Navy personnel assist local inhabitants of Kalmadu Village, Sri Lanka following the tsunami of 26 December 2004
Crown copyright

The previous article looks at the adaptation of biodiversity to the expected changes caused through climate change. When asked to write about the potential impact on MOD, and particularly on the biodiversity impacts, I began to look into exactly what climate change meant for the Ministry of Defence. You know when you start something and almost wish you hadn't...?

For MOD, the nature of our activities, responsibilities and estate make adaptations to climate change an extremely complex matter and not just one about environmental sustainability. They are so interrelated it is not possible to extract the environmental impact on biodiversity from the social and economic impacts. To illustrate this, here are some of the questions we need to consider when we look at climate change and the biodiversity interest of our estate:

- The average increases in temperature and sea levels are often quoted, but planning for the extremes is required. Will increasing incidences of storms and flooding mean an increased requirement to provide support to civil emergencies is required? Will drier summers mean increased support to civil authorities in fighting heathland fires?
- Operational requirements at home and abroad will dictate training requirements and therefore how we manage the training estate in the UK. For example, a lack of access to water or resources could lead to MOD being called upon to assist in more humanitarian operations, or involved in more combat situations resulting from large-scale migrations or conflicts over resources. Could this in turn create a greater requirement for urban training environments to be developed?
- If, in 50 years' time, we have a 10% chance of a 31°C day and a 1% chance of a 39°C day (currently a 1% chance of a 31°C day), will MOD's plentiful supply of old buildings be unsuitable to a new climate? How will we supply and manage functioning office accommodation for thousands of staff, with increasing energy demands and costs to cool, rather than heat, our buildings?
- Environmental impacts that are currently minimal could become more significant. What will be the impacts of tank training on chalk grassland or heathland, for example, on wetter or drier soils? Will vehicular access to land become more difficult due to erosion?
- What will the impacts be on our equipment viability and its suitability in changing or more extreme climates? What will the operational envelopes for various equipment be? Will this change training requirements?
- MOD has a significant estate for wildlife across the UK and therefore a major contribution to make to biodiversity adaptation on a landscape scale. To what extent should we seek to maintain the *status quo*? With a fixed spatial

system of designated sites for example, when biodiversity adaptation leads to a change in range, location or species composition, how can we best maintain important habitats and species, as well as support these natural adaptations?

- A large amount of the Defence Estate is farmed. What will the agricultural and economic requirements be with changes to growing conditions here and abroad? How will we support our agricultural tenants in managing these changes?
- How will we manage our coastal estate? MOD currently owns around 180 coastal sites in the UK, some with activities that cannot be transferred elsewhere. Many of these sites support important coastal habitats and species or cultural heritage. How will we manage these obligations with sea level rise expectations, potential requirements for managed realignment, and potentially cost-prohibitive sea defences?
- If the UK has hotter summers, will more people want access to the estate for recreation? And what will the impact be on health and safety and operational and training activities? Can we expect an increased incidence of heat-related illnesses and injuries during training, exercises and operations?

The above is just a snapshot of some of the issues that MOD is facing in trying to answer the question about the potential impacts of climate change.

Climate change is not a single cause of issues, but an aggravating factor to existing tensions, social, environmental and economic issues. To address these impacts, MOD undertakes environmental policy appraisals of all new or revised policies and equipment acquisitions and environmental impact assessments of all new projects and training activities. We are addressing our contributing factors to climate change through design and mitigation measures, and are in the process of updating systems to address the management of climate change impacts in the future.

MOD is also working with other Government Departments and a variety of other organisations that are addressing climate change issues both in the UK and globally. We are drawing on expertise to identify best practice so, where practicable, MOD can facilitate biodiversity adaptation within our management systems. We want the Defence Estate to continue to be one of the finest estates for wildlife in the UK.

There appears to be no simple answer about how MOD can adapt to climate change nor to the management of biodiversity adaptation on the Defence Estate, just lots of questions which will continue to challenge us as the impacts of climate change become more apparent.

Pippa Morrison, Biodiversity and Conservation Sustainability Policy Adviser

BATTY

about old bunkers

One of Britain's largest and rarest bats, the Greater Horseshoe bat is now roosting in disused bunkers in the beautiful Dorset landscape

Greater Horseshoe bats hang upside down from their feet, with their wings wrapped around their bodies whilst asleep

*J J Kaczanow,
Bat Conservation Trust*

Below: Brambles cleared from entrances, windows blocked and breeze-block walls built near entrances near entrances

Cora Taylor

Until now, bats have remained surprisingly under-recorded on the Lulworth Ranges, so Major Mick Burgess invited Andy Schofield, RSPB, and Sue Moore, English Nature (EN), to carry out an initial survey of bunkers and farm buildings. This revealed little evidence of bats using the buildings so, with the help of funding by EN, Robert Stebbings Consultancy Ltd was contracted in October 2002 to evaluate the potential of bunkers as bat roosts, and recommend how to make them more bat friendly.

The report advised clearance of brambles from entrances, blocking windows and building breeze-block walls near entrances to deflect light. In addition, several sections of 5mm plastic mesh were fixed to the ceiling of each bunker and wooden boards were attached to the walls at a specific angle, and at various heights, to create artificial crevices in which the bats could roost.

In summer 2004 the bunkers were surveyed by Cora Taylor, Lulworth Range Warden of Babcock Contract Services, who was delighted to find two Greater Horseshoe bats *Rhinolophus ferrumequinum* roosting in one of the modified bunkers. Nick Tomlinson of the Bat Conservation Trust and Dorset Bat Group verified these sightings.

Having undergone massive declines, bats receive protection under domestic, European and international legislation. Evidence suggests that populations of all 16 species of native British bat have suffered, probably due to loss of roost





The Coastline at Lulworth
Pete Wakely, English Nature



Greater Horseshoe bats have a peculiarly shaped nose-leaf, used to focus the beam of ultrasound used to navigate
J J Kaczanow, Bat Conservation Trust

sites and feeding sites. Greater Horseshoe bats in particular have crashed in number over the last century and their range dramatically reduced due, in part, to negligence in maintaining appropriate breeding sites and their slow rate of reproduction (individuals can live for up to 30 years). These bats tend to favour sites such as barns and roof spaces for maternity roosts in the summer, and caves, mines or other underground sites for winter hibernation. They are already known to use caves and disused quarries on the Isle of Purbeck as hibernation roosts.

***Cora Taylor, Lulworth Range Warden
 (Babcock Contract Services) and
 Sue Moore, English Nature***



Bunker modifications - 5mm mesh and angled wooden boards
Cora Taylor



A Surfeit of Silt

Soil erosion, caused by extensive tank training on the Bovington heathlands, was resulting in serious silt pollution in the River Frome. Over the past eight years a major project has taken place to address the problem. The outcome is an extraordinary success story, which won Major George Preston the Sanctuary Award for conservation in 1998.

The scale of the problem

In December 1996 I was appointed Estates and Conservation Officer at the RAC Centre, as it was then called, at Bovington, Dorset. Our very experienced DE Land Agent at the time was Rowan Watts, whom I had known for several years. We discussed the various problems facing us - some were serious, and some were urgent, but the MOD silt going into the river Frome at Wool was both!

Two years before, the MOD had had to compensate the River Frome Salmon & Trout Fishing Association for the complete loss of one season's breeding. The cost was £10,000, with much negative PR in the local area. The River Frome was not at the time an SSSI, but was due to be made one in the near future. The Environmental Agency (EA) monitored our outflow every month and after every heavy rainfall. They had recorded six pollution incidents in the preceding 18 months - if we had not had Crown Immunity at that time we might have been prosecuted.

However, maintenance money was very short and we only had three large working silt ponds. The lower two were full of silt and thus not working effectively, and the lowest one had a weak dam and held over 2000 tons of silt. Our risk assessment with EA concluded that if this dam were breached, most of the silt would pollute the 11 kilometres of the Frome from Wool to Poole Harbour. The standard EA estimate for cleaning this type of river habitat was simple: £1M per kilometer. We put silt management at the top of our priorities.

Silt dams and settling ponds

We revised our track maintenance to minimise silt manufacture by the tracked vehicles and, with extra money allocated over the next two years, we built eight new silt dams to create eight new settling ponds, the last of which was Havards Pond and its associated works. We redesigned the two weakest of the original three silt ponds and we built silt traps at every possible site. We took advice from our conservation group and EA who were shown all our new silt works. This was important so that they were aware of the priority and scale we gave to solving this problem. One of the main design features of

the plan was the choke points in the Havards Pond complex. These allow normal water flow, when little silt is carried downstream, to pass through settling ponds and then into the River Frome. But when the flow exceeds the capacity of the 'choke', when much silt is being carried, the water is automatically diverted to flood the woods and the fields before filtering into the Frome and leaving the silt behind.

Patrick Armitage who had many, many years' experience at the Centre for Ecology and Hydrology (CEH), and several years on our Conservation Group, was an early convert to the plan and, along with EA, was convinced it would work - others were not so optimistic. As we were only doing what nature has been doing for years in every river flood plain, neither English Nature (EN) nor EA, nor any of our conservation group were concerned that we would damage any flora or fauna in the newly flooded areas.

Our efforts soon showed favourable reduction in the outflow to the Frome and considerable silt left behind in the flooded areas. After three months EA estimated that 200-300 tons of silt were deposited in the woods & fields. However, the outflow was still discoloured by the very fine colloidal matter suspended in the water and we needed scientific evidence to prove what damage, if any, this was causing the flora and fauna in the Frome SSSI. In a jar in the office it takes over three weeks for this colloidal matter to sink to the bottom, so this water joining the Frome at Wool should be in the English Channel before it sinks. However, we needed to know the facts. If it was affecting the flora and fauna we needed to do more; if not, we would have the evidence that would counter any adverse claims.

Patrick's article, which follows, is a summary of much very important ongoing work. EA now do not monitor our outflow; in the last four years they have sampled it only once, following a frivolous complaint. Our local fishermen now tell the local farmers: "If the Army can clean up its act, why can't you?"

Major (Ret'd) George Preston, former Estates and Conservation Officer, Armour Centre, Bovington

Sediment on the *move*

Tank training and stream life

The site

The majority of the Bovington tank training area is situated on elevated land overlooking the floodplain of the River Frome. The region is characterised geologically by sands, clays and gravels and was originally covered by heathland vegetation. Streams draining this area have a relatively steep slope (about 19m per km) and water runs rapidly from the land into the stream and eventually into the River Frome. The area is called Wool Heath.

The problem

Armoured vehicles have been used extensively on the Bovington heathland since the earliest tanks were developed and modified there in World War I. Tank training and military exercises have removed the shallow topsoil in the training areas exposing underlying sediments (sand and clay) on the heathland. When it rains, run-off is rapid resulting in spates. Fine sediments are mobilised in small drainage channels and runnels that eventually flow into the Bovington Stream, which carries high loads of suspended particles. Some of this suspended sediment is intercepted by large numbers of small silt traps on the drainage channels and also in settlement ponds or reservoirs, in the upper reaches of the stream. In addition, the construction of an All Weather Driving Circuit has resulted in less silt being carried into the nearby River Frome. Despite these precautions the stream remains milky-coloured for its whole length when flows are high.

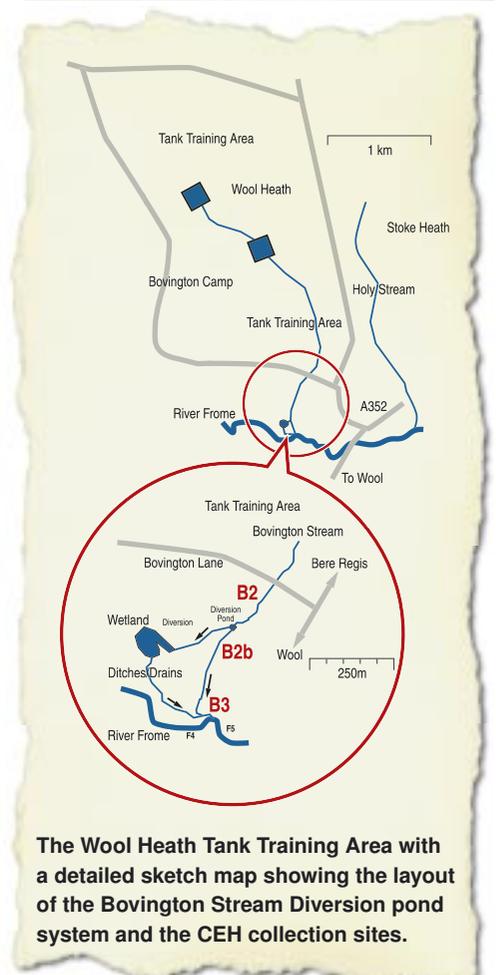
The situation is exacerbated by some past straightening of the stream 25 years ago which deepened the channel, exposing a clay bed which contributes to the overall turbidity. In addition the stream receives some sewage effluent from storm water overflows (although this is now a rare event) and run-off from local roads, but the dominating impact is the high sediment load from the tank training area.

While sediment in the stream is conspicuous, it is not clear what the effects are on the river fauna. Macro-invertebrates living on the stream bottom are generally good indicators of prevailing conditions. The faunal assemblages found there have responded to a wide range of conditions over time and hence can provide a long-term view of environmental quality which spot chemical determinations cannot do.

To quantify the impact of surface drainage on the Bovington Stream and the Frome, the Institute of Freshwater Ecology, River Laboratory, (now the Centre for Ecology and Hydrology - CEH - Dorset) was commissioned by the Bovington Conservation Officer, Major George Preston, despite some scepticism, to carry out a survey to establish the environmental quality of these water courses, based on information from the in-stream fauna and local habitat characteristics. The macro-invertebrate communities within these streams are the result of a variety of influences both physical and chemical, and they can be regarded as integrating the ▷



Collecting fauna from the Bovington Stream - note the discolouration of the water
Patrick Armitage



The Wool Heath Tank Training Area with a detailed sketch map showing the layout of the Bovington Stream Diversion pond system and the CEH collection sites.

River Frome above the junction with the Bovington Stream, taken in 1999 before the diversion system was fully operational
Patrick Armitage



Just below the junction with the Bovington Stream, taken in 1999 before the diversion system was fully operational
Patrick Armitage



Construction of a diversion pond. Construction was designed to minimise short-term damage to the flora and fauna
Patrick Armitage

effects of these influences over time. Thus the results from the surveys are a measure of the effect of the sediment on the biota rather than a measure of sediment itself.

In the first survey in 1999 samples of benthic macro-invertebrates were collected in Spring, Summer and Autumn from three sites (B2, B2b, and B3) on the Bovington Stream and two sites on the River Frome (above and below the junction with the Bovington Stream).

The fauna was identified to species level where possible, and physical features of the sites were recorded at the time of sampling. RIVPACS (River Invertebrate Prediction And Classification System), a software program developed by the Institute of Freshwater Ecology at their Dorset River Laboratory and now used nationally by the Environment Agency in their river surveys, was used to assess the environmental quality of the sites. Using a large database of unpolluted

sites in a wide range of river types the program predicts environmental quality indices and the expected number of different macro-invertebrates in samples, based on habitat characteristics and topographic and geographical information. The expected values (predictions) are compared with observed values to create an 'Ecological Quality Index' which is banded in six classes from a - very good to f - bad.

The results

The Bovington Stream, despite severe spates and high loads of suspended solids, supported a varied fauna and the indications from this first survey in 1999 suggested that the main monitoring site B2 (Lytchett Lane Road Bridge) was of fairly good quality. The Ecological Quality Index at both Frome sites indicated very good quality and the occasional inputs of suspended solids did not appear to have a demonstrable effect on the macro-invertebrate communities of the Frome below the Bovington Stream outflow.

Despite these initial results the sediment problem still had a high visual impact and more steps were taken by MOD to reduce the amount of material entering the Frome and to monitor the results. This involved the creation of a diversion pond, which, at times of high flow, would automatically divert the majority of the water along a diversion channel and through a newly created wetland Havards pond area before joining a drainage channel and eventually re-joining the Bovington Stream. There was much earth moving and the surveys of ecological quality were continued, to monitor both the effects of construction and the performance of the new wetland and diversion channel.

The results of the faunal surveys over the past five years have shown variations in quality in the Bovington Stream sites, ranging from good to fairly good. These variations are possibly associated with construction activity and subsequent management of flows down the stream. Over the same period the River Frome, above and below the Bovington confluence, has remained in the very good category.

The creation of the diversion channel provided a new running water habitat which in 2003 supported 42 taxa compared with 34 in the nearby natural stream. This channel flows into the wetland, an area of approximately 1750 m², which provides good habitat for aquatic flora and fauna.

Comparison with neighbouring catchment area

About 400m to the east of the training area is another small watercourse, the Holy Stream, which drains an area of relatively undisturbed heathland.

In a recent study it was found that both streams support a similar number of taxa (Holy 66, Bovington 65), but that only a third of the combined total of taxa was found in both streams, indicating that the faunal communities were quite different. Abundances were also greater in the Holy Stream by a factor of two to three, but the overall environmental quality was similar to that of the Bovington. This suggests that the disturbances, rather than destroying stream animals, have given rise to alternative faunal communities which have adapted to the modified conditions in the stream catchment.

Conclusion

Despite considerable disturbance of the Bovington Stream catchment in the past, the combination of settling ponds, silt traps, and purpose-built tracks on the training area has done much to reduce silt loads entering the Frome. The diversion pond has had to be dredged on a regular basis indicating that sediment is being trapped there. In addition there is evidence of settlement of sediment in the new wetland itself. Some preliminary work in 2004 has shown that much of this sediment is relatively coarse and the fine colloidal clay materials continue through the system into the Frome.

However, despite the visual effect on the main river, the surveys have not indicated any adverse effects on the in-stream fauna and the results of the 2004 macro-invertebrate survey, currently being analysed, indicate that the top two sites on the Bovington Stream have now reached class a - very good. Future studies should attempt to determine whether the clay materials are settling in the main river downstream, or are carried into Poole harbour. There is further scope for enlarging the wetland area to lengthen the retention time of sediment-rich water to increase the potential for settlement. This work is scheduled for 2005.

Acknowledgements

I am grateful to my colleagues at CEH, particularly John Blackburn and John Davy-Bowker for their help in the surveys, and the Bovington Conservation Officer, Major George Preston, for his enthusiastic support.

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Patrick D Armitage,
Honorary Research Fellow,
Centre for Ecology and Hydrology Dorset



Comparison of catchments of Wool Heath, Bovington and Holy Streams
 Dorset County Council



Woodbridge Airfield

re-development works

an outstanding example of environmental best practice

The airfield and associated buildings at Woodbridge in Suffolk have been largely unoccupied since the US Air Force vacated the site in the early 1990s. The majority of buildings and hangars have now been demolished to create new accommodation blocks and training facilities for the 636 personnel of the 23 Engineer Regiment (Air Assault). The Regiment was formed in 2003 to support the 16 Air Assault Brigade - part of a fast reaction task force supporting Britain's defence commitments.

This £82 million project is being undertaken by Skanska and is currently the largest stand-alone Prime Contract for Defence Estates. The project has a 104-week construction programme and involves the design and construction of a barracks complex to include accommodation, training, medical, sport and leisure, and vehicle maintenance facilities.

The programme will be completed in spring 2006 and is made up of two main sections of work:

- demolition, which is complete and involved 92 structures and the refurbishment of five hangars
- 18 new buildings as well as ancillary structures including outdoor rifle range, assault course and playing fields.

Environmental excellence

Much consideration has been taken into the potential environmental impact during this redevelopment. The site is very ecologically sensitive, being almost completely surrounded by the Rendlesham

Forest, the majority of which is classified as a Site of Special Scientific Interest. The entire site is located within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty, a Country Wildlife Site and adjoins a Special Protection Area.

There are two rare birds, Woodlark and Nightjar, with 10% of the UK population living within three miles of the site. These are Red List species and protected under the Wildlife and Countryside Act from disturbance or destruction.

The work undertaken by Skanska to minimise environmental impact has resulted in the project being named a Defence Estates demonstration project for Environmental Management, with Skanska receiving an outstanding 39.5 out of 40 from the Considerate Constructor assessment.

Habitat improvements

Heather was translocated from the center of the development to a quieter, yet larger, part of the site and now covers an area the size of a football pitch. The area of valuable habitat on site has been increased. This operation was a great success and involved close liaison with English Nature, Suffolk Wildlife Trust, RSPB, and Local County Council. The heather translocation is now a demonstration project.

In addition, bat boxes have been put up around site and a large wildlife pond brought back to life increasing dragonfly and amphibian numbers.

Lighting

All permanent lighting has zero upward light pollution, minimising disturbance to both the local wildlife and human population.



Demolition of one of the 92 structures



Recycling bins are standard practice



Heather and gorse in full flower



The translocation of heather

Waste

All demolition material has been crushed and reused on site, eliminating over 6,000 heavy vehicle movements and reducing potential disturbance to the local community. Construction waste is segregated into eight waste streams, with 98% of all waste material recycled.

Community involvement

Skanska Woodbridge has worked with the local community and police, ambulance service and fire brigade from the outset. The local County Councillor and Sutton and Hollesley Parish Councils regularly visit the site to discuss the potential impacts on the local communities. Skanska has also attended Parish Council meetings. The 80 local residents who live around the site have been kept involved by letter and visits from Skanska.

Sandlings Primary School is actively involved and Skanska Woodbridge has become their 'Pet Project' for the two years of construction. Skanska met with the Headteacher to discuss how the school could be involved and then visited the children to carry out question and answer sessions. Following this, children carried out mini-projects. Two forms visited in December 2004 and observed their project in action concentrating on:

- how buildings are constructed
- the importance of health and safety management
- how construction can work in hand with the protection of bats, birds, heather and trees, and
- conserving materials by recycling thousands of tonnes of building materials, concrete and asphalt.

The children were all given hard hats and high viz. jackets to keep. The visit resulted in Skanska receiving over 60 thank-you letters from the children. Further visits are planned for September 2005.



Demolition material is crushed and segregated for recycling
Below: School visits are a big success

Liaison

To promote the good working relationship with the County Council, Skanska have been asked to host a joint publicity day on 27 September 2005 at Skanska Woodbridge, promoting how Councils and companies should work together.

James MacMillan,
Environmental Advisor, Skanska





Golfers enjoy an undamaged green
Jonathan Guy

Keeping the fairways GREEN

Biological control of Chafer grub damage at RAF Lakenheath

Breckland Pines Golf Course at RAF Lakenheath isn't the first place you'd expect to find conservation and golf course management working hand in hand.

Located at RAF Lakenheath, home of the 48th Fighter wing of the United States Air Force (USAF) for over 40 years, Breckland Pines Golf Course has been managed to meet the needs of American Golfers. Don't think Carnoustie, think more Atlanta Georgia. Unlike the UK, fairways are irrigated as well as the greens and tees and the passing buzz of electric golf buggies give you a feeling for what the members expect.

Situated in Breckland, one of the last remaining lowland heath environments in Europe, means that much of the neighbouring land is a

Site of Special Scientific Interest (SSSI). Over 30% of the base and much of the surrounding land also enjoys designation as a Special Area of Conservation (SAC). Focused specifically at preserving what is left of the lowland heath habitat, the Breckland SAC is home to many traditional heathland plants such as Spanish Catchfly *Silene otites* and Perennial Knawel *Scleranthus perennis*. In fact one of the world's largest populations of the Perennial Knawel has just been identified at the one end of the base's golf driving range.

Dealing with the demands of the operations and associated community of USAF's largest fighter base in Europe, and meeting the needs of this delicate environment, is something which is the norm for both 48th Fighter Wing Environment Flight and Defence Estates staff.

In the summer of 2003 the Breckland Pines Golf Course was invaded by the European Chafer grub, attracted by the irrigated fairways and short swards common on US golf courses. Physical damage came from two groups of animals keen to enjoy the feast the juicy grubs offered during a particularly hot summer. Alfred Collier, the Golf Course Superintendent, said: "The birds, mostly Jackdaws, did a good job of getting the grubs during the day, and the Hedgehogs found the loosened turf easy to roll out of the way at night. Between them we lost up to 70% of some of the fairways."

Breckland Pines was to host the United States Air Force in Europe Golf Championship in 2004, so the golf course was keen to find a suitable control to stop a repeat of the damage.



Nematode spraying during the application window, August 2004
Jonathan Guy



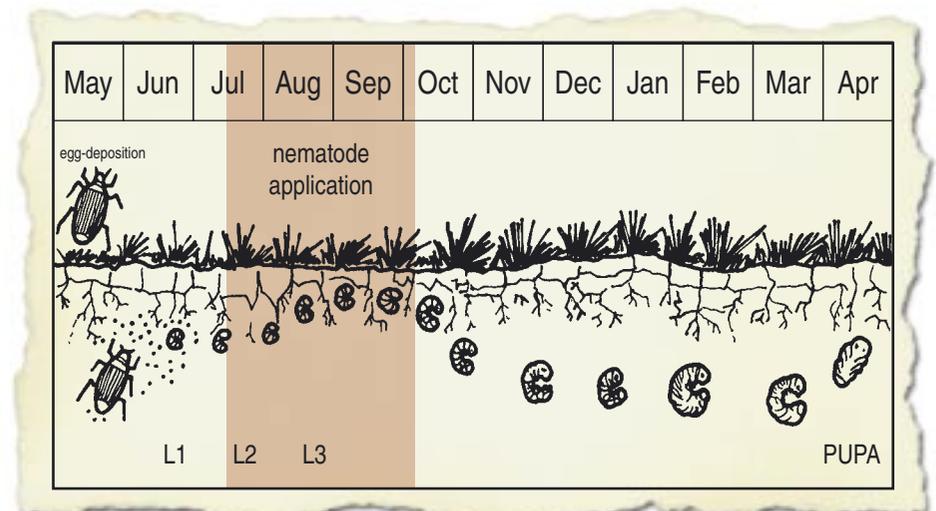
Chafer grubs die 2-3 weeks after application
Jonathan Guy



Chafer grubs infested with nematodes



Extensive damage to the sward
Jonathan Guy



A Chemical Solution

Keen to use the knowledge of USAF's golf course management staff in San Antonio, Texas, which had led to Breckland Pines being a well respected course, a suitable pesticide was soon located and offered an apparent solution: *Merit*, an *Imidichloprid* based pesticide - in use in the US and available for use in the UK domestic consumer market. That's until you realise you need to meet two countries' laws and two Air Forces' environmental guidance. USAF was happy for *Merit* to be used as it was already in use at a number of American bases. However, the pesticide did not have Department for Environment Food and Rural Affairs (Defra) approval for amenity use.

Enter the middle ground: a pesticide-testing regime permitted by Defra before full approval is granted. The administrative experimental approval process allows new pesticides to be assessed before full approval, and thus compliance with MOD requirements. The Environment Flight and Defence Estates staff weren't keen. RAF Lakenheath is situated on an unconfined chalk aquifer which underlies much of East Anglia and also provides the Station's drinking water from its own boreholes. Neither were keen to expose a major aquifer, and the Station's

water source, to an untested product.

At RAF Lakenheath sand overlies the chalk and is only eight to fifteen feet thick, making the aquifer very vulnerable to pollution sources at the surface. In fact we were in the middle of developing a new borehole source immediately adjacent to the golf course. So both USAFE and DE were not interested in risking the viability of the water resource we were hoping to rely upon.

A Natural Solution

Going back to contacts previous colleagues had made, the Flight decided to investigate the use of a biological approach to control the Chafer grub. Based on a nematode worm, the method works by spraying the live nematodes during a critical period of the Chafer grub's lifecycle. The application method would be much like that of a chemical based pesticide, through a team sprayer. "We knew we needed to get the timing of the application just right so we sought the help of the supplier," said Alfred, the Golf Course Superintendent. "Their specialist staff took samples of grubs over a 6-week period between June and July before determining the time was right for application of the nematodes." The nematodes applied are thread-like roundworms which parasitise the Chafer grubs and eventually kill them.

A Successful Solution

The effect of using the nematode was much reduced damage. The nematodes utilise soil water to move, so use on the widely irrigated course was beneficial to the success in using this form of control. Damage was down to less than five percent of the course, much of it being confined to the tees where the sward is kept particularly short. The root structure is much shorter reflecting the length of the grass and more intense irrigation. This brings the grubs closer to the surface, and in easier reach of their predators.

Overall, both USAFE and DE were very pleased with the results of the nematode use. The nematodes provided a good answer, addressing both the concerns of golfers and the environment. "Best of all," said Alfred, "we were commended on the great state of the course for the participants of the USAFE Golf Championship."

Dr Jonathan Guy, Environmental Manager, 48th Civil Engineering Squadron (United States Air Force in Europe) Environment Flight

Further details on the product used can be obtained from Becker Underwood, Harwood Industrial Estate, Harwood Road, Littlehampton BN17 7AU. Tel: 01903 732323, www.beckerunderwood.com

LAKES

A practical solution to a watery problem

Norton Manor Camp is midway through a major development to bring a World War II hutted camp into the 21st Century. This has involved the construction of a water attenuation scheme which has been enhanced to provide a completely new habitat for wildlife, thus expanding the already rich biodiversity of the camp.

In early 2001 a planning application was submitted to Taunton Deane Borough Council for the construction of the first phase of the new Company Offices and Stores. Although there were no objections to the redevelopment, concerns were expressed with regard to the surface water run-off from the camp, which contributed to the potential for flooding in Norton Fitzwarren.

As a consequence, the Environmental Agency, via Taunton Deane Borough Council, imposed a condition on the continuing development of the whole camp: to reduce the camp's surface water discharge to green field site levels, whilst allowing for the '100 year' storm.

This meant that the run-off rate for the whole site could not exceed 50 litres per second. Our only way of achieving the requirement was to have the capacity to store up to 12,000 cubic metres of water. The solution was to route all surface water drainage via two lakes connected



by a balancing pipe to ensure that they filled at an equal rate. One of our existing discharge points was via an underground chamber which, as luck would have it, had pumps rated at a maximum of 50 litres a second. The outlet from the lakes was therefore routed via this chamber.

One large lake, approx. 150 by 40 metres, was to be L-shaped and located on the rugby pitch, with the base of the L bending round the southern end of the Astroturf pitch. The smaller lake, approx. 90 x 50 metres, was to be constructed in the area of the car park / parade ground between the Junior Ranks' Dining Room and the Carpenters Shop/Small Arms Trainer buildings. The rugby pitch would then be relocated onto what was the football pitch. However, this would mean the football pitch being relocated onto an excessive slope, so it was decided to use the excavations from the two lakes, except for the tarmac, to level off the area to form a new pitch. Avoiding taking the spoil off site would

Above left: Construction of the large L-shaped lake is under way. The high fences erected either side prevent balls entering from the adjacent rugby and astroturf pitches. The ridge in the foreground is the line of the camp fire-main which had to be moved
Geoff Eggleston

Above main: The large L-shaped lake, June 2005
M Chipperfield

save approximately £40,000, some of which could be used for landscaping.

The only problem with the scheme would be in summer when the area would dry out to become smelly, muddy hollows. In order to avoid this the lakes would be dug 500mm deeper than needed, with this lower section lined, thereby holding water all year. The lakes and their immediate environs would be developed as wildlife conservation areas.



The large lake and island, August 2003. Note the algae caused by an imbalance of nutrients
M Chipperfield



The same view of the island, taken in July 2005, showing lush growth and clear water
Geoff Eggleston

Construction started in late August 2002 and was completed by the end of November 2002. Unfortunately, the JCB driver got slightly carried away in one area resulting in too steep a bank. The extra soil excavated to reduce the slope was used to form an island in the L-shaped lake. It was hoped that once planting was established, this would provide a refuge for nesting birds.

Landscaping

A key member of the team was Sarah Rycroft, the Landscape Architect, who produced a very detailed and ambitious planting scheme working on the premise that all the trees, scrub, marginals and aquatics must be native species.

The scheme required substantial plantings: 1,725 trees (13 species); 532 shrubs (8 species); 4,068 marginals and water loving plants (12 species); 225 Water Lilies; wildflower and grass-seed mix (14 flower and 9 grass species).

Narrow woodland strips were created around 75% of the lake area planted to provide scrub cover and overhanging trees. Marginals included *Phragmites australis*, a reed which helps break down pollutants. Although these were planted in several areas, it was particularly important to plant a large clump around the discharge point as it acts as a final filter. Planting of the trees and shrubs was carried out in February 2003, with marginals, aquatics and seeding in late March.

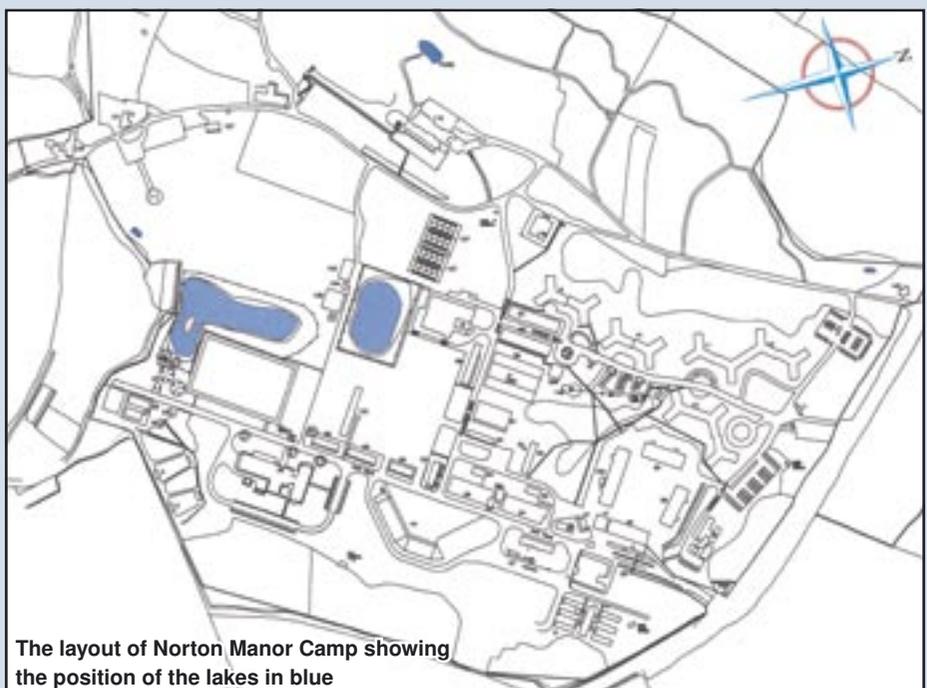
Unfortunately the summer of 2003 was unusually dry and hot, resulting in

some slow growth and the loss of some trees. All losses were eventually replaced by the Grounds Maintenance Contractor under his contract, and at his expense.

Despite the number of marginals planted there were substantial gaps. These were filled by a further planting in April 2004 of 50 plants each of nine species of marginals/emergents. In addition, a number of Giant Reedmace were transplanted from an existing pond, giving a sheltered area between one side of the island and the main lake bank. Canadian Pondweed was also introduced when thinning out the existing conservation

pond near the Officers' Mess. Throughout the summer, despite a slow start caused by the dry hot spring, the marginals, emergents and aquatics grew on strongly. By July 2005 the vegetation had become really well established with the thick reed beds and bank cover provided by scrub and wild flowers. The alder and willow trees have really thrived.

As the L-shaped lake is located between the Astro turf and rugby pitches, high fencing had to be erected down two sides in order to prevent balls continually entering the area. Post and rail fencing faced with wire mesh has sealed off the ▷



The layout of Norton Manor Camp showing the position of the lakes in blue

remainder of the scheme boundary in order to keep out rabbits. However, this has also kept out dogs, foxes and badgers - all of which are found in the camp in significant numbers – which has reduced the potential risk of disturbance to nesting birds.

Not all plain sailing...

The scheme has not been without its problems, however. The liner of the smaller lake keeps bubbling up, giving the impression that we have a hippo enclosure. This is caused by a combination of ground water and natural gases getting under the membrane. It was therefore necessary to cut holes in the liner to release the trapped air and water - and yes, it was me photographed in the lake brandishing a Stanley Knife accompanied by all the normal comments about pond life and bog monsters! Fortunately this has not caused a drop in water level.

There has also been considerable algae growth - clearly an imbalance of nutrients caused by the disturbance in the soil. As a short-term measure, bales and bundles of barley straw were placed in the lakes to overcome this problem. Although it became necessary to place further bales in the lakes in 2004, the nutrient balance now seems correct.

An abundance of wildlife

During the main nesting season of 2003 the lake sites were very barren and did not provide any meaningful cover. None-the-less they generated considerable interest amongst the bird population. A number of species not previously recorded in the camp were seen in April/May. These included Kingfisher, a pair of Canada Geese, a pair of Meadow Pippets, a pair of Grey Wagtails and an overflying Heron. Mallards came and went in varying numbers then, in early July, a duck appeared on the large lake with 10 day-old ducklings. The nest site had not been spotted but we assume it was on the island. As all 10 survived, it would seem that the fences have kept out potential predators.

A Barn Owl flew over in mid July and a Little Egret visited for an hour. In early August a Common Sandpiper visited the smaller lake for a few minutes. The lakes also proved very popular with the resident

Pied Wagtails, Swallows and House Martins with the odd Moorhen popping in from an adjacent stream. This bodes well for future years.

Surprisingly, given the lack of vegetation during the spring, Smooth Newts bred successfully in the smaller lake. A Grass Snake was spotted swimming across this lake and to date eight species of dragonfly and damselfly have been identified. At one time in June there were literally hundreds of dragonflies on and around the lakes, and is already an abundance of aquatic insects.

In December 2003 the RSPCA agreed to the lakes being a release site for waterfowl and, to date, 10 Mute Swans have been released. The immature birds proved to be very accident-prone whilst developing their flying skills, resulting in three being killed by either foxes or badgers when they decided to land in silly places. The remainder left progressively over a period of six months.

The summer of 2004 proved a great success with water birds breeding. Two pairs of Moorhens raised two broods each, and all twenty chicks fledged successfully. A pair of Tufted Ducks successfully raised seven ducklings and three pairs of Mallards raised 21 out of the 30 ducklings hatched. In November 2004 a pair of Mute Swans carrying Abbotsbury rings arrived on the large lake. They nested on the giant Reedmace beds between the shore and the island exactly as we hoped but did not start to incubate the eggs until mid April. All of them hatched successfully, resulting in seven cygnets.

In February 2004 the larger lake was stocked with 60 Carp (Common, Leather and Mirror) weighing 1 - 1½lb. By late summer they had grown to 3 – 5lb, and were seen spawning in May 2005, which should encourage Kingfishers and Herons to visit more frequently. After a long dry spell there was a very heavy thunderstorm in early July with torrential rain. This was followed by a mass migration of young frogs and toads away from the smaller lake; the policy of restricting the fish to the large lake is obviously benefiting the amphibian population.

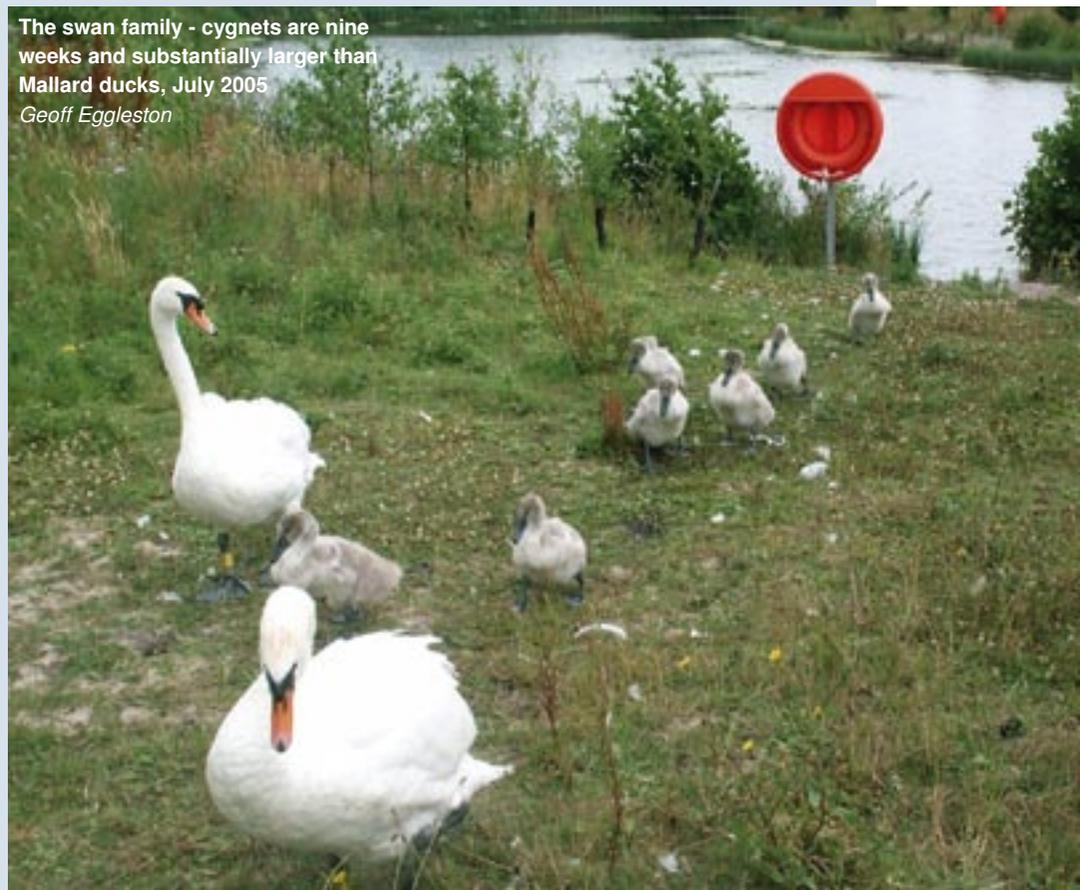
The whole scheme has been a resounding success, and added another dimension to the camp's environment.

Captain (RO2) Geoff Eggleston RM

The Purple Loosestrife, Yellow Iris and Common Reed *Phragmites australis*
M Chipperfield



The swan family - cygnets are nine weeks and substantially larger than Mallard ducks, July 2005
Geoff Eggleston





Kestrel chick
Lewis



Barn Owl and chicks
Lewis



Little Owl chicks at Quebec Farm in 2004
Lewis

The tireless efforts of one dedicated conservationist have led to a significant increase in the number of raptors and owls on Salisbury Plain. The project, which was joint runner-up in this year's Sanctuary Award, was conceived by Major Nigel Lewis in 1983 and has been running ever since.

The Raptor and Owl Nestbox Project aims to conserve raptors on the Salisbury Plain, an area where the habitat is ideal but which lacks suitable nesting sites. Nigel Lewis came up with the idea of providing converted, unusable wooden ammunition boxes to replicate the natural hollow-treesites to achieve his aim. Careful monitoring and ringing of breeding birds and chicks would confirm its success or otherwise failure.

Nigel's particular interest centred on the Barn Owl, Little Owl and Kestrel populations on Salisbury Plain and the achievements over the last 20+ years has been impressive. In 1987 one Barn Owl breeding pair and three owlets, two Little Owl breeding pairs and eight owlets, and seven Kestrel breeding pairs and 31 young were ringed.

In 2003 the 1000th Barn owlet was ringed. That year, not the highest over the period by any means, 73 Barn Owl breeding pairs and 178 owlets, 6 Little Owl breeding pairs and 15 owlets and 31 Kestrel breeding pairs and 109 young were ringed. In addition, Nigel and his small team have included Tawny Owls and Hobbies in their surveys.

Raptors and Owls on Salisbury Plain

Tawny Owls have successfully nested and bred in his boxes over several years - the past two years had four breeding pairs producing eight young each year.

The project team have installed, maintained and monitored over 300 nest boxes on Army Training Estate, Salisbury Plain, and one on Porton Down. They have done the same with roughly 500 others on private land adjacent to the Plain in South Wiltshire. Ring numbers show that many of this external population migrated from the Plain: Barn Owl breeding pairs off the Plain have risen from one pair in 1987 to 93 pairs in 2003. The Barn Owl breeding population on the Plain is approximately 2% of the UK's overall recorded breeding population; the number monitored by this project off the Plain is marginally larger.

This project has received great support from a wide number of volunteers, and is assisted by the essential, albeit occasional use of a military vehicle authorised by the Army. As predators, owls and raptors head the food chain and are excellent bio-indicators of the habitat. By their presence, or otherwise, they help to show us the effectiveness of our land management efforts and methods. Nigel's work seems to support the view that we are getting it right on Salisbury Plain.

Roger Fellowes, Commandant ATE Salisbury Plain

OPERATION KITTIWAKE

Kittiwakes *Rissa tridactyla* are small, graceful gulls, with snowy-white heads and bodies, pale grey backs, black wing tips and have distinctive, short black legs. They spend the majority of their lives at sea, only returning to land to breed on steep rocky cliffs. They are good indicators of the health of the ocean and are the most numerous species of gull in the world

However, their numbers are declining and they are on the Amber List for conservation importance as 50% of the UK's breeding population breed in 10 or fewer sites across the UK.

In Devon, numbers have decreased by nearly half since the first full survey in 1969-1970, and there are only five breeding colonies, with Sandy Bay being one of the largest.

In order to raise awareness of these gentle-looking birds, a partnership project was established to install a webcam overlooking the breeding colony at Straight Point, on the Ministry of Defence Ranges. The ranges are used by Royal Marine Recruits and Marines from front line Commando Units, and border Devon Cliffs Holiday Park, which is owned by Bourne Leisure. The scheme, funded by Bourne Leisure, involved working with the Royal Marines to install the webcam under the watchful eye of the RSPB.

Claire Smyth, Project Officer in the south west for RSPB's *Aren't Birds Brilliant!* campaign, said: "Our role was to oversee the installation of the camera to make sure disturbance to these remarkable birds was kept to a minimum. Installing a camera gives us a unique insight into the lives of these birds."

Pair of Kittiwakes

Andy Hay, RSPB-images.com



Royal Marines Sgt Ashley Palmer and Cpl John Philips abseil down the cliff: the webcam protrudes from the back-pack



On 22 April 2005, Warrant Officer Second Class Edward Stout, Sergeant Ashley Palmer and Corporal John Philips from the Mountain Leader Section made their way to Straight Point. Here the Mountain Leaders liaised with Dr Luke Sanger from Eco-watch Wildlife Surveillance Ltd who were providing the camera. The plan - to abseil 200 feet down the cliff to attach the camera - involved climbing ladders, ropes, ascending gear, a length of scaffold pole (you never know) and a bright orange ladder (to cross any chasms). While the abseil itself wasn't too difficult, the camera proved to be a different matter: it was both bulky and very expensive and had to be treated with due respect. However, the operation was achieved and on 24 May the webcam 'went live' with Professor David Bellamy officially switching it on at a launch ceremony at Devon Cliffs Holiday Park.

Since the webcam was installed many of the birds have successfully bred. Claire Smyth, RSPB, said: "The installation of the webcam has certainly gone some way to helping us show people one of the UK's most vulnerable birds. We hope that, by working in partnership with organisations such as Haven Holidays, we can go some way to protect the areas in which they live and breed."

John Furze, Town Manager for Exmouth, was also involved in the project and liaised with all parties to ensure that the whole operation went smoothly. John said: "Town management is all about bringing people together and making things happen. This project is a marvellous example of how the Royal Marines demonstrate a care for the environment and how Bourne Leisure are eager to bring the environment to the public."

Aren't birds brilliant! is the name for a series of projects and events run by the RSPB throughout the UK. It offers people the chance to get 'up close and personal' with some of the most exciting birds in Britain. For more information click on <http://www.rspb.org.uk/>



Kittiwake's nesting
Paul Glendell, English Nature

Professor David Bellamy with Sgt Ashley Palmer RM at the launch of Operation Kittiwake
Crown Copyright





The Heritage of Military Aviation

The Department of Culture, Media and Sport is expected to announce the formal 'listing' of a significant number of military aviation sites and structures towards the end of 2005. Many of these are still in the care of the Ministry of Defence.

In the summer of 1940, Britain stood poised to resist invasion. For the forces of Nazi Germany there was only one major obstacle that stood in the way – the Royal Air Force. In August and September its fighter airfields – particularly the sector airfields that spearheaded each of the Fighter Groups into which Britain had been subdivided – were subject to sustained assault by the Luftwaffe. The brunt was borne by the stations of 11 Group around London, especially sector stations at Biggin Hill, Northolt, Kenley and Debden. On 18 August, Kenley in south London was subject to one of the most determined attacks by the Luftwaffe on a sector airfield, photographs of which - including an attack on a fighter pen - were afterwards printed for propaganda purposes in *Der Adler* magazine. During this raid three personnel were killed and three hangars and several aircraft destroyed.

On 30 August, 39 personnel were killed and 26 wounded, with further raids on the following day damaging the operations block. A battle-scarred Officers' Mess now remains as offices. The site has now reverted to use

as a common, and survives as a uniquely well-preserved landscape – including fighter pens, perimeter tracks and all-weather runway – typical of those upgraded by Fighter Command just before the battle.

Valuing our heritage

The importance of such landscapes as touchstones to the Battle of Britain was first raised by the famous flying ace Sir Douglas Bader, who made representations against the re-development of the airfield at Duxford during the M11 Public Inquiry of the 1970s. Despite being greatly valued both locally and nationally for the role that they played in one of the proudest moments in British history, it is only recently that English Heritage – in liaison with the Ministry of Defence and other owners – has been able to undertake a review of surviving sites to identify the most significant sites and structures for protection. This has been a considerable challenge, not only because of the vast number of these sites (there were 740 in 1945) but also because of their complexity.

The planners of military airfields had to take a multitude of factors into account, from the design of workshops, barracks and stores, to layouts and buildings which provided effective defence from aerial attack, and areas for the stationing and movement of aircraft. Size was another factor, a heavy bomber station often being the size of a town or even a city – RAF Scampton in Lincolnshire for example, is roughly the size of Truro, the principal city of Cornwall.

Understanding the vast range of types of airfields and buildings is only part of the story, as little was known about the historical background to the infrastructure that underpinned British air power in the short 40 years from its beginnings at Farnborough in Surrey in 1905. Given these factors, we have focused our attention on protecting those buildings and sites which have the strongest associations with key historical episodes, particularly in the Second World War, and a small number of the best-preserved and most architecturally impressive buildings and sites. The English Heritage survey identified 18 key sites (1.5 % of those sites in existence

in 1945). These range from the First World War and before, from the expansion of the RAF in the 1920s and 1930s, to some of the more intact and historically important landscapes of the Second World War period.

Powered flight celebrated its centenary year in 2003. Military flying in the pioneering days of the decade before the First World War was closely linked to developments in the civil sphere. It was also extremely hazardous, as the graves of airmen dotted around the army training grounds at Salisbury Plain testify.

Before the formation of the Royal Flying Corps, in April 1912, flyers had tried and tested a variety of aircraft at combined military and civilian flying schools at Eastchurch on the Kent coast and Larkhill on Salisbury Plain. Remarkably, the hangars that housed the aircraft flown by these brave pioneer flyers have survived at both sites. Larkhill now forms part of a group of uniquely well-preserved sites around Salisbury Plain, which include the RFC's first squadron station at Netheravon and its first officer training station at Upavon. Together with the early hangar suite at Montrose in Scotland, these comprise survivals of great importance and unique rarity within an international context.

A shift to offensive deterrence

The closing stages of the First World War and in particular the first raids of Gotha bombers against London and other targets from 1917, highlighted the potential of bomber aircraft as weapons of mass destruction. A little appreciated fact is that Britain's Royal Air Force, formed in 1918 and guided in the initial stages of its post-war expansion by General Sir Hugh Trenchard, emerged in the inter-war period as one of the most strident advocates of the doctrine of offensive deterrence.

Bicester in Oxfordshire retains, better than any other aviation site in Britain, the layout and built fabric relating to this aspect of the development of British air power up to 1940. The grass airfield survives with airfield defences, bomb stores, perimeter track and some hard-standings added during the Second World War. Following guidelines prepared with English Heritage, most of the buildings on the domestic site have been adapted for the Defence Clothing and Textile Agency as offices, warehousing and laboratories.

The Strategic Bomber Offensive relied on a huge infrastructure of sites, in contrast to the small number involved in the Battle of Britain. Throughout the

Second World War new airfields - the bulk of them created for Bomber Command and the USAAF - were built with concrete runways and perimeters. Domestic sites (messes and accomodation) and technical sites (hangars and workshops) were scattered in the surrounding countryside and constructed from temporary materials.

The control tower became the most distinctive and instantly recognisable building associated with military airfields, particularly in the Second World War when they served as places where base personnel congregated as they awaited the return of aircraft from operations. Their symbolic value as memorials to the enormous losses sustained by American and Commonwealth forces in the course of the Strategic Bomber Offensive has long been recognised. Several of the best-preserved examples such as at Woodhall Spa in Lincolnshire now remain as the foci of aviation museums. Bassingbourn Tower Museum, founded in the mid-1970s and operated by volunteers of the East Anglian Aviation Society (EAAS), was the first of its type. Bassingbourn become one of the most famous bomber bases of the Second World War, with B17s such as the Memphis Belle and the Nine O Nine based out of there. ▷

Opposite page:

1. Pilots of No. 111 Squadron dash to their Hurricanes during an air exercise, August 1939. Note Northolt Officers' Mess in the background. *After the Battle*
2. Kenley under attack showing the fighter pens which are now protected. Taken by German war photographer Rolf von Pebal in one of the low-flying Dorniers crossing the drome. *After the Battle*
3. Preparing a B17 prior to a bombing raid - Bassingbourn Airfield. EAAS

This Page:

4. The Memphis Belle victory fly-past having completed 25 missions
5. The Nine O Nine flew 140 missions without ever turning back
6. The crew of the Memphis Belle being congratulated after the 25th mission, prior to departing back to the US to undertake a War Bond tour, and train new crews for the European theatre
All photographs EAAS



International significance

RAF Scampton illustrates the international significance of some of the recommendations for protection. This bomber station took part in the range of activities familiar to all who served in Bomber Command, from mine-laying to the bombing of German cities. It achieved world-wide fame on account of its association with 617 Squadron and the Dambusters Raid in May 1943. This raid pioneered the control by squadron commanders of precision operations. It also captured the imagination of the press and public at a critical moment in the war, making national heroes of Guy Gibson and his crews. It provided a huge boost to Bomber Command's morale and enabled Winston Churchill, in Washington with his chiefs of staff for a meeting with Roosevelt, to both silence American critics and boost confidence among the Canadians who were contributing increasing amounts of air crews to Bomber Command.

Leonard Cheshire took command of 617 Squadron in October 1943 and spearheaded a series of raids on sites - ranging from the rocket site at Peenemunde and the U-boat pens at Le Havre - that developed the effectiveness of precision bombing. Scampton retains its layout and flying landscapes, complete with its full complement of hangars (including 617's offices), more clearly than other bases at Coningsby and Woodhall Spa. After the war the airfield was further remodelled for V-bombers, the nuclear-armed deterrent force of the early Cold War period.

Knowledge of the international context has been vital to our work, providing additional confidence to difficult and sometimes controversial decisions about what can or cannot be protected. Protected sites in the United States include the sites and structures associated with the early career of the Wright brothers and other pioneers. They also include military sites such as the six seaplane hangars of 1916-18 at Pensacola Air Station in Florida,

the training base at Randolph Field in Texas (under development from 1928) and the Second World War bases on the Aleutian Islands off Alaska. Other key sites in Europe are also being protected, such as the German airfield at Deelen in the Netherlands, the night-fighter base at Werneuchen in Brandenburg and the French bomber base at Montaudron near Toulouse.

Sites included in our recommendations, besides those still owned by the Ministry of Defence, range from museum sites (Duxford), those earmarked for further development for civil flying (Biggin Hill), public amenity and gliding (Kenley), sites identified for mixed-use development with open space provision (Bicester) to ongoing military use (Netheravon and Scampton). Most of these sites - and the buildings on over 30 sites recommended for listing - will continue to develop and change, now within a framework of understanding their importance within a national and international context.

Jeremy Lake, English Heritage

Officers' Mess at Netheravon, Wiltshire

Begun in 1912, Netheravon is the most complete of the sites that relate to the crucial formative phase in the development of military aviation in Europe, prior to the First World War. The domestic site retains a remarkably well-preserved group of single-storey barracks and mess buildings dating from 1913-14, still in use. The grass airfield remains intact.



Hullavington, Wiltshire

Opened in 1937 as a Flying Training Station, this site embodies to a unique degree the improved architectural quality associated with the post-1934 Expansion Period of the RAF. Most of the original buildings have survived and form a particularly coherent and well-ordered ensemble. The flying field remains, bounded by groups of hangars. It was designated as a conservation area by the local authority more than ten years ago, and several key buildings are now listed. It is now home to an army unit.



Aerial view of Scampton, Lincolnshire

Opened in 1936 as a bomber station, Scampton's association with the Dambuster Raids makes it Bomber Command's most famous base of the Second World War. It also played an important role in the Strategic Bomber Offensive and the daylight raids in support of the Allied offensive in Europe. It continued to evolve as a landscape for the projection of deterrent power in the Cold War period. The hangars are now listed. Consideration is now being given to how the site can be protected as a whole, whilst allowing it to grow and meet future defence needs.



MOD Biodiversity Day 2005

The MOD Biodiversity Day is an annual event when senior military officers and civil servants learn about developments in conservation management - and get stuck into practical tasks that give real benefit to wildlife and public access on the Defence Estate.



Mr Jones, woodcutter and local charcoal producer, describing the process to Vice Admiral Peter Dunt, Chief Executive of Defence Estates and Col. James Pollock, Commander ATE
Crown Copyright



Ian Andrews and Stephen Barter, Non-Executive Director, Defence Estates Committee, using a post driver
Crown Copyright



Ian Andrews addresses the work party
Crown Copyright

Vice Admiral Peter Dunt, Chief Executive of Defence Estates, invited the 'top brass' to Army Training Estate South East (ATE SE) in Kent this year. Amongst the visitors were Ian Andrews (2nd Permanent Under Secretary), Air Chief Marshall Sir Brian Burridge (Commander-in-Chief Strike Command) and Vice Admiral Sir James Burnell-Nugent (Second Sea Lord).

The training area lies to the north of Folkestone and provides important training facilities for the Armed Services' regular, reserve and cadet units, UK emergency services personnel, as well as some foreign units and police forces. ATE SE is co-located with the Operational Training and Advisory Group and as a result has become the main centre for all mandatory pre-operational deployment training in the UK.

ATE South East challenged the visiting VIPs to a variety of activities including scrub clearance to improve the chalk grassland on the North Downs AONB. In addition they improved footpaths and stiles to enhance access to a section of the ancient Pilgrim's Way route to Canterbury that passes through the Training Area. These tasks were aided and led by members of

Landmarc Support Services (LSS), the MOD Conservation Group and representatives from English Nature, Kent Wildlife Trust, Butterfly Conservation and the Kent County Council Rights of Way team.

The Biodiversity Day was established in response to the Green Ministers' Biodiversity Checklist to raise awareness of biodiversity issues and is just one part of the wider sustainable development agenda. As well as the practical tasks, visitors heard how trends in climate change would impact on MOD's coastal estate. The extensive nature of the MOD's estate management commitment means that issues range from managing coast and flood defences (to address the impacts of increased storm incidences and sea level rise), to managing designated sites for nature conservation and preserving cultural heritage such as Hythe's Martello towers (*see Martello Tower Restoration Project page 30 and The Potential Impact of Climate Change page 50*). Many of the issues MOD currently manages on the defence estate are likely to become exacerbated by climate change effects. Management of the issue requires long-term planning to ensure that the Defence Estate can continue to fulfil its military training requirements.

At the same time as the senior staff were hard at work enhancing the environment, a group of children from nearby Lyminge Primary School were using the area as an outdoor classroom. They learnt how charcoal is produced from wood coppiced on the estate and met officers from the MOD Police Wildlife Crime Prevention Team who taught them about collecting evidence of wildlife crime incidents. They were also challenged to spot some camouflaged soldiers from the Royal Gurkha Rifles who were training on the ranges at the time - generating shrieks of surprise as they materialised right in front of them. The visit made such an impression on the children and teachers that further engagement will follow, building on this valuable link between the site and the local community.

The staff of ATE South East, LSS and everyone else involved in the joint working deserve a big thank you for making the event the most successful MOD Biodiversity Day to date.

Martin Coulson, Assistant Director Estate Strategy and Policy and Pippa Morrison, Biodiversity & Conservation Sustainability Policy Advisor

the FALKLAND



Gentoo Penguins - All photographs are courtesy of Andy Rouse

To be perfectly honest, I had very little idea of what was in store for me when I discovered that I would be flying courtesy of the RAF to the Falkland Islands. Short of knowing that the region was teeming with seabirds and was the breeding refuge of Elephant Seals, I knew only of the rave reviews of friends that had visited the islands and of the amazing wildlife to be found there.

Naturally, my vision of the islands had been moulded by the scenes relayed to us in the comforts of our own homes during the conflict in 1982. Images of courageous men in green; fire-fights; a decisive and

determined Iron Lady and the bleak and windswept landscape on the other side of the world, were all I could recall.

As the plane began its descent, I glanced at the map of the islands that I had been given. Certain place names leapt from the page; names like Port Stanley, Bluff Cove and Goose Green. Place names that had been banded around countless times in the early 80s but strangely, despite their familiarity, I had absolutely no idea what they looked like. Other names were even less familiar; Port San Carlos, Weddell Island and Darwin conjuring up images of the intrepid scientists and explorers in whose footsteps I now trod.

A great many people alongside me, it now seems, have access to visit the islands although they are well off the usual tourist track. With the daily arrival of a procession of cruise liners, there is a thriving tourism industry in and around the 4,700 square miles of land and coastline of this colourful archipelago. Like the adventurers before us, I am sure visitors are astonished by this South Atlantic gem; the vibrancy of the islands and the friendliness of their residents - both human and those a little more wild.

Arriving on East Falkland in January, I had the greatest chance of photographing my chosen subjects, namely penguins ▷

ISLANDS

A UNIQUE PERSPECTIVE

Wildlife photographer Andy Rouse recounts his experiences of this dramatic, wind-swept landscape and its rich, natural history



Gentoo Penguins surfing





A Gentoo Penguin comes under close inspection by Lance Corporal Gammon of the Royal Lancashire Regiment



King Penguin



Courting Magellanic or Jackass Penguins

and albatross. The weather between mid-December and the end of January is allegedly reasonably settled and the breeding seabird colonies would be in full swing. Sadly, the time is a few weeks too late for the breeding Elephant Seal colonies as they would have since dispersed to fresher waters and new hunting grounds.

Port Stanley, the capital of the islands, is the social hub for the majority of the 2,500 island residents. The view of the town is dominated by hills and mountains with evocative names such as the Twin Sisters and Mount Tumbledown which featured strongly in the roll of British Army battle honours from the conflict. Fishing, tourism and oil exploration are the major industries emanating from Port Stanley and have resulted in a doubling of its size and population in recent years.

Habitations on the islands are an eclectic mix of small, modest, single story dwellings alongside large imposing colonial buildings, most of which are brightly painted.

The whole feel of the islands is like a home from home and distinctly British. Residents are proud of their heritage and many places retain reassuring tokens of home, some of which we, on the mainland, have begun to lose - our red pillar boxes and phone kiosks for example.

Travel around the islands is facilitated by the Government Air Service, which provides an efficient means of reaching some of the more remote areas as well as providing an essential link and delivering supplies. The Mount Pleasant Airport on East Falkland is the main Forces base. The

islands are home to the Tri-Service HQ and the permanent presence of the British Forces is welcomed by the islanders.

Being out 'on patrol' in and around the islands is an important part of the work of the military. These patrols also form an essential connection with the local community as well as being an integral component of training. Requests from remote farmers for military assistance are fulfilled as part of the patrol and are rewarded by a home-cooked meal lovingly created by the farmer's wife, or overnight accommodation in the warm and dry. The Forces are an institution on the islands and a reassuring presence. Remote residents sometimes become concerned when they have not experienced a 'fly over' in a while.

My time in the Falklands was greatly enhanced by the assistance of the Royal Lancashire Regiment who were on a 6-month posting in January. I was fortunate enough to be able to accompany them on patrol for a few hours when trekking to some of the premier penguin locations in the world. The terrain on the islands is faintly reminiscent of the west coast of Scotland; rugged and windswept, mountainous with craggy outcrops and a distinct lack of vegetation, specifically trees. The absence of cover makes the incessant, predominantly westerly wind even more prominent and makes the sense of wilderness even more exciting.

Penguin colonies are in some respects very similar to any other seabird colony: they are bustling, noisy and extremely smelly places to visit, let alone work. My style of photography



Gentoo Penguins



Gentoo Penguins displaying at dawn



Rockhopper Penguin



Rockhopper Penguin taking a shower



Black-Browed Albatross

relies on being able to get close to my subject which was not a problem, the penguins being very accommodating. Another aspect of my style is low-angle which was altogether another level of getting 'up close and personal'. Lying down in several inches of guano, peppered by dollops of bright pink regurgitated squid, is not everyone's idea of fun. My camera equipment, clothes and even my hair smelled like a rotten fishmonger's for weeks afterwards.

The islands support four main species of penguin: the King, Magellanic, Rockhopper and Gentoo. The Macaroni Penguin is also found on the islands. Each species has its own character and personality. Some physically enjoy surfing the waves such as the Gentoo, whereas the Rockhopper gouges out streaks of rock from their climbing activities and follows this with a refreshing shower under a nearby waterfall. The rather aloof King quirkily spend days and weeks perfecting the art of balancing their eggs - and then their young - upon their feet, whilst the Magellanic prefer a little privacy from the entire hubbub in their burrows.

All of the penguin species are comical in their antics, from waddling on the beach to their persistent nattering and squabbling in the colony. The cacophony created by the largest colonies of Rockhoppers and Gentoos when returning before dusk following an afternoon's successful fishing is something everyone should experience once in their life.

The other subject of my photographic foray to the Falkland Islands was to catch up with the endangered Black-Browed Albatross at its breeding colony. A bird record-breaker in

many respects, the Falklands has the largest breeding colony in the world with around half a million returning each year: that's two-thirds of the world's population. These most magnificent of birds are currently under threat of extinction mainly due to their slow reproductive rate and an increase in long-line fishing methods. Their chicks are some of the most awkward looking and ungainly creatures, curious of the camera and very photogenic in an 'ugly duckling' fashion. Ugly ducklings they certainly are, as they mature to become one of the most enigmatic and beautiful world adventurers we have.

There must be something that attracts the wanderlust in visitors to these islands. The Black-Browed Albatross and albatrosses in general, are famed for their long distance flights. Parents may travel up to 5,000 miles in order to find food for their hungry chicks.

Photographing these birds was immensely rewarding as they sat on their pedestal nests and clung precariously to steep-sided cliffs. These birds mate for life and the tenderness between parents is wonderful to behold.

Luckily for me, I was able to spend many magical moments with some of the wildlife of the Falklands Islands, which left me with a hunger for more. It was with great reluctance that I boarded the plane back to Old Blighty... I quite liked the one I had found several thousands of miles from home.

Andy Rouse

Andy Rouse's wildlife photography can be viewed at www.andyrouse.co.uk

Black-Browed Albatross



Black-Browed Albatrosses mate for life



On 25 August 2004 Flt Lt Mike Hayes of RAFOS (RAF Cranwell) set out for the heart of Australia to join a Royal Air Force Ornithological Society (RAFOS) adventurous training expedition - RAFOS OzEx04.



Expedition to the Heart of AUSTRALIA

RAFOS OzEx04 was an expedition to carry out an ornithological survey at Birds Australia (BA) Newhaven Station Reserve.

The reserve is 262,600 ha in size. It measures approximately 80 x 35 km, and lies 363 km (or four and a half hours drive) north-west of Alice Springs, half of it on un-surfaced roads and tracks.

Some survey work had been done in the past, but BA requested that we at least repeat their methodology over that area and extend it as far as we could.

Logistics planning was to prove crucial. Each member had to allow 18 days between departing the UK and returning in order to allow sufficient time to acclimatise, to become familiar with the local avifauna, and to become proficient in the survey techniques. The nearest vehicle fuel was 125 km away, and we had to take all our supplies in (apart from water), and everything, including all our rubbish, out.

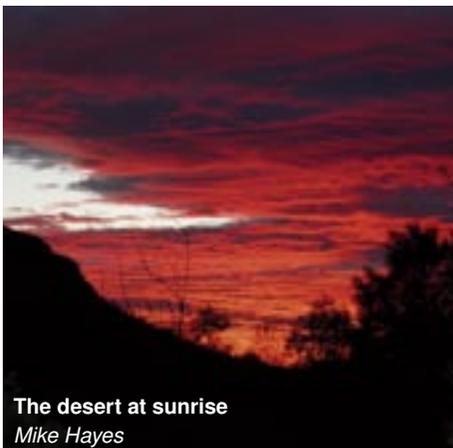
A campsite was quickly established close to the Reserve Manager's residence where clean water was available. Some of the tents provided by the Australian Forces (minus instructions) were obviously not the latest issue, but fortunately it didn't rain. A major problem was living with the red sand which invaded every nook and cranny, especially our optical equipment. Maps were unreliable, so extensive use of GPS on site was essential for both safety and in order to carry out the survey work with any degree of accuracy.

When BA's biodiversity scoring system is applied to Newhaven, it scores an exceptionally high 91 per cent. Newhaven has a wide range of landforms ranging from parallel dunes in the south to salt lakes, clay pans, plains country and rocky ranges. Associated with these landforms are calcareous grasslands, open woodland and areas of open shrub. This vegetation variability arises from Newhaven's location at the junction of three bio-regions: the Great Sandy Desert, the MacDonnell Ranges and the Burt Plain.

As winter rains had been exceptionally heavy following several dry years, the landscape was covered with a brightly coloured carpet of fresh growth and spring flowers.

Each day, at first light, we completed safety checks of vehicles and equipment, emergency water, food supplies, survey forms and maps, and personal kit. Up to three survey teams of three people each then departed for different areas of the reserve. All the tracks were passable by 4WD vehicles, although some sandy patches needed careful examination before driving through.

Working in pairs, transects of 200 m were surveyed (routes along which bird species were recorded and counted) covering a length of 5 km or more. Every alternate sector was treated as a BA plot 100 m wide, with centres at least 400 m apart. However, standard European recording applied continuously along each transect. All birds identified birds were counted and any evidence of breeding was recorded. The third team member stayed with the vehicle,



The desert at sunrise
Mike Hayes



The red dust of the desert,
a major problem for our equipment
Mike Hayes



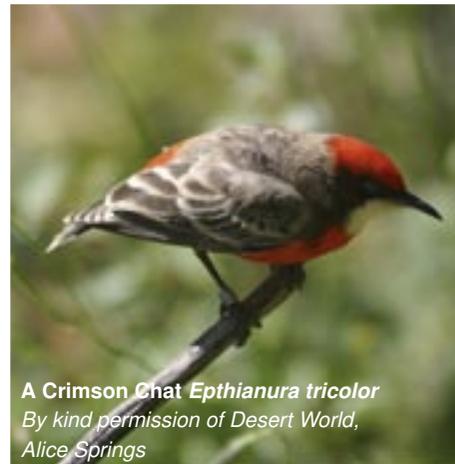
Wedge-tailed Eagles
Mike Hayes



The Rainbow Bee-eater
Mike Hayes



The Splendid Fairy-Wren
Mike Blair



A Crimson Chat *Epthianura tricolor*
By kind permission of Desert World,
Alice Springs



Spring flowering in the desert

which contained the radio, and carried out a local area survey in a radius of 250–500 m round the vehicle. Where areas of particular interest were found an additional survey was carried out. The team then moved on and repeated the process with up to five transects being completed by each team each day.

This proved quite challenging as the daytime temperatures reached 39°C at the end of OzEx04, making sunstroke a real threat: at the beginning, night temperatures reached brass-monkey depths of -5°C. On returning to camp each team documented the day's results. Fortunately, all sector and transect details could be downloaded directly from the GPS units to a laptop, enabling daily mapping of bird distributions to be achieved near instantly. The final maps can be overlaid on existing reserve maps, thus correlating with flora, fauna (especially marsupials), geological and invertebrate surveys. The data will be analysed to determine ecological relationships.

For BA, we recorded our surveys on Australian Bird Atlas sheets, even on those where no birds were sighted, and we kept our own detailed logs for each sector. We passed details of any unusual sightings and the relevant GPS co-ordinates to the Reserve Ranger. Feral camels (originating from animals imported with their Afghan drivers in the 1870s) were numerous, dingoes were not uncommon and feral cats, judging by their tracks, were in most locations.

After the evening meal and having completing camp duties, we collapsed into bed exhausted (usually before 2100), to be ready for the next day. By the end of the expedition each member had surveyed on foot more than 100 km of transects.

Prior to OzEx04, the Reserve's bird species list as listed on the Internet stood at 142. By the end of the first stint we had recorded 102 species, including the nationally threatened Grey Falcon, and five regionally threatened birds including

Major Mitchell's Cockatoo, Black-breasted Buzzard, Australian Bustard, Grey Honey-eater and Grey-crowned Babbler. In addition, we recorded six species that were not on the Reserve's bird species list. The results from the other two stints added about 20 species to our list.

Initial analysis shows that the expedition was a huge success and will provide a wealth of valuable data to BA which will be used in developing the management plan for the reserve. To have the opportunity to visit this remote region of Australia was a real privilege and one that I shall not forget, especially the desert in bloom. I would like to thank both the Tornado IPT at Wyton and RAF Cranwell for supporting me on the expedition.

The expedition was mounted by the Royal Air Force Ornithological Society.

**Flt Lt Mike Hayes RAF Cranwell with
RAFOS Publicity Member FS John Wells.**

The Birds of Pera Marsh

This freshwater marsh, one of the few wetlands left along the western Algarve coast, is currently under threat from development.



Ferruginous Duck *Aythya nyroca*



Pera Marsh, Algarve John Wells



Greater Flamingos *Phoenicopterus roseus* are always a spectacular sight Steve Young

The Royal Air Force Ornithological Society (RAFOS) undertakes bird-watching and scientific studies such as ringing and surveys, much of which is adventurous.

In 2003 I was fortunate to win a prize of two free flight tickets, offered by GB Airways to RAFOS members to support my proposed study of a freshwater marsh at Pera in the Algarve region of southern Portugal. The area is currently under threat from the development of a holiday complex and a golf course. I based myself in an adjacent former quinta (farm), now a small holiday centre, for the week.

Pera Marsh, Lagoa dos Salgados, has received much international attention since 2003, particularly in the Portuguese and British press. It is a well-known coastal lagoon and its importance to bird life lies in it being one of the few wetlands left along the western Algarve coast. Indeed, it still retains small breeding populations of the skulking Little Bittern *Ixobrychus minutus* (four to six pairs), the shy Purple Heron *Ardea purpurea* (three to seven pairs) and the declining, near-threatened Ferruginous Duck *Aythya nyroca* (one to two pairs - the only population in Portugal). The striking, vociferous, and well-named Black-winged Stilt *Himantopus himantopus* is common and easily seen by visitors to the marsh.

Because Pera Marsh has yet to be designated as a Specially Protected Area (SPA), its supporters are collating all observations and records to make the case by building a picture of the site's importance, which is crucial to its future protection.

I was lucky to be able to record many of the species regularly found at Pera but which have an unfavourable conservation status in Europe, including the vulnerable Squacco Heron *Ardeola ralloides*, the rather rare but locally common Purple Swamphen *Porphyrio porphyrio* (six to ten pairs and perhaps 85 wintering), up to 175 Greater Flamingos *Phoenicopterus roseus*, and a pair of the rather rare Eurasian Spoonbills *Platalea leucorodia*.

More than 150 bird species have been recorded at Pera, but the struggle for its survival continues unabated, because its

complete destruction is still likely from unregulated and poorly supervised building projects. Indeed, local entrepreneurs are constructing a huge holiday apartment complex of 10,500 beds on the edge of the marsh. It is of great concern that the local water treatment works should be upgraded as a matter of priority, because its outflow is critical to the lagoon's water levels.

The good news is that, since my visit, the Portuguese bird protection organisation (SPEA) the Portuguese BirdLife International partner has designated the site as an Important Bird Area (IBA). This not only gains it international recognition, but also brings it the status necessary for it to be taken into account, under EU law, when land-use changes are contemplated.

I have passed all my observations and records to SPEA which is responsible for all Portuguese IBAs and SPAs. I would encourage any reader visiting the Algarve to visit Pera Marsh and submit their sightings, with dates and numbers, to SPEA, Rua da Voitoria, 53-3, Esq. 1100-618, Lisboa, Portugal.

Flight Sergeant John N Wells

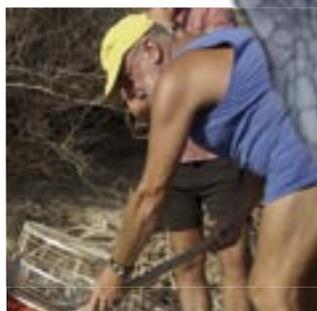
Royal Air Force Ornithological Society

The Royal Air Force Ornithological Society (RAFOS) was formed in 1965 by a small team of keen RAF birdwatchers. Since then, RAFOS has mounted over 50 adventurous and bird research-oriented expeditions. Recent major overseas expeditions include Norway, Gibraltar and central Australia. RAFOS has also undertaken work in the UK for the Joint Nature Conservation Council (JNCC), RSPB, The Wildfowl and Wetlands Trust (WWT), The British Trust for Ornithology (BTO) and Scottish Natural Heritage (SNH). RAFOS arranges bird ringing training weekends for interested service personnel, co-ordinated by our qualified ringers. For details on RAFOS visit our website <http://www.rafos.org.uk>

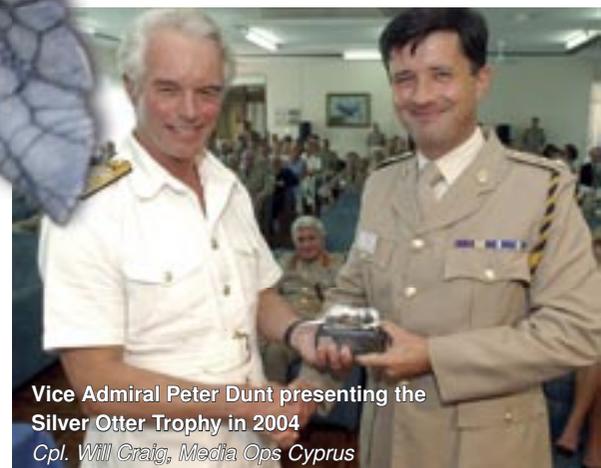
Protecting the rare species of Cyprus



Baby turtles are well camouflaged on the shingle
Cpl. Will Craig, Media Ops Cyprus



Excavating the nests to free trapped baby turtles, and inset, children take a keen interest in the hatchlings
Cpl. Pete Mobbs



Vice Admiral Peter Dunt presenting the Silver Otter Trophy in 2004
Cpl. Will Craig, Media Ops Cyprus

Cyprus is normally known for sun, sea and sand and for many years has been a popular destination for British holidaymakers. The island is also home to some 10,000 British Navy, Army and RAF troops and their families who live in the two Sovereign Bases Areas of Akrotiri and Episkopi. One soldier, Lance Corporal Jason Wilson, has the unusual role of looking after the environment.

Jason has served in the Army for eight years as an Infantry soldier with the Kings Own Royal Border Regiment (KORBR), including tours in Canada, Northern Ireland and Bosnia. As a child he spent time living in South Africa, and has been a keen birdwatcher since the age of eight. He moved to Cyprus with his Regiment in 2001, but when the KORBR moved back to the UK was given the enviable opportunity to stay on and turn his hobby into a full time job.

Conservation has been recognised as an important issue within the Sovereign Base Area for years, with many individual efforts by Service and Defence Estates staff. Jason was, however, the first full time conservation officer for the Western Sovereign Base Area.

One of Jason's first tasks was to catalogue some of the different species and raise the awareness of the local population to the wildlife, involving presentations to schoolchildren and speaking to the locals living in the sensitive areas. He also has overseen a number of projects to help specific species, including the Egyptian Fruit Bat, the Long-eared Brown Horseshoe Bat and Loggerhead Turtles.

There are only a few colonies of the Egyptian Fruit Bat in Cyprus, one of which remains undisturbed in a cave only accessible by sea.

While Long-eared Brown Horseshoe Bats are normally found in Northern Europe, a small number of colonies also live on Cyprus. One was found in the attic of a chalet in the Trudos Mountains when work was being carried out on the roof. Jason was called in to seek advice on how to undertake the work without disturbing the bats. He monitored the colony to ensure that they continue to thrive.

Loggerhead Turtles come onto the Island's beaches during the summer to nest. For a number of years there has been a highly successful 'Turtle Watch' project, which won the coveted Sanctuary Award in 2004. The award was presented to the Conservation Group by Vice Admiral Peter Dunt during his visit to Cyprus in November.

The project is run by volunteers who mark the nests and try to prevent them from being disturbed. Frequent problems arise from disturbance by dogs, vehicles and horses, illegal fishing with nets in shallow water, predation of nests, and use of the beaches at night by rod fishermen and party-goers. There is also the continued battle with washed-up rubbish and debris.

When the baby Loggerheads begin to hatch 24-hour watches are maintained to ensure that they reach the sea safely. To raise awareness, the public is often invited along to the nest excavations with often as many as 300 people coming to watch.

Cyprus has many important habitats that are home to a wide variety of species, many of which are quite rare. Thanks to the increasing awareness of conservation they should have a brighter future.

**Lance Corporal Jason Wilson, Conservation Officer
Western Sovereign Base Area**

Eleonora's Falcon breeding sites in Cyprus



The Eleonora's Falcon *Falco eleonora* is a slender, long-winged, long tailed bird, falling in size between the Hobby and Peregrine. It occurs in light and dark morphs, and is classified as rare in Europe.

The Eleonora's Falcon breeds entirely in the Mediterranean and along the northwest coast of Africa, in colonies on sea-cliffs and islands. The entire population migrates during autumn to their wintering grounds on Madagascar and other islands along the coast of Eastern Africa.

In Cyprus the Eleonora's Falcon breeds on sandy ledges or potholes along the southern coast from Cape Aspro near Paphos in the west, to the cliffs at Akrotiri in the east.

Since 2002 the Western Sovereign Base Area (WSBA) Conservation Group has been monitoring the population of Eleonora's Falcon and surveying the breeding sites in Cyprus as recommended by the International Species Action Plan. Representatives from the Sovereign Base Area Administration (SBAA), Birdlife Cyprus, Republic of Cyprus (ROC) Game Fund and the Republic of Cyprus Forestry Department are invited to help with conducting the survey.

Nesting sites in Cyprus are the Akrotiri Cliffs, Episkopi Cliffs and Cape Aspro Cliffs. These areas have been designated Important Bird Areas (IBAs) since 1988. They are broken down into eleven smaller sites using Global Positioning System (GPS) co-ordinates, one of which was recorded as a breeding site for the first time this year.

Consistent methodology is used to conduct the survey, with the WSBA Conservation Officer on hand to explain the methods. Ideally this takes place during the first two weeks of September, as the Eleonora's Falcon nests late in the season, coinciding with the autumn migration of small *Passerines*, which form the main diet for the chicks. At this time adult falcons will still be feeding chicks at the nest sites, and there will also be possible guano staining on the cliffs below a probable nest site.

Since the majority of nesting sites can only be observed from the sea, 417 Maritime Troop were approached to assist with transport to conduct the survey on 10 September 2004. Due to limited space the survey team comprised Mr Thomas Hadjikyriakou (SBAA), Mr Michael Miltiadous (Birdlife Cyprus), Mr Minas Stavrinos and Mr Minas Papadopoulos (ROC Game Fund) and Jason Wilson (WSBA Conservation Officer).

Visibility was excellent, being 10 km or more, with light northwest winds, becoming moderate southwest in the afternoon, with gusts no higher than 15 knots. Cloud base was 3000 to 5000 ft with the temperatures between 21°C and 28°C.

Results

The team recorded 228 Eleonora's Falcons present on, or near, the sea cliffs, either

resting or flying, with the main concentrations at Cape Aspro and Akrotiri Cliffs. A possible 151 nests were identified as clearly visible in the survey area because of an adult near to, or on, a nest site as well as the presence of guano on the cliffs.

Discussion

The survey started at 07:30 hrs and was completed at 13:00 hrs. Once we got past the headland of Cape Gata, at RAF Akrotiri, the sea started to get a bit rough, causing concern about conducting the survey, but became a lot calmer once out of deep water and closer to the cliffs.

On the journey to Cape Aspro Cliffs a lone adult Eleonora's Falcon was seen hunting about 40 metres above the sea about 4 km South of Pissouri Jetty. The majority of falcons were still present on the sea cliffs, with only a small number flying around.

The sea cliffs are predominately made up of light-coloured limestone. The majority of falcons, appearing dark against their background, could be clearly seen and counted. However, others were very tricky to locate, being tucked away in cracks and crevices in the shade.

Visibility remained excellent, with the sun being behind us and to the right the whole time. It quickly became apparent



Counting Falcons from the Sir William Roe

Jason Wilson



The 2004 Survey Team

Jason Wilson

that due to these conditions the two independent teams were recording roughly the same figures for the first locations. Thereafter, one team was formed.

At the Zapallo Fishing Station a single falcon was observed lying flat on a ledge on the cliffs. It was motionless, with wings outstretched, tail-feathers fanned and head pointing forward. Because it wasn't moving we presumed that the falcon had probably collided with the cliff face and was either stunned or dead. After a couple of minutes we looked back and the falcon was gone. Shortly afterwards another one turned up and did exactly the same, lying flat and motionless. It stayed there for about two to three minutes, then raised its wings vertical as if to stretch and took off. We came to the conclusion that they were performing one of four possibilities:

- they could have been anting (where a bird allows ants to crawl over its body to remove parasites)
- dust bathing (to relieve the irritation caused either from parasites or sheaths on new feathers from their latest moult)
- a display to mark a territory
- or simply basking in the sun.

All the falcons that were seen resting on the sea cliffs were positioned on the bottom third of the cliff, never near the top. This

could possibly be attributed to temperature, with the lower part of the cliffs cooled by sea breezes adding to favourable conditions.

At Akrotiri, east of the Radar Station, groups of falcons were located very close together. We believe that this area, even though it had the presence of nests, could be a non-breeding area for adults and youngsters.

With the exception of one site, possible nest sites were positioned between five and 30 metres above sea level on cliffs directly overlooking the sea. At the Quarry Cliffs site the nests were between 20 and 40 metres above the ground. All nests were sited in cracks, potholes, crevices, or on ledges either in shade, semi-shade or, in a couple of instances direct sunlight.

Conclusions

The timing of the survey, which enabled the team to count falcons still at possible nest sites, was crucial to its success. However, it was recognised that there were possible flaws:

- a breeding pair of falcons, one on the nest incubating and the other perched nearby could have been counted as possibly two pairs
- falcons could have been missed during counting
- although visibility was good, at three of the sites we could only get

to within 150 metres of the cliffs, making it difficult to locate nests

- the location of possible nests was based on the knowledge of the survey team.

While the methodology used for the survey is the only viable option currently available due to the inaccessibility of the sites, it appears that the Eleonora's Falcon breeding along the Southern coast of Cyprus, show numbers have remained stable.

Recommendations

Future surveys should include the percentage of the population which are either dark or light morphs. There should also be continued co-operation, participation and suggestions from the various organisations on improving or changing the current methodology used.

Jason Wilson, Western Sovereign Base Area Conservation Officer

The survey team would like to thank 417 Maritime Troop CSSU, based at RAF Akrotiri for providing them with the resources to be able to conduct the survey. Thanks also to the crew of the Sir William Roe, Sgt Rogers, Cpl Winzor, Mr Theo Constantino and Mr Savvas Nicolaou.

A 'Green Machine' in Germany



WO2 Neil Connolly, Senior Army Welfare Worker and Silvia Morgan, Vetting Clerk, installing one of 30 bird boxes
Sgt Teresa Pickin



Clearing scrub to allow heather to grow to support wildlife on the training area
Sgt Teresa Pickin



Spatulate-leaved Sundew
Sgt Teresa Pickin



Sandpiper *Tringer* sp.
Sgt Teresa Pickin

Bruising tank tracks may not seem like a godsend to nature, but they are proving to be a haven for flourishing seeds in Germany.

This was just one of the many insights gained by visitors taking part in the annual Conservation Day at the Achmer Training Area near Osnabrück.

Last Easter about 30 civilian workers at the Headquarters of 4 Armoured Brigade put their pens and paper to one side, swapped their office wear for country togs, and stepped out on to the range to enjoy the majesty of some wonderful countryside.

There were three principal tasks: planting 15 cherry, apple and pear trees, felling a number of Silver Birches to allow heather to flourish and erecting 30 nest boxes.

The 1300-hectare area is part of the nationally-run forest, the Staatsforst Westerkappeln in Northrhine-Westphalia, and is used by the British Army for training its troops. It is also home to a number of endangered and rare animals, birds, insects and plants.

As for the tank tracks aiding seeds, disturbance and churning-up the soil creates holes and subsequent puddles that cradle the dormant seeds. Tanks rarely follow exactly the same pattern the next year, so these plants

generally flourish. When the rains come the tank tracks swell with water. The boggy soil allows long grass to develop, which is a particular favourite with birds like the Curlew and Snipe.

Silver Birch shade out heather *Calluna vulgaris*, which is an important habitat for Nightjars and the rare Woodlark. Felling them is part of a continuing plan to check their sprawling growth and ensure that the large swathe of heather is maintained.

The Sandpiper, a bird found on the island of Hegoland, in the North Sea just off Germany, also spends some of its time on the Achmer ranges.

The mixed fruit trees (typical Westphalian varieties) have a dual role: their fruits are not harvested but left to fall, providing food for various animals, while the blossom is a magnet for other species.

Although leaving stumps in which birds can build their homes is the usual way to encourage breeding species, a friend of the Master Forester offered us 30 bird boxes, which we duly erected. These will provide an excellent addition to the natural nesting opportunities for common birds such as Blue Tits and Great Tits. In addition, we put up

a special large nesting box on the training ground for hornets. Hornets are a protected and endangered species in Germany. They like to use bird nesting-sites, but traditional bird boxes are too small, forcing them to re-locate, so this custom-made box will assist their spread across Germany.

Ponds form in the rainy season to offer an excellent home for the "Red List" endangered species of the Moor Frog and Natterjack Toad. Also growing in the area is the Spatulate-leaved Sundew, a plant that feasts on insects.

The Achmer training area was part of a German airfield in World War Two. It is ideal in parts for tank and tracked-vehicle manoeuvres and offers watermanship training on a lake. Infantry tactical patrols and recce skills are tested in forestry land peppered with clearings, and there is a demanding cross-country driving area.

The British Government pays for the work of Master Forester Herr Rainer Schmidt and the team of conservation wardens, who liaise closely with the Training Area Manager, Warrant Officer David Sharpe.

James Gaskin, IO (UK) Media Operations

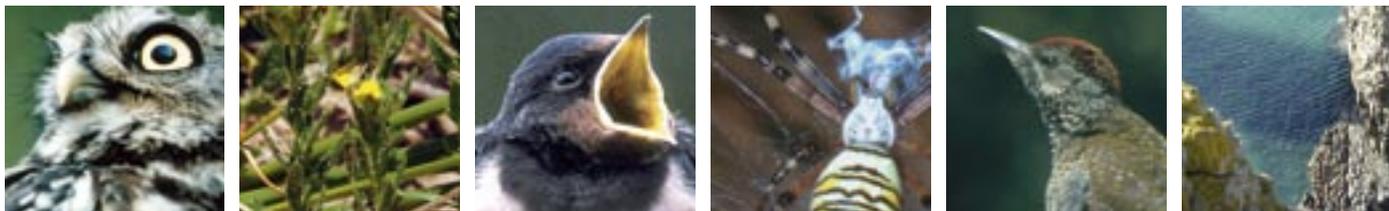
Around the Regions

With the Conservation Groups



There are over 150 Conservation Groups operating across the MOD. The following section provides an update on the dedicated work of some of these groups.

- 1** Abbey Wood, Bristol
- 2** Andover, Hampshire
- 3** AWE Aldermasteon, Berkshire
- 4** Bicester, Oxfordshire
- 5** Boscombe Down, Wiltshire
- 6** Bovington and Lulworth
- 7** Buckley Barracks, Wiltshire
- 8** Bulford, Wiltshire
- 9** Castlemartin, Pembrokeshire
- 10** Catterick, North Yorkshire
- 11** Foulness Island, Essex
- 12** Fremington and Braunton Burrows, Devon
- 13** Imber, Wiltshire
- 14** Longmoor, Hampshire
- 15** Nescliffe Training Area, Shropshire
- 16** Newton Ranges and Jersey Camp, Isle of Wight
- 17** Pippingford Park, East Sussex
- 18** RM Condor, Angus, Scotland
- 19** Swynnerton Training Area, Staffordshire



Conservation Group Review



Conservation Groups have made an essential contribution to the management of the MOD Estate for many years, providing local expertise and continuity and consistency that was not available through formal military channels. Conservation Group members have provided many man-hours of voluntary support on tasks which have contributed to the protection of scheduled monuments, the improvement of habitats and the increase in biodiversity across the MOD estate.

In December 2003 a review of the role of Conservation Groups was requested by the Director of Estate Strategy and Policy to ensure that the future role and activities of Conservation Groups was included in the new management structures being established and implemented across the UK MOD estate. The final report will be used to revise Chapter 5 (Nature Conservation) of the MOD's Joint Service Publication 362 (The Defence Lands Manual). It will also serve to refresh the Conservation Group framework by providing all parties with an opportunity to discuss their current and future working arrangements.

The MOD is one of the UK's major landowners, with many sites having national or international designations relating to species or habitats, archaeology or protected buildings (see *For Queen and Countryside: Defending the UK's most important Wildlife and Geological Sites, page 42*). This confers a particular responsibility on the MOD, which is delegated to Top Level Budget holders (TLBs). The TLBs have traditionally relied upon their Conservation Groups to provide local conservation advice and support to Heads of Establishment and their property managers.

Wide-ranging changes are currently taking place in the ways in which business is carried out across the MOD. New estate management arrangements, such as Private Public Partnerships (PPP) and Public Finance Initiatives (PFI), have reduced the role of the Head of Establishment as the focal point for conservation. Consequently, funds and resources previously available for Conservation Group activities have, in many cases, been moved beyond the control of the Head of Establishment.

Internal changes within the Defence Estates (DE) organisation in the way in which estate management is now directed and supported have also impacted upon how conservation tasks are planned, funded and implemented. Statutory changes have required a change in the way DE reports information regarding biodiversity species and habitats, which in turn requires a review of the processes by which Conservation Groups record and report this information.

The data gathered during the review was obtained by a variety of methods. Questionnaires, interviews, working groups and a UK MOD Conservation Group Chairman's Forum were used to canvass a broad cross-section of people involved with Conservation Groups across the MOD estate.

Three main questionnaires were used to target:

- Conservation Group Chairmen
- Individual Conservation Group members
- DE Staff involved directly or indirectly with the management of Conservation Group activities.

In addition, a number of interviews were carried out with individuals involved with Conservation Groups to seek wider explanation of regional or best practice issues.

Statutory bodies and non-governmental organisations with similar land management issues were consulted to see how they work with conservation volunteers and site management committees. We were interested to see how they collect, store and use environmental information and how they could support MOD Conservation Groups in the future. Those consulted were:

- English Nature (EN)
- National Trust (NT)
- Wildfowl and Wetlands Trust (WWT)
- Forest Enterprise (South East)
- Wildlife Trusts (WTs)

Two reports have been produced to date as a result of this review. The first was circulated to attendees of the Conservation Group Chairman's Forum. This discussion paper formed the basis for various workshops in which the Chairmen were tasked with developing solutions to some of the issues identified.

The second report was distributed to all Conservation Groups who were asked to comment on all findings of the review to date. A wide variety of comments were received and these have now been consolidated into a draft action plan. This action plan will define who will be tasked with taking forward the various recommendations, the resource implications in terms of both money and staff, and dates by which the recommendations are to be implemented.

Some are quick wins, which are low-cost and easily achievable; others will require changes to MOD policy and these will take longer to implement.

Guy Hagg, Senior Environmental Advisor, DE EST Conservation Groups and Environmental PR



Hampshire

Longmoor Conservation Group - 30 Years of Conservation Work

This year marks the 30th anniversary of our longest running MOD Conservation Group. Longmoor Conservation Group (LCG) helps to manage Woolmer Forest in Hampshire as well as other military estates peripheral to the forest. The group was developed in 1974, at a time when the future of Woolmer Forest as a site of biological interest looked less than rosy. The effects of acid rain had seriously reduced the pH of Woolmer pond and the cessation of turf cutting and grazing livestock in the early 20th century led to decades of encroachment of pine, birch, willow, bracken and scrub.

However, in the past three decades, we have witnessed a dramatic reversal of Woolmer's earlier misfortunes with Longmoor Conservation Group setting the scene for the site's recovery. Longmoor was the first MOD Conservation Group and was created by the MOD's first ever Conservation Officer, the late Colonel Clayden. This far-sighted innovation led to developing some 160 Conservation Groups that now span MOD sites across Britain, Cyprus and the Falkland Islands. The current state of Woolmer forest is a celebration of the group's success.

Some of the environmental achievements at Woolmer have been:

- pond creation and restoration, and land habitat improvement for Natterjack Toads: numbers of breeding females have increased from 10 in the 1970s to around 40 to 50
- initiation of one of the earliest successful Sand Lizard re-introductions
- development of a species recovery programme for the Spangled Water Beetle (unique to Woolmer).

To announce recent achievements, plan future conservation initiatives, and to celebrate the group's 30-year history, members gathered at Longmoor Camp on 17 March 2005. Chaired by the Commandant, Army Training Estate, Longmoor, the meeting included representatives from government organisations (including Defence Estates and English Nature), NGOs such as the Hampshire Wildlife Trust and a number of local naturalists. The range and depth of

expertise this group lends to conservation is invaluable and an inspiration to us all. There is no substitute for the years of site-based knowledge that has built up within our conservation groups, and Defence Estates will continue to value and call upon this expertise for guidance.

Defence Estates wishes the Longmoor Conservation Group every success for the future.

Jodie Harris



Woolmer Pond June 2000 *Tony Mundell*



Longmoor Conservation Group meeting 15 March 2005 *Cown Copyright*

Berkshire

AWE Aldermaston

AWE Aldermaston and Burghfield are primarily industrial sites. However, with ponds, woodlands, grassland and lowland heath, there is a wide range of flora and fauna. Conservation at both sites is managed by voluntary conservation groups.

An important development has seen people become more aware of the importance of ecological surveys – not only for major projects, but also as part of normal business. For example, when an area had to be re-graded and stabilised, a survey established that the area was a habitat for slow worms and snakes, including a pair of Black Adders. Using the appropriate Defra licence, the ecologist laid down special heat-absorbing mats to attract the reptiles, prior to work commencing, enabling them to be moved to a nearby holding area until the work was complete.

Maintenance and inspections are also affected: a Little Owl was found roosting in a redundant generator which was due for dismantling. The engineers backed off, called out the cavalry, and an exclusion zone was put in place awaiting a re-think on how to proceed.

On another occasion the Shift Team reported that a distressed Woodpecker was trapped inside an unused building. How it got inside is a mystery. This was a closed building and a forced entry had to be made to enable the bird to escape back into the wild, before securing the building again.

These reports often make us smile - like picturing the policeman trying to catch a bat in his helmet because it was setting off alarms. But the report about the fox making an 'unprovoked attack' on the perimeter fence had us all, well, foxed!

These are not isolated cases and we are receiving an increasing number of calls on our environmental helpline asking for advice on different issues. These include where to store building materials (lay-down areas) without endangering wildlife, how to get a survey done, and what actions are needed to reduce or avoid disturbance to wildlife and habitats.

Environment Week

As in previous years, successful Environment Week exhibitions were held at the Aldermaston and Burghfield sites to raise awareness. External organisations joined us with their display stands, including the EST Conservation Office, Hampshire Wildlife Trust and Local Authorities. Our own conservation stand attracted a lot of interest as did the heritage boards describing Grim's Bank, Decoy Pond and the Aldermaston site when it was a World War II airfield.

Two organised and well-attended walks around Aldermaston were also held as part of the week including one on the Decoy Pond and Grim's Bank (5th century ditch



Black Adder Crown Copyright



Little Owl



Conservation stand at exhibition Crown Copyright



and raised bank) areas. In addition Graham Dennis, Warden of Pamber Forest, gave an interesting talk on the management of this semi-ancient woodland. The forest is administered by the Hampshire Wildlife Trust and is quite near to the Aldermaston site. The talk was well attended - many of the attendees not only work at AWE they also live locally and so have a double interest in the subject. As corporate members of several wildlife groups, including Hampshire Wildlife Trust, AWE encourages participation in looking after wildlife generally and, being on the Hampshire /Berkshire border, we have an interest in both counties.

Conservation Evening

AWE hosted a Conservation Evening in November. Guy Hagg, Senior Environmental Advisor, Defence Estates, gave an informative and entertaining presentation on conservation and archaeology on the Defence Estates in Southern England. Derek Pears, from the AWE Environmental Department, discussed conservation issues that arise on the AWE sites and how the Company is managing them responsibly.

Wildlife and conservation

During September we had a visit from the Botanical Society of the British Isles (BSBI) who are again surveying for a range of species in this area. Due to the restricted mowing regime Bee, Pyramidal, Common Spotted and Green Winged Orchids are spreading to evermore areas across the sites. The first ever sighting of Autumn Lady's-tresses at Aldermaston was recorded in August 2004.

Pauline Semple and Derek Pears



Bristol

Abbey Wood - Life on the Wild Side

When the staff and visitors leave Abbey Wood, a secret world comes to life under the watchful eyes of the Guard Force. Foxes slip through the gates and check out the sleeping ducks for the chance of a meal. Pheasants strut across the car parks and owls flit around the perimeter fence.

The start of the year saw a new Honorary President for Abbey Wood Environmental Group (AWEG) with David Noble, Finance Director, taking up the position left vacant by Susan Scholefield. We look forward to working with him through the years and hope he will enjoy the association with AWEG as much as his predecessors.

The Abbey Wood site boasts a 5-acre lake and a similar sized wood. The wood is leased to the South Gloucestershire County Council as a community wood and managed by members of the DPA, together with the local community. The site also retains some of the original hedgerows in the car parks, which have been added to with new, diverse hedges.

The lake is the main feature of the site and attracts many Mallards, Coots and Moorhens, all of which breed. There are Perch, Roach, Bream - and three Carp that arrived during the night in the back of a van! There is also a healthy colony of frogs and toads which attract the attention of Herons and, last autumn, a Kingfisher.

The most popular members of the wildlife community are the pair of Swans which visit and breed on the lake each year. Unfortunately, January saw our first Swan crisis with a Swan getting trapped in the formal pond by the Central Facility Building. Christine Brandon effected a swift and successful rescue using methods learned from previous Swan ringing events and it was soon safely released onto the lake.

In April a pair of Swans proceeded to nest in a new spot by the Central Gatehouse. This was not our old cob and his mate but a new, un-ringed pair. Nevertheless, the pen (female Swan) laid eight eggs and managed to hatch six cygnets.

March saw a group of Abbey Wood staff planting 400 wild flower plants - mainly Bluebells, Yellow Archangels and Wood Anemones - in the wood by the Nursery. Later, some of AWEG members joined David Noble in our annual litter-pick which takes place around the edge of the site outside the

perimeter fence. We picked up over 10 bags of rubbish - not bad for an hour's work.

Another good event was a Bat Watch evening arranged with Chris Giles, Conservation Officer for South Gloucestershire County Council. A group of staff joined him at dusk to use bat detectors around the wood (Splatts Abbey Wood) behind the Abbey Wood Nursery. As it grew dark the bats became active and we were able to record Pipistrelle, both Soprano and Common, Daubenton and Noctule bats.

AWEG keeps records of all sightings of wildlife and plants which are sent to Bristol Regional Environmental Records Centre (BRERC) and, over the last eight years, we have seen the numbers and varieties of animals and birds slowly increase.

We wanted to establish if we had any Great Crested Newts on site so we ask BRERC to come and survey our ponds. Although Great Crested Newts were not discovered, a breeding colony of Smooth Newts in the "natural" pond on the Building 6 site was recorded. This is good news and shows the work AWEG did to get this pond included in the landscape plans for the Building 6 site has paid off for the wildlife on site.

Jenny Heslop, AWEG Secretary



Swans at Abbey Wood



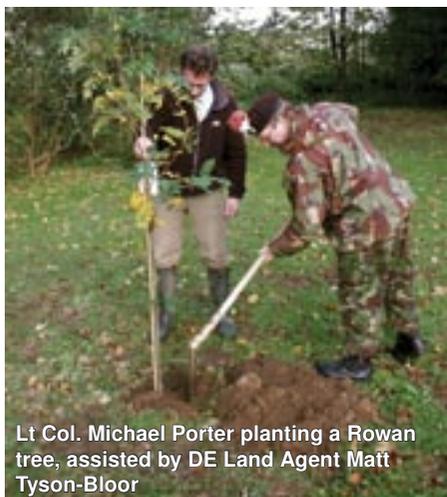
Litter Pick

Devon

Fremington and Braunton Burrows - Training Camps

Prior to the end of my service, and 10-plus very happy years at ATE Pembrokeshire (Castlemartin Range), I knew that there was only one job that I wanted: Commandant of Fremington Training Camp with the additional responsibilities for Braunton Burrows Training Area. After a 2½-year wait, I finally got my feet under the table in July 2004. My predecessor, Lt Col Michael Whiteley, a Scots Guardsman of immense charm, presence and interest in the conservation value and the military utility of both locations, gave me an enthusiastic hand over.

Fremington Training Camp has a well developed Conservation Area, with bird boxes, flowering shrubs attractive to butterflies, interpretation boards and a wide variety of hardwood trees, some over 200 years old. There has been a considerable amount of work done in surveying the trees and identifying those that should be felled, those that should be half-felled and, of those, some that should be ring-barked and left standing to die. Most of these are Sycamores. Other work in hand is the planting of more shrubs and trees that have a conservation value. Lt Col James Porter, ATE Commander South West, came up and planted a Rowan - much to his surprise, three months later it is still alive!



Lt Col. Michael Porter planting a Rowan tree, assisted by DE Land Agent Matt Tyson-Bloor



John Breeds taking a guided tour, and inset, a Death's Head Moth Caterpillar found on the walk

Braunton Burrows have been in the ownership of the Christie family and their forebears for three hundred years. The area was requisitioned during World War II and was used by the US forces in their preparation for D Day from late 1942. Soon after the war the MOD rented the southern part of the Burrows as a Training Area. For over a century the Burrows have been identified as nationally important, particularly for their flora. I have yet to see them in the Spring when the flora is said by John Breeds, the Range Supervisor, to be spectacular. John is an institution on the Burrows and one of its attractions. He is, to the average serviceman, the archetypal conservation expert: hatless, bearded, spare framed and sandaled from spring to autumn.

The Burrows, by their nature, are always changing. In recent years the huge decline in the rabbit population and the lowering of the water table have, on the whole, been detrimental to the flora, although some progress has been made in trying to replace the loss of rabbits with sheep and cattle. Areas that would have been like a golf course fairway and underwater in the winter months are shaggy, privet-invaded and dry. Where possible, efforts are being made to mitigate this. These efforts, and considerable sums



of money, are allocated by all the interested parties including our landlords and other bodies like English Nature. However, some believe that the level of the water table is based on cyclical elements beyond our control.

The Conservation Group is vibrant, well represented and covers both sites. It meets twice a year, but happily the formal part of the meetings - and thus the minutes - are far shorter than they were in South Pembrokeshire! Nick Bentham-Green, the Officer Commanding (OC) at the Amphibious Training and Trials Unit Royal Marines (ATTURM), has been an enormous help as a volunteer with his expertise in Natural History and particularly bats. Happily he has joined our conservation group for a year.

Lt Col (Ret'd) M B Portman



Sand Toadflax *Linaria arenaria* is only found on the Braunton Burrows in the UK
John Breeds



Dorset

Bovington - The Rescue of Swallow Chicks

This last year has seen the final stage of the Tomorrow's Heathland Heritage (THH) project here in Dorset. The heathland SSSI areas of Bovington and Lulworth have shown dramatic improvement to their quality. All we have to do now is to maintain them at their current favourable levels and, where possible, further improve them.

This year we are most grateful for an article by Professor Patrick Armitage, Centre for Ecology and Hydrology, who has been a committed member of our Conservation Group for many years. His advice, assistance and support for our silt management programme has been very gratefully received by the Armour Centre. The work on our silt management programme is similar to that on our heathland SSSIs. If you do nothing, or the wrong thing, the problem just grows and it costs more later. Good husbandry does cost less in the long run! (*See Sediment on the move: Tank training and stream life, page 57.*)

As with all MOD establishments in the Southwest we are now part of the Regional Prime Contract. We welcome Debut (the Contractors) and the DE (bricks and mortar department) who have now joined DE (DLA, Forestry and Conservation departments) in a combined team to maintain our Rural Estates. Conservation remains our second priority after military training, and we hope a smooth hand-over of responsibilities will be completed this year.

**Major (Ret'd) George Preston,
Environment and Conservation Officer**

Conservation takes all forms, from major silt management programmes, to saving the life of a baby Swallow...

The Rescue

They were two little balls of fluff, easily overlooked amongst the straw and debris on the barn floor. High above, hanging out of the nest, was a dead sibling. The two baby Swallows were only just alive - we watched and waited in the hope that a parent bird would return but there was no sign.

When we got them home we replicated a nest with a shallow box and sat it atop a hot water bottle. Knowing that Swallows were entirely insectivorous, we searched the house and garden for likely victims, all to no avail. Then my son and daughter remembered that their Granny fed mealworms to the birds in her garden. Cutting these up was not for the faint-hearted, but it worked, and this was soon supplemented by flies and moths caught by my son's moth trap.

As the Swallows grew and the feathers started developing they needed more space. One evening when I was transferring them to their night quarters, I watched helplessly as one of them flew out and away over the hedge. With a heavy heart we had to accept the awful realisation that the little creature, if not picked off by the resident tawny owl, couldn't possibly survive.

'Baby' however, was soon spending most of the daytime flying around the bedroom or straight on to our shoulders whenever we entered the room. By now there were beautiful glossy feathers and he flew with all the grace and agility of an adult bird.

After three weeks it was with mixed emotions that I realised he needed his freedom. It was sunny and warm when we opened the doors that lead to the lawn. He perched on my shoulder as I walked down the steps, sat looking around for a couple of minutes and then he was gone - no circling around while he took his bearings as I'd hoped - just up and away. The sadness in my heart was tempered by the thought he was in with a chance. Realistically, I know that without parental guidance his chances

of survival were slim, but I love to think to myself that he's down in sunny South Africa and will come back to see us next spring.

**Mrs Tammy Forster, Bovington
Conservation Group**

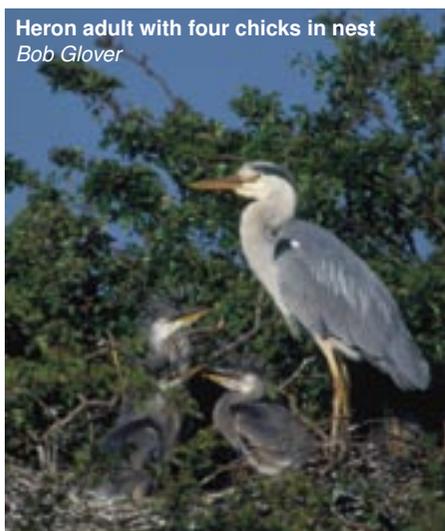
Regrettably no pictures were taken of the Bovington brace of swallows, but our picture shows a Dorset fledgling Swallow waiting for its next meal.

Colin Vardell



Essex

Foulness Island - Foulness Conservation Group



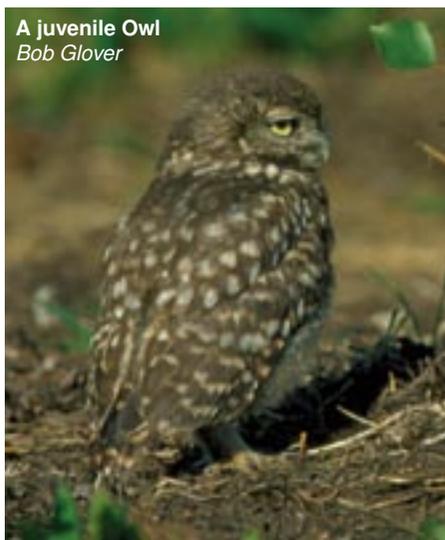
Heron adult with four chicks in nest
Bob Glover



Little Egrets and a Heron
Bob Glover



Shoveler female and young
Bob Glover



A juvenile Owl
Bob Glover

Foulness Wildlife and Waders Counting Group (FWWCG)

Bird counting activities for breeding and migration were interrupted during 2003 due to changes in access control on Shoeburyness and Foulness Island. This was all resolved by February 2004, when counting re-started under the guidance of Dr Chris Lewis, the Group Secretary, providing information for the Wetland Birds Scheme (WeBS), MOD Bird Count, Low Tide Count as well as national information. The re-start also enabled the British Trust for Ornithology to ring the young Egrets and Herons.

The summary report produced by FWWCG showed that the heronry was successful with 51 pairs of Little Egret producing at least 130 young, and 22 pairs of Grey Heron producing 60 young. Mute Swan, Greylag and Canada Goose all bred, but other wildfowl had an average year.

The first recorded successful breeding of Shoveler at Foulness occurred this year, and a female with five young were seen and photographed by Bob Glover.

After a record-breaking year in 2002 (eight pairs and 25 young), the Barn Owl had a disastrous year in 2004 with only four pairs and one dead young seen. A pair of Little Owls produced two young.

FWWCG has produced a comprehensive report for Foulness Island, which shows that 157 species of bird were seen in 2004. Of these, 66 bred, with a further six possibly breeding. Included in the report are tables showing population trends for Heron.

Foulness Conservation and Archaeological Society (FCAS)

FCAS continues to promote Foulness Island by organising events throughout the year to groups from other societies, clubs, church groups, Guides, and archaeological and historical societies. The events include talks, tours and visits to the Heritage Centre.

Great Burwood Excavation

The society continues its work following the Great Burwood excavation which has been reported on in previous issues of Sanctuary. All the known types of pottery have been identified, with members now attempting to reconstruct some of the fragments. All coins have been identified and dated along with the clay pipes, some of which date back to the seventeenth century. Southend Central Museum has kindly volunteered to examine the bones that were excavated.

Metalwork has still to be examined in more detail and catalogued and the brickwork that formed the foundations is proving to be of great interest as it appears some examples are quite early and may be from the first development of this site.

The Foulness Heritage Centre

The Heritage Centre closed to the public for the winter, which enabled changes to the display to be made to accommodate an update in the flora and fauna, geological evidence and, of course, the ever-increasing number of items donated.

Conservation

Work has been carried out constructing artificial islands to provide safe havens for breeding birds such as the Avocet. This has been a joint effort between FCAS and QinetiQ with the approval of English Heritage. Its use will be monitored during 2005.

Ron Shadforth, Conservation Committee Secretary



Hampshire

Andover - Andover Conservation Group

The DLO Andover site is approximately 75 acres in area and is divided into two sites, North and South. The North site was formerly an old airbase, which had been out of use since the end of WW II. In 2001 some of the existing buildings were demolished and replaced with new offices, Warrant Officers' mess and living accommodation.

The landscape architects were given the brief that: "The MOD were looking for something different in terms of the design – a potential benchmark for future projects." The results speak for themselves, with a development scheme that includes a plaza, courtyard, gardens, a huge pond and a large grassed area for events.

MOD was concerned that the development should not be intrusive as the site sits on the edge of downland, so the introduction of a number of new, semi-mature trees, provided a balance between the landscape and the scale of the buildings.

Setting up a Conservation Group

Andover provides a wide range of habitats for wildlife, including Badgers, Roe Deer, Brown Hares, feral Cats and Foxes. It can even boast about having its own rookery! With all this wildlife taking advantage of the various habitats on site it was decided that a Conservation Group would be established to not only monitor what was sharing the site with the civilian and military staff, but also to provide a focus point for anyone interested in conservation issues.

Karol Green, the Conservation Officer on site, started up the Conservation Group and the site conservation web page after a very informative visit from the Hampshire

and Isle of Wight Wildlife Trust. They were especially taken with the roundabout near building 200 that has been densely planted to provide a haven for small birds, mammals and insects. It just goes to show how much can be done with something as uninspiring as a traffic control measure!

Whilst there are no Sites of Special Scientific Interest (SSSIs), or ancient monuments on site - and as yet no endangered species have been found - there is still plenty to appeal to anyone. Karol has therefore designed the web site to be interactive and encourages all staff to provide updates, be it a review of an interesting book that relates to conservation issues or reporting any new sighting of animals, birds or insects.

Painting Competition

In the summer Karol organised a painting competition for the children of staff working at Andover to help raise conservation awareness. The Hawk Conservancy Trust provided a display with a beautiful female Barn Owl. The event even attracted the attention of the BBC with the local news crew in attendance to film the presentations made by Col. McGuigan, the Deputy Station Commander. The competition winners had their pictures mounted and framed and even downloaded onto CD ROM so they could be used as computer screen savers.

Bats and Burials

It was apparent that there was a colony of bats at the North Site, so some 14 bat boxes of various shapes and sizes have been installed. A visit from the Bat Conservancy Trust is awaited to check if the boxes show evidence of habitation and, if so, by which type of bat (see the website for an update).

A headstone, which can be found at the Andover North site, is dedicated to "Jane". Fortunately this didn't turn out to be a dedicated ex-employee, but was a guard dog in the early days when Andover

was an RAF station. When the site was redeveloped it was agreed with the contractors that the headstone would be protected and remain part of the landscape.

As there is a large Lecture Theatre on site Karol is hoping to invite representatives from different conservation orientated organisations to deliver presentations. The Andover website can be found at: www.eslanddev.dii.r.mil.uk/conservation/book.htm

Anita Taylor



The Andover painting competition
Paula Deverill

Isle of Wight

Newtown Ranges and Jersey Camp - Reserve Forces and Cadet Association



The unspoilt meadows and the oak woodlands of the Newtown Ranges are a particularly suitable habitat for a wide variety of insect-life. Moths, dragonflies and bumble bees thrive, and I have recorded a total of 31 species of butterfly during 2004 - a good number for the area and only 10 short of the total number for the Isle of Wight.

Of these, almost all the breeding butterflies are maintaining good numbers, while migrating species such as the Painted Lady and the Clouded Yellow come to the meadows each summer for the abundant nectar supply from the flower-rich meadows.

There are two exceptions. The larvae of the White-Letter Hairstreak, a butterfly that is dependent on elm trees for its food supply, is declining rapidly. This is as a result of the return of the destructive Dutch Elm disease, which is killing young elms growing from suckers of those destroyed by the first influx of disease during the 1970s.

For the last three years the Silver-Washed Fritillary has been absent from Locks Copse, but happily was back in 2004. The larvae over-winter in a silk cocoon in the crevice of the bark of a tree, usually oak. By March it leaves the tree and moves down to the ground to search for Dog Violets on which to feed.

One of the most spectacular insects recorded on the Ranges is the Wasp Spider, *Argiope bruennichi*. Range staff were fortunate to discover a spider attached to its large and distinctive web in grass on the high



Lock's Copse, winter 2004
Dave Maidment



Lock's Copse, spring 2005
Barry Angell



Clayden Pond, Newton Ranges
Barry Angell

The Kestrel is one of the most commonly recorded birds of prey on the ranges. A large nesting box placed high in an oak tree in the north section of Locks Copse became a nesting site for a pair of Kestrels this spring and two young fledged the nest. The rough grassland of the meadows is ideal hunting ground for the Kestrels, providing their main diet of small mammals. Always an opportunist, the Kestrel will take the occasional bird, even as large as a young Pheasant.

The Sparrow Hawk, the Little Owl and the Barn Owl nest on the Ranges on a regular basis and all three species did so in 2004.

Buzzards often hunt for rabbits, which is welcome as it helps to control a large and destructive population on the meadows.

Ospreys visit the Solent and Newtown estuary during autumn migration. The Clamerkin Creek leading up to the Ranges is a popular fishing ground for this magnificent bird. Records suggest that up to four Ospreys were present in the Newtown estuary during the August and September period. The red danger flagpole over the butts on the Range assumed a new role as a perch for one of these magnificent birds.

Barry Angell

Wasp Spider *Argiope bruennichi* Barry Angell



bank above the bullet stop, behind the butts. Oblivious to the possibility of bullets whizzing past on firing days, the spider and web lasted for 14 days. Insects unfortunate enough to become entangled in the web were cocooned in silk within seconds.

The Red Squirrel is well established in Locks Copse, with plenty of hazelnuts to sustain the population throughout the winter months. At least three drays were recorded during the summer months and several young squirrels were seen.

Kestrel with prey - a young pheasant Barry Angell





Oxfordshire

Bicester Garrison Conservation Group

Located a few miles to the south east of the town, Bicester Garrison presides over some 450 acres of woodland and former storage-area scrub. To a large extent this land is managed by the Bicester Garrison Conservation Club, which is committed to preserving the area's natural attributes, and managing the Garrison shoot. The club meets monthly in the closed season, carrying out tasks such as cutting back over-grown blackthorn bushes and clearing rides, as well as developing areas of wetland where both flora and fauna can prosper.

Civilian members of the club provide continuity, ensuring its survival during the frequent, and recent, operational tours of military members - largely from 23 Pioneer Regiment Royal Logistics Corps. This civilian core base proves to be a great asset, donating both time and heavy plant machinery to clear the overgrown areas, which would otherwise be both backbreaking and expensive.

We have successfully cleared out an otherwise dead pond by cutting back the over-hanging trees, allowing light through to the water, and clearing out the stagnant weed.

This has encouraged the wildfowl and waders to nest and rear clutches of young. We also monitor a Barn Owl breeding programme; the nesting boxes are checked and successful clutches ringed and recorded. Ten Barn Owls were ringed this year and a clutch of four

Sparrow Hawks, which were squatting in a nesting box, were reared.

Through judicious pruning and clearing over-grown areas, the club has encouraged the increase in the number of wild birds and mammals on the Garrison - including Roe Deer, which have been on the increase in the Garrison for the first time in a number of years.

Warrant Office Class 2 Beckett, 23 Pioneer Regiment, Royal Logistics Corps



Barn Owl Chicks Derek Budd



Scrub and ride clearance in Bicester Woodlands

Pembrokeshire

Castlemartin - The Ranger

Dramatic cliffs, clear blue skies, radiant sunshine, crystal seas and thousands of guillemots squawking loudly from their perch on Stack Rocks - this was my first day as Ranger on Castlemartin Army Training Estate (ATE).

My role evolved from the Integrated Land Management Plan, implemented throughout Pembrokeshire ATE in 2000. The Management Plan not only takes Military requirements into consideration but also incorporates Access and Recreation, Archaeology, Conservation, Estate Management and Landscape.

I am employed by the Pembrokeshire Coast National Park Authority and am funded by Defence Estates – DE (50%), Pembrokeshire Coast National Park Authority - PCNPA (25%) and the Countryside Council for Wales - CCW (25%).

The role of Ranger is extremely varied and my work includes performing puppet shows in local schools, guided walks, erecting stiles, liaison with recreational organisations and counting a particular species of beetle living on Frainslake beach.

Partnerships

I work very closely with my funders and also a wide range of additional organisations including: The National Trust, The Coastguard, 14 Signals Regiment Adventure Training Wing, Pembrokeshire County Council, the British Mountaineering Council (BMC) and many Military Units who train in the ATE.

I have also received invaluable help from visiting and local troops in the implementation of conservation tasks, including a beach clean and woodland management.

Conservation and Monitoring

Pembrokeshire ATE has a number of National and International designations (Site of Special Scientific Interest, Special Protection Area, Special Area of Conservation) which



Me and my van

require numerous species of flora and fauna to be monitored. Otters, Seal pups, Marsh Fritillary butterflies, Chough, Goldilocks Aster and Scrambled Egg lichen are a few of the ongoing surveys I perform.

Information and Interpretation

I am also responsible for providing information to members of the public who use the Ranges. This is achieved through notice boards, guided walks and the National Park web site. I am helped by four volunteers who assist with patrols, monitoring and providing on-site information.

Access and Recreation

Castlemartin has some of the best sea-cliff climbing in the country but also some rare species of birds that nest on the cliffs. To balance this potential conflict of land use, restrictions are put in place to designate 'no climbing' areas and to protect the nest sites between the 1 March and the end of July, or when the birds fledge.

My volunteers and I monitor the restrictions closely, although infringements are rare due to the availability of information and the close working relationship between myself, the local climbers and the BMC.

A cliff-climbing liaison meeting is held annually with all interested parties to discuss restrictions and infringements and any changes or improvements needed to the current system.

Walking is also a popular activity on the Range as people follow the Coast Path, view the stunning scenery and observe the



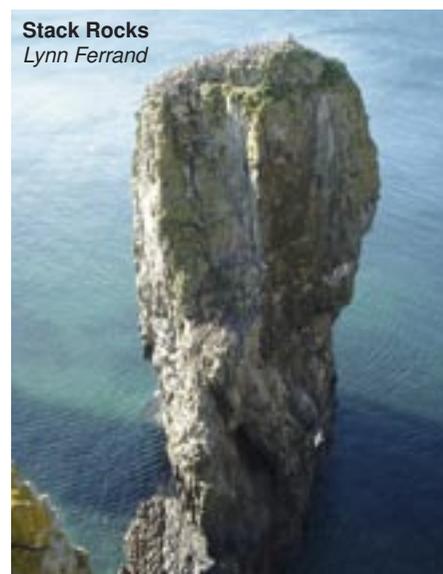
variety of flora and fauna. The National Park lead guided walks on the Ranges throughout the year. The Coast Path at Castlemartin is a multi-purpose route allowing cyclists and horse-riders access to the Range. Fishing and surfing are also popular activities and numbers are increasing steadily.

One of the outcomes from the introduction of the Management Plan is that members from a wide variety of 'recreational' groups are invited to an annual meeting to discuss 'Access and Recreation' on Pembrokeshire ATE with the MOD and other interested parties.

The coastline of Pembrokeshire ATE is dramatic and diverse, rare and fragile. It is managed and protected through the successful partnership-working of the MOD, DE, PCNPA and CCW. Long may it continue!

Being a 'Range Ranger' is a fantastic job and this one will hopefully set precedence for future Rangers on other ATEs. But remember: "Behind every bush is either a security camera or a member of the Range staff – beware!"

Lynne Ferrand, Ranger, Castlemartin Army Training Estate



Stack Rocks
Lynn Ferrand



Angus, Scotland

RM Condor - The Wildlife of RM Condor

Royal Naval Air Station HMS Condor was opened in 1939 and commissioned on 19 June 1940. It was used for both operational and flying training school purposes.

areas and a small pond is situated at the east side of the camp. Because of the location and environment, we have a very healthy and varied bird population. Our domestic birds consist of the largest, the Buzzard, down to the smallest, the Goldcrest. A healthy colony of Pipistrelle Bats exist along with a pair of Tawny Owls.

Being near the coast, Condor is also a very important stopover point for summer migrants. The first migrant which normally arrives in mid April is the beautiful coloured

into play with the arrival of large flocks of Fieldfare, Redwing and Blackbirds. They turn up tired and hungry, to rest up and strip the Rowan trees of berries – before disappearing to winter in outlying areas.

Other wildlife of interest to us at RM Condor include a small stronghold of Red Squirrels, Stoat, Brown Hare and a small herd of Red Deer who produced two fawns this year.

Micky Mellon and Bob McCurley



Our largest domestic bird - the Buzzard *Eric McCabe*

Over the years, after World War II, the station's role was gradually reduced and in May of 1971 it was handed over to the Royal Marines for use by 45 Commando, who are still operational to this day.

RM Condor is situated three miles west of Arbroath on Scotland's east coast within an area of 201 hectares, 48 hectares of which encompass buildings and another 153 hectares contain the airfield.

Around the camp are dotted woodland

Wheatear passing through to its breeding grounds in the north, closely followed by Sedge Warblers, Swallows, Swifts, House Martins and Spotted Flycatchers.

Of the 63 species that visit Condor throughout the year, 35 successfully breed. This includes our summer migrants and the Buzzards, who never fail to breed.

Once the summer is over and winter creeps in, another migration begins its cycle and the nearness to the coast comes



A Redwing *Bob Glover*



Swallow *Colin Vardell*

Shropshire

Nesscliffe Training Area

We've had another successful year at Nesscliff. Walford and North Shropshire College have again provided sterling assistance and advice and we, in turn, provide them with projects for their students – a perfect partnership.

In addition, the Training Area hosted a group of agricultural students on an exchange visit from from Tarahiti College near Wairarapa, New Zealand. The combination of land use for military training, agriculture and conservation, was a new concept to them - the highlight being helicopters from RAF Shawbury coming in to land or hovering, and the sheep continuing to graze regardless.

Our annual bird survey, masterminded by Bill Edwards and Graham Ludgate, and assisted by students, was the most successful to date, recording 47 species on the day with 24 species breeding on the area. The highlight was the discovery of three species not recorded before: Red Kite, Raven and Goosander.

Other bird surveys revealed a Green Sandpiper on our wet area in the north, and Bullfinches in July. In September flocks of Goldfinch (100+) were feeding on thistles and, in November, Cormorants on the River Severn and large numbers of Fieldfare and Redwing feeding on Hawthorn berries.

In fact, the autumn of 2004 proved even more bountiful than the previous year. The hedgerows and scrub areas were laden with berries of Hawthorn, Blackthorn, Spindle Dog Rose, and Holly, and there was a heavy crop of acorns. Collections of all these species have been made which will be grown on in the College Nursery.

We successfully dredged our conservation pond as it was becoming choked with encroaching weeds, and we are continuing to improve this conservation area.

In late July we found 114 flower spikes of Broad-leaved Helleborine *Epipactis helleborine*, an orchid pollinated by wasps. We had previously collected seeds of the rare find of a Spindle. These have now been propagated by Walford College and the plants

donated to the Severn Gorge Countryside Project, a World Heritage Site at Ironbridge.

The various features that have been provided for training purposes such as the Millennium Hedge, small woodlands and the continuing agricultural landscape, are ideal for wildlife. The increasing number of bird species being recorded, and also the numbers of some of the species, are a positive sign of this. And who knows, the Red Kite may even choose to nest here.



New Zealand students by the Millenium Hedge



Fieldfare in hawthorn

Bill Edwards

Seventy-year-old Bill Edwards of Maesbury Marsh, near Oswestry, Shropshire has been involved with conservation work at both Nesscliff and Swynnerton Training Areas since 1996.

Bill's interest began to gain hold after his National Service in the REME attached to the Somerset Light Infantry. He joined the Shropshire Ornithology Society in 1961 and received the Presidents' Award in 2002 for his work in the county - the only recipient to date.

He has organised the annual MOD Bird Count every year since 1996, except in 2002 when he suffered a stroke. Bill is now back to his old self, assisting and advising groups of students, young and old, from Walford and North Shropshire College.



Broad-leaved Helleborine



Bill Edwards

Bill has undertaken specialist 'one off' surveys: monitoring Skylarks in a given area over a given period of time, and hares. However, his speciality is birds, and what I, as a layman, find amazing is his uncanny ability to recognise so many different species by sound alone.

The extra visits that Bill has managed to fit in this year have resulted in several 'new' species being recorded at Nesscliff, including Red Kite, Peregrine, Raven, and Green Sandpiper.

We are grateful for all the hard work and support that Bill has given to us over the years.

Major Mike Fallon



Staffordshire

Swynnerton Training Area

Each year as I sit to write these notes, there seems to be another record broken or an event that appears unusual.

We have just come to the end of what is likely to be the wettest August since records were kept. The area has recovered from the continuous downpours with amazing speed. There was a time when the 30-metre Range was suitable only for sub aqua training; the camp accommodation suffered the worst, at times being totally unusable. Strange how manmade things suffer when nature reminds us of her strengths and yet the countryside rebounds very well.

The year got under way with rather a sad event: the retirement of the Commandant, Colonel Jim Egan, who had steered us through the introduction of the ATE (West Midlands) followed by the arrival of Landmarc, our new commercial partners. Throughout these changes he maintained a cheerful outlook, and continued to work after a serious car accident, when he was in serious physical discomfort. He was a great supporter of our conservation efforts, and we wish him well in his retirement.

During the late winter/early spring, a programme of re-seeding the areas cleared of scrub took place using a system called Hydro-seed. This is often seen on newly constructed motorway verges, where a large sloping area is seeded in a short space of time. The initial growth appears to be taking well.

A dredging programme for the Meece Brook occurred during March and early April. Evidence of eels was apparent, the dredger operator claiming to have seen several very large ones. These were in addition to numerous freshwater mussels, which are supporting our visiting Otters.

Pipistrelle Bats roosting
Ian Davidson Watts



We had our first visit from the Mammal Group of The Staffordshire Wildlife Trust last Spring. Their initial response was extremely favourable and they were very interested in the bat roosts and the Badger activity. Later in the summer they returned in the evening to do a more detailed survey of the bat roost, and Natterer's and Pipistrelle bats were found in greater numbers than anticipated.

Once again I wish to thank Walford College for their assistance in carrying out the Annual Bird Count. This showed a good variety of species visiting the area and 22 species breeding here. In addition, Green Woodpeckers and Jays are frequently seen and heard.

As a bonus this year a number of Barn Owl pellets were collected, taken away for analysis by the college students and staff, who subsequently presented us with a display case showing the bones retrieved from the pellets. This is now on view in our new information room.

In autumn there were good crops of acorns, hazelnuts and beech mast, with fruit trees showing a bumper harvest, laden with apples, crab apples, blackberries and damsons – all providing ample winter food for the wildlife.

A juvenile Green Woodpecker sunbathing
Bob Glover



Captain (Ret'd) John Sibson



Flower of the Himalayan Balsam having "fired" its seed
Captain (Ret'd) John Sibson



Viper-bugloss, becoming more widespread on the area
Captain (Ret'd) John Sibson

East Sussex

Pippingford Park - Working Together

Large Sites of Special Scientific Interest (SSSI) often comprise land belonging to a number of owners. This situation applies on the 3144 hectare Ashdown Forest SSSI in East Sussex where the Pippingford Park Dry Training Area (DTA) occupies just 11% of the designated land.

It is important for the wildlife of the SSSI that conservation management should be co-ordinated across human-devised boundaries. At Pippingford, the DTA has a 720 metre border with the Sussex Wildlife Trust Old Lodge Local Nature Reserve (LNR). While the boundary fence is just an edge to the human owners, to the wildlife it is the middle of a large area of heathland. There has been a tendency for the boundary area to be left to its own devices, which can result in a wall of birch trees quickly growing up, dividing the heathland and discouraging wildlife movement. English Nature's UK Lowland Heathland Biodiversity Action Plan calls for fragmented heaths to be reunited.

The Crowborough Conservation Group provides a forum where such things can be discussed. The best way to achieve our joint objectives is to work together so the result has

been joint practical activities by Group members and volunteers from the LNR by arrangement with Major (Ret'd) Steve Thorpe, the Commandant of Crowborough Training Camp.

Volunteers from the LNR conduct dragonfly monitoring across the Reserve and the DTA, and one aim of pond construction on both properties is to provide "stepping stones" for these aquatic insects to move between the two sites. For the last four years LNR volunteers have been thinning out trees on both sides of the fence so that now, from a distance, it is easy to ignore the wire fence and just see the heath continuing across the hillsides.

Summer bracken spraying on the LNR has also focussed on the Pippingford boundary. The value of this work should be enhanced in 2005 when Landmarc Support Services treat the bracken beyond the boundary to the nearby firebreak.

Although birch and bracken are being controlled for conservation reasons, there are other benefits. Removing these plants reduces the fire risk - bracken produces a lot of dry material as it dies down each year, while birch is the one deciduous tree that burns really enthusiastically while



growing. There is also a safety aspect, as a road on the DTA runs along the boundary for 300m, over which nearby trees extend horizontal branches. This encourages drivers to leave the road with the risk driving onto adjacent sloping ground.

The conservation work has extended further to an area of private land adjoining both the DTA and LNR. Although not within the SSSI it is still heathland, so just as relevant to wildlife. Research by the Woodland Trust has shown that the value of a wildlife site is greatly enhanced if neighbouring land is managed sympathetically.

For more information about Ashdown Forest visit www.ashdownforest.org

Alan Gillham (Crowborough MOD Conservation Group)



Volunteers from Old Lodge LNR clearing birch scrub at Pippingford Park DTA
Nick Steer



Nick Steer



Wiltshire

Boscombe Down - Archaeology

Archaeology and the Married Quarters Roads Adoption Project

The project involved preparing three ex-MOD married quarters estates for transfer into the responsibility of the Local Authority. This required the renewal of all services together with stripping of all roads and pavements down to the underlying chalk prior to complete replacement. The majority of the work took place on the Beaulieu Road Estate with a small amount in Imber Avenue.

At the beginning it was thought that, because of previous work in the area over the years, there would be very little left for the Archaeologists to find. However the project has proved to be a rich source of archaeology and produced a number of extremely interesting finds, with a total of 55 features including 15 burials revealed. The mass of archaeological features unearthed ranged from the Neolithic to the end of the Roman period, with some fairly spectacular finds of prehistoric material, such as a pit with an antler in Lyndhurst Road and another pit containing the possible remains of a Bronze Age cremation burial - sadly truncated by the digger.

The Roman finds included a paved track-way in Beaulieu Road, and a flint dry-stone wall which seems to be a boundary wall of some sort and is an unusual and rare feature; it would be nice to know what part of the farmyard it surrounded.

A further interesting find was the discovery of a Roman hearth in Imber Avenue. Although truncated by the digger, the lower part survived intact and careful excavation revealed the remains of an almost complete large cooking pot and the lower levels of an oven or kiln - even to the survival of the



Excavation work to lay new drains in Milton Road QinetiQ Archaeology



The Middle Bronze Age burial, Imber Avenue QinetiQ Archaeology

ash, which had been raked from the fire. In some of the work I was assisted by Wessex Archaeology staff, who were excellent in their quick response and willingness to get the job done as quickly as possible.

The highlight of the whole project was undoubtedly the 'Magnificent 7' burial, a composite burial of the Beaker period, containing both cremations and skeletons. This attracted international interest with a piece in the New York Times and a documentary by National Geographic on cable television.

There has been some particularly intensive work recently, with some burials being located close to the SPAR Shop (Lower Camp). Two twin infant burials were found,

plus one infant and one teenage burial, also several cremations including one which was placed with one of the twin infant burials.

Back on camp, during the digging of a cable trench to the East of B.799 in February 2004, a large ditch was noted and recorded. This is probably a land boundary ditch known on the Scheduled Monument Record (SMR) as monument 750 and may date to the early Iron Age. I have also noted that the work by the Electricity Board during November and December 2004, to run cable along the north and east side of the site inside the wire, has already produced 14 features, mainly bones and pottery. ▷

Colin Kirby, QinetiQ Archaeologist.

Wiltshire

Boscombe Down - Railway Line Reserve and Grey Partridge



A Chalkhill Blue

Boscombe Down Railway Line Reserve

A section of disused railway line at Boscombe Down, Wiltshire, has been transformed over the years into an important local nature reserve, supporting a wide range of locally and nationally endangered chalk downland butterfly species. Part of the reserve is inside the boundary fence of MOD Boscombe Down, while the remainder is a public bridle path owned by Wiltshire County Council. The site is jointly managed between the MOD and the Wiltshire Branch of Butterfly Conservation according to an agreed plan.

Transects to record butterfly numbers have been conducted each year since 1989. Weather-wise, last year was much better than 2003, with transects conducted during 21 of the 26 possible weeks (five were lost to bad weather).

Overall, Skipper numbers fell from those of the previous year, while the 'White' numbers varied. The numbers of 'Blues' recorded

also varied, with one specimen of Holly Blue *Celastrina argiolus* recorded - the first since 1991 - hardly surprising as the foodplants are few and far between on the railway bank. They mainly feed on Holly *Ilex aquifolium* in spring and Ivy *Hedera helix* in late autumn, but other species are also used.

According to Butterfly Conservation this species is renowned for fluctuating wildly in numbers, probably caused by parasitism from the wasp *Listrodomus nyctemerus*. The wasp lays its eggs in the lava of the Holly Blue, with the adult wasp eventually emerging from the pupa.

Generally, 2004 continued to show the overall decline of butterfly numbers, which has been taking place since the peak of 1997 (with the exception of 2003, which showed a modest increase). Skipper numbers are not of particular concern, because the populations of the two important species, the Dingy and Grizzled Skippers, appear to be fairly stable. In contrast to the overall declining numbers, the performance of several of the 'Blues' suggest that this is still a very suitable site for many of specialist chalk downland species. However, the decline in Chalkhill Blue numbers must be viewed with considerable concern. The numbers falling from 127 in 2000 to 96, then 12, 26, and finally 15 in 2004. This decline has been continuing since a population peak in 1999, which followed six good years. The Chalkhill Blue is confined to calcareous grassland in southern England and has declined in some areas during recent decades.

Jon Millo

Grey Partridge

Boscombe Down has had very poor recorded numbers of Grey Partridge *Perdix perdix* in the last couple of years, and it was decided that an attempt should be made to increase their numbers. To this end it was agreed between Airfield Management, the Falconer,

and Site Management, that a select few areas of grass should be left during the year rather than included in the annual 'long grass management policy' to see if this would have any affect on their dwindling numbers.

By the end of February most pairs had formed and started to look for likely nest sites. Boscombe Down has approximately seven large coveys and five pairs on the airfield so it is important to maintain and, if possible, extend the areas for breeding and feeding purposes. So, from a poor start of seven pairs (in 1500 acres), the breeding season of 2004 can be considered as a mild success for the Grey Partridge, due in part to good predator control (foxes, crows, magpies and rats) and leaving areas of long grass for nesting and feeding.

During the early part of 2004 Site Management purchased over 100 hazel saplings on behalf of Boscombe Down Conservation Group which were planted at various areas throughout the site. These trees will form part of an aural and visual screen for the 500 or so houses being built next to the airfield.

Mike Stone



Grey Partridge



Wiltshire

Bulford Conservation Group - Annual Report

Archaeology Sub-group

We have been very fortunate in having two guided walks this winter. One was on the West at Knock Castle, led by Roy Canham, the County Archaeologist. It is a fascinating area, with a small Iron Age hill fort, the long extended Romano-British village of Knook West and the second village of Knook East, associated field systems and the Old Ditch linear and assorted barrows.

The second walk was on the Bulford Ranges and taken by Richard Osgood, one of the MOD Archaeologists. We met at Silk Hill Bronze Age barrow cemetery and he showed us the first of the barrows to be netted to prevent further erosion - an amazing sight as every rabbit hole had been cleared of residents and then blocked with chalk before the netting was put in place. It gave the monument a strangely ghostly

appearance and one had an idea of what it must have looked like originally, when there was no grass cover at all. Other barrows will be covered in a variety of meshes - a time-consuming and expensive business because of work limitations due to firing, but the project is under way and will be, in the end, a cost effective and successful one.

We were invited to comment on the Final Consultation Report on Conservation Group Activities on the MOD Estate, and met with the Chairman to pass on our comments. Group membership is increasing well, with the majority extremely keen to take part in hands-on activities, as well as checking finds in Devizes and Salisbury museums, and monitoring monuments. I hope that the final consultation report will give volunteers inclusion and support, in order to help them preserve the landscape of Salisbury Plain.

**Nell Duffie, Archaeology
Sub-Group Secretary**



Badgers at Bulford Alan Telfer

Badger Sub-group

Another mild winter, with little or no frozen ground, has made foraging relatively easy and kept Badgers busy excavating. The sett near Baden Down Farm seems to enlarge every time I visit. Being so far from a public road, its inhabitants are fairly safe from the fate that faces so many of our other Badgers.

Barrow Clump is proving ever more popular. The barricades have now been breached on the south side and several holes dug just inside the wire. Interestingly, there has been no serious attempt to dig in the middle of the enclosure where the original sett had to be removed to prevent further archaeological damage.

Alan Telfer

Botany Sub-group

We had three meetings scheduled for scrub clearance on the Juniper sites. In December a considerable amount was achieved in spite of the extremely wet conditions. In February the weather again put many of the regulars off, and the team was very small.

The dormouse boxes in Everleigh Woods have been re-located to a position where we feel there will be less chance of them being disturbed.

We were all upset to see the damage caused to the Spruce trees on Sidbury Hill by the cattle last December. Whilst the trees ▷

Common Dormouse *Muscardinus avellanarius*



Wiltshire

Bulford Conservation Group - Annual Report

were not themselves of any interest, they were providing shelter for the interior. There was also cattle damage to the mosses and ferns in the central area, and wind damage to one of the old Ash trees. We are concerned for the future of this unique environment.

In May we held a meeting in support of National Moth Day and were favoured with a gloriously sunny day (albeit rather chilly). This turned out to be the highlight of the year. A large group of us turned up, carrying our branches of lilac, as this has been found to attract the Narrow-bordered Bee Hawkmoth *Hemaris tityus*, which was one of our target species. We were lucky enough to find two specimens! One noteworthy find was a Small Yellow Underwing moth, which delighted Humphrey, our expert.

At our last meeting, in August, several Marsh Fritillary larval nets were found at the milestone site and on Sidbury Hill, and a wide variety of butterflies were recorded.

Jenny Amor, Botany Sub-group Secretary

Deer Sub-group

We completed all but one of our agreed buck culls for this year by 28 October 2004, with a few days remaining to finish off.

The herd is generally in good health on the east this year. Continued sightings of Fallow have been reported from the Everleigh, Sidbury and Coombe areas. These sightings are generally of wandering young bucks - or prickets, as they are known. However there have been reports of a Fallow doe in the Sidbury area for some time now. As Fallow are not on our cull plan we continue to watch and observe.

Muntjac continue to spread across the afforested parts of the area. They are culled on sight within British Deer Society guidelines as they are highly destructive.

All members of the group have followed the requirement for managers to wear 'high

Fallow deer Charles Smith-Jones



visibility' headwear, in accordance with ATE Salisbury Plain Land Policy Instructions. Despite our initial concerns, this seems to have had little effect on the deer so far.

Close liaison and a good working relationship with the DE forestry department have been achieved, enabling us to effectively plan ahead and minimise damage to young plantations.

The number of reported Road Traffic Accidents (RTAs) involving deer so far this year has been minimal. I hope this is maintained during the winter when deer have to travel more, and farther, in search of food. All data collected from reported RTAs is fed in to the national study (deer collisions project).

Mark Hill, Principal Deer Manager

Ornithological Sub-group

The annual records were submitted at the end of January in the form of a systematic

list. Our Montagu's Harrier has now been a regular arrival for the last five years, but Peregrine was seen only twice - once by me at Lower Everleigh Farm. Hen Harriers have been seen more often, indeed I saw a colourful male on Haxton Down in the sun on 17 March.

Quail were reported only twice. Barn Owls and Little Owls are breeding, as are Tawny Owls, which are more common. One unusual visitor was a Shelduck resting on a track beside the Haxton Road!

In early March the ASPIRE contractors started to clear up the whole of Sling Yard and are in the process of renewing all the electrics - including our hut - which is good news.

The Army Ornithological Society is now liaising with DE to prepare a more meaningful format for this year's bird count across the whole MOD Estate. We await developments.

Major L C Bond



Wiltshire

Buckley Barracks - Conservation Work

RAF Hullavington was built pre-war during the 1930s and was operational in 1937. Many Squadrons were stationed there and its military history is well documented. It closed as an RAF Base in 1993, the Parachute Servicing Flight and Balloon Unit being the last two occupants.

The newly formed Logistics Corps took over the site as Hullavington Barracks as a temporary measure. It is still home to 9 Supply Regiment RLC and was re-named Buckley Barracks, in honour of the hero of the Indian Mutiny, Conductor John Buckley VC.

The land acquired in the 1930s comprised hay meadow and pasture, mostly from Bell Farm whose old barns remain today as part of the Contractor's buildings. These limestone grasslands were unimproved and their rich diversity of flora remains in pockets around the site.

Wiltshire is renowned for its chalk downland, yet here in the north of the County, Corn brash and Oxford clay meet and provide the base for the flora species.

A tentative management plan was drawn up with advice from MOD Environmental Advisers at Westdown Camp. A small portion, approx. 8% of the area, was identified to be managed sympathetically for its wildlife. Although the Army has a commitment to wildlife conservation on its estate, sometimes these flower-rich sites are overtaken by other events. Each succeeding Property Manager has their own approach to the situation regarding conservation. However, with a general understanding developing, these patches of species-rich grassland still survive.

The flora and fauna populations of the site appear throughout the natural season. The outstations are awash with Cowslips



Bee Orchid Suffolk Wildlife Trust



Biting Stonecrop



Parrot Waxcaps J A Richardson

initially, and there follows a succession of plants typical of ancient sites: species of note include Bee Orchid, Butterfly Orchid, Pyramidal Orchid, Dyers Greenweed, Field Madder and Ladies Bedstraw. Fine grasses include Quaking Grass and Yellow Oat Grass, alongside Glaucous Sedge, Field Woodrush and many others. Late in the year we have Knapweeds and much Devil's Bit Scabious. In the fringes of the perimeter tracks Biting Stonecrop and Whitlow Grass abound. The current list is 43 species plus 11 varieties of meadow grasses.

Typical colonies of grassland butterflies abound with good numbers of Marbled White, Meadow Brown, Ringlet, Small Heath, Common Blue and Skippers. Moth recordings have taken place along the woodland fringes with all records sent to the County Biological Record Centre. In the autumn the sward is rich in fungi including Parrot Waxcaps and the rare *Boletus queletii* in good numbers. Hopefully these havens of wildlife interest will survive amongst all the changing turmoil for future generations to enjoy.

Ivan Randall, Buckley Barracks 9 Supply Regiment, Royal Logistics Corps

Wiltshire

Imber, Salisbury Plain West - Imber Conservation Group

Mike Jelf, formerly Commander ATE Salisbury Plain (1997-2000) has taken over as Chairman from Hastings Neville, who retired in September after many years in that role. The group has much to thank Hastings for and wishes him and Bernice a long and happy retirement together.

Our AGM was held on the 5 May 2005, with an excellent turnout of 80 members and guests. Mr David Howard, the Head Gardener at Highgrove, gave us a most amusing, passionate and enthralling talk about the wonderful gardens.

There is concern that the new grazing and scrub clearance, which supports the SSSI improvement, continues to have a marked effect on a variety of species. That these observations are coming from experts with many years of experience on the Plain emphasises the significance of the issue.

The future of the Group looks bright with a host of new members and a positive approach to relations with Defence Estates and HQ SPTA at Westdown Camp. We welcomed the Conservation Group Review and responded strongly. We hope that improved communications, direction and resource support do materialise.

Lieutenant Colonel (Retd) Mike Jelf FRGS

Lepidoptera Sub-Group

Small Skipper and more importantly the Duke of Burgundy numbers were disappointing. The latter appears to have declined from at least 20 sites in the 1980-1990s to just two sites now. Small Skipper was at one time exceedingly common, but is now at a seriously low level.

Monochroa elongella continues to survive in some numbers at what is believed its only known inland site near Tilshead. *Mecyna flavalis* has been recorded here too and we welcome this extension to the species range from Porton Down. The Marbled White appeared to be rather low

in number, and the Brighton Wainscot has again not been recorded and may now be extinct in the British Isles. The Pale Shining Brown is another species declining quickly and this may be the last area in the British Isles where this moth may be found.

Godfrey Smith

Ornithological Sub-Group

The Short-eared Owl had what was probably the poorest season on record, which contrasts with the fairly good numbers recorded elsewhere in the county and is probably the result of a very low vole population. Great Spotted Woodpecker seems unable to regain the numbers of 10 years ago. Some areas have seen a decline in the population of small *Passerines* and in particular, a considerable decline in Whinchats. Lapwings seem to be maintaining their breeding population with numbers in winter being extremely variable and lacking the consistent high numbers of Golden Plover.

Michael Smith

Small Nest Box Sub-Group

In 1997 we put up 20 Tit boxes and by 2002, our final expansion year, the total had reached 852. The boxes are now checked only at the start of the breeding season and again at the end.

Our best year so far for chicks fledged, boxes nested in, and the lowest mortality rate was 2004, with only the loss of six chicks.



Overall, 267 boxes of all types were nested in. More Wrens nested this year (nine) than ever before, and Blue Tit and Robin numbers have improved. Great Tit numbers were more or less the same. Twenty Nuthatch chicks fledged from various boxes, with no added eggs or dead chicks left behind.

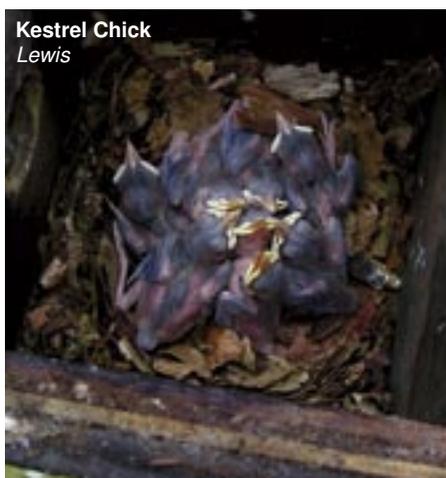
Geordie Ward QGM

Small Ground Mammals Sub-Group

The Small Ground Study ran for its third year in 2004, with the aim of identifying and estimating population levels. Trapping results indicated the Common Shrew and the Field Vole to be the primary species and this was confirmed from the analysis of Barn Owl pellets. Estimates were 46.6 Common Shrews/hectare and 33.3 Field Voles/hectare.

Last year saw the first attempt to identify one of the least known mammals, the Water Shrew, in two ponds on SPTA (West). This survey is taking place throughout the UK to provide a base-line against which to monitor Water Shrew populations and create a database. Scat analysis showed no apparent Water Shrew present, so we will try again.

Terry Light



Kestrel Chick
Lewis



Great Tits making good use of Geordie's Boxes in 2004
Ward



North Yorkshire

Catterick - Conversation between Tony and Tim

Tim Helps talks with Tony Crease, Deputy Commander ATE North (East) and Secretary of the Catterick TA Conservation Group, on conservation work at Catterick.

“Tim, you don’t mind doing the Catterick input for Around the Regions do you? Deadline 1st February. You ducked out of it last year thanks to that jungle trip of yours.”

“That’s fine with me Tony, but in all the excitement of the Warcop-Catterick merger, the subsequent commercial partnership re-shuffles and Andrew Drake’s arrival to command us all here at ATE North, I have lost the plot as to what did happen in 2004 regarding conservation. Remind me.”

“Well, the birds did pretty well apart from our Black Grouse which have really been put under pressure by the erratic weather and the fact that we now no longer have a dedicated vermin controller responsible for their breeding areas. We have taken a step backwards. Let us hope that Stainton New Wood will help to reverse the trend.

Graham Newcombe and Moira Owen are the architects of that project. The wood will be 20-acres in size and planted up with Black Grouse in mind – plenty of hardwoods plus a certain amount of regeneration. Situated in the Range Danger Area, the Black Grouse are going to be untroubled by military dry training and, with a bit of luck, will take up residence sooner or later!

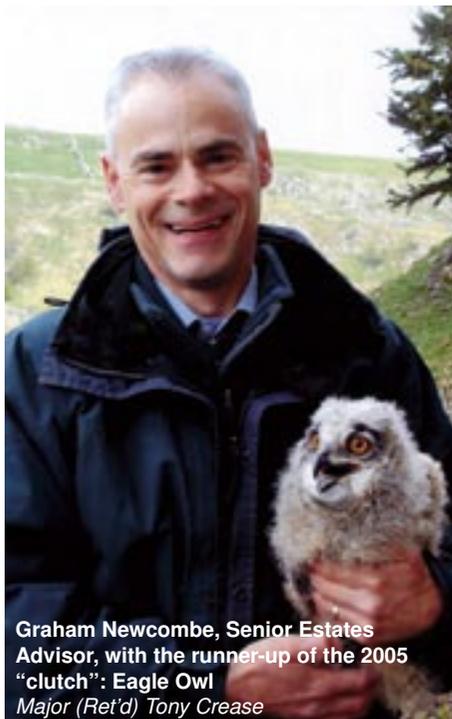
The Eagle Owls were their usual prolific selves with a further four ringed and released. That brings our total number of birds released to twenty.”

“I saw in the Telegraph that they had started breeding in Northumberland – perhaps

one of ours was involved. What else?”

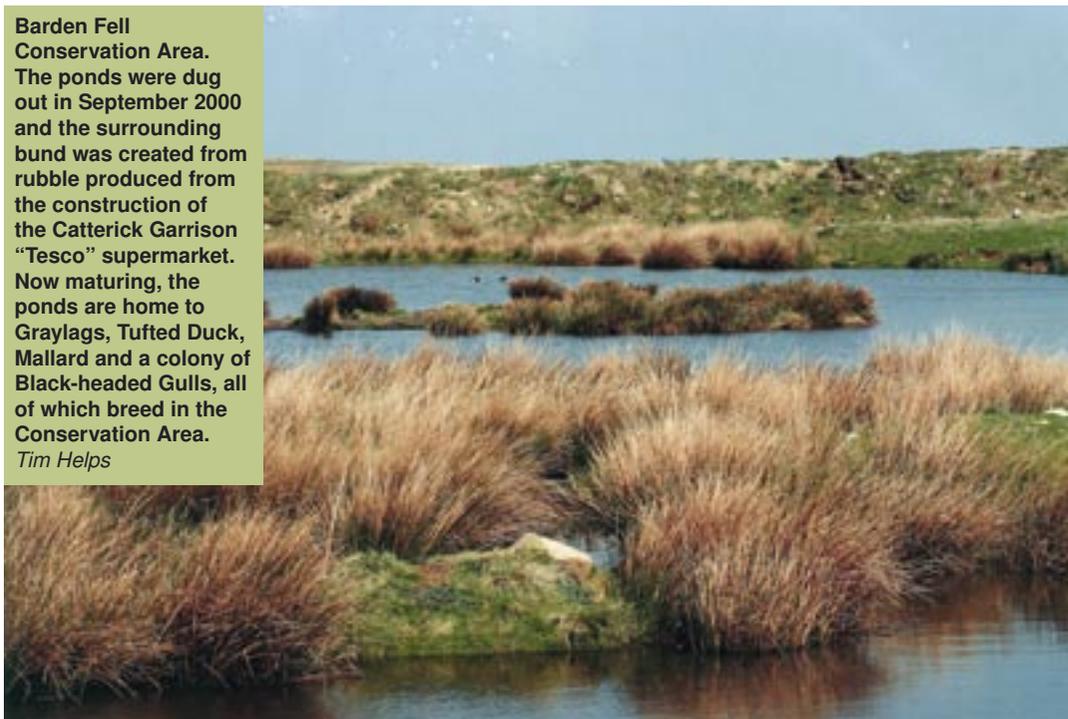
“Mark Hewitt, our new Warden at Foxglove Covert, co-ordinated another bird ringing course in July. Thirty-four people attended and over 1500 birds were ringed including a Grasshopper Warbler and a Goosander. What about your butterflies?”

“Surprisingly, Tony, it was not a bad year. There were 21 different species recorded, including a Speckled Wood which was seen at Catterick for the first time. We also had a large hatch of Green Hairstreaks in May. David Oldham and I counted 72 on the wing one afternoon. Probably the Lepidoptera highlight was the capture of a male Emperor Moth. During our Hairstreak count we had seen a number of fast flying insects which looked like *nympthalidae*. On closer inspection the following day, and armed with nets, one was captured and to our surprise it turned out to be an Emperor. Another Catterick first, which was pleasing.” ▷



Graham Newcombe, Senior Estates Advisor, with the runner-up of the 2005 “clutch”: Eagle Owl Major (Ret’d) Tony Crease

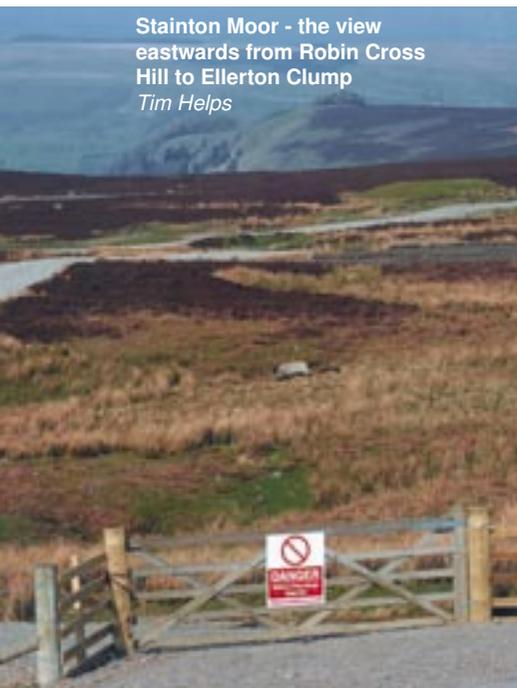
Barden Fell Conservation Area. The ponds were dug out in September 2000 and the surrounding bund was created from rubble produced from the construction of the Catterick Garrison “Tesco” supermarket. Now maturing, the ponds are home to Graylags, Tufted Duck, Mallard and a colony of Black-headed Gulls, all of which breed in the Conservation Area.
Tim Helps



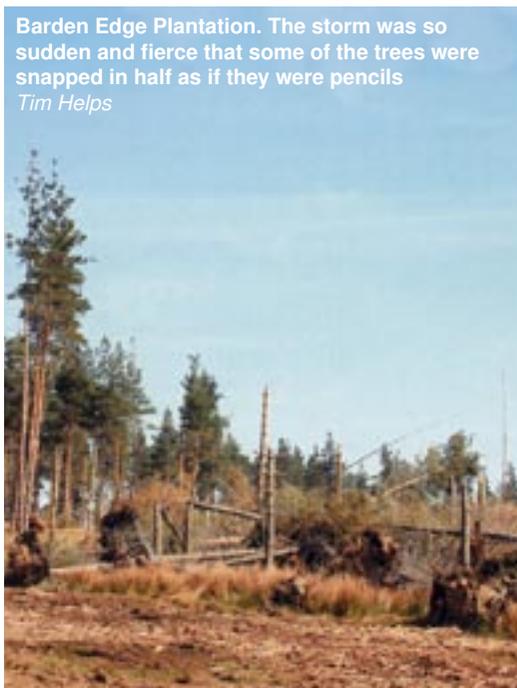
North Yorkshire

Catterick - *continued* Conversation between Tony and Tim

Stainton Moor - the view eastwards from Robin Cross Hill to Ellerton Clump
Tim Helps



Barden Edge Plantation. The storm was so sudden and fierce that some of the trees were snapped in half as if they were pencils
Tim Helps



“True. I have never known so many trees blown down and general devastation: to put all woods out of bounds to troops whilst Forestry made them safe was quite unprecedented. The wind even demolished the old Hawthorn hedgerows at Feldom, which hitherto had withstood the ravages of time and weather for the past 150 years. There will be no shortage of firewood for a bit, and a lot of replanting will have to be done – at least the storm will have thinned out our coniferous monocultures. We probably have too many of those.”

“Is that enough to be going on with?”

“More than enough, Tony. I will put something together and send it off. February 1st, I haven’t forgotten!”

Tim Helps, Catterick Conservation Group

“Anything new about mammals, Tim?”

“I think most are in rude health particularly foxes. Mark Flecchia, our Deer Manager, reports good numbers of Roe Deer and he is convinced that we have Muntjac on the estate. He is sure that he has heard them and there have been two unconfirmed sightings. If proven positive we have a new mammal on the estate. What about reptiles?”

“Winifred Kahn reported copious numbers of frogs in the spring, There have been some good sightings of lizards and Adders and it would appear that our Great Crested Newts are not quite as scarce as we first thought. Winifred reckons that most of our ponds are in good order.”

“Did anything significant come out of our April and September Conservation Meetings?”

“Well, we discussed at length public access and the affect on conservation. Helen Burdon’s idea of creating a viewing point for motorists overlooking Swaledale was given the seal of approval. The project is now well

advanced thanks to the efforts of Helen and the rest of the Defence Estates team. An area of controversy is the design of the briefing board.”

“Isn’t this all to do with access, Tony?”

“Not so. The briefing board will be a detailed artist’s impression of the view and its design will incorporate the local flora and fauna. It will be slanted towards educating the public as to what they are looking at and what wildlife they might encounter.”

“Right - are there any points about the estate as a whole?”

“We had a good chit from The Heather Trust regarding the Stainton Moor SSSI. They said what a change it was to come to a moor that was on the ‘up’ with a good burning regime, and we have Darren East, the Rural Estate Surveyor to thank for that, and also that it has a decent grouse population. All too often The Heather Trust are called out to resurrect ‘dead’ moorland.

It might be worth mentioning the recent storm of 8 January.”

Foxglove Plantation. The aftermath of the storm of 8 January 2005. The lone Portaloos were surrounded by a 10-acre conifer wood which for health and safety reasons had to be clear-felled. Now only the beech trees survive
Tim Helps





Training on Woodbury Common LA (Phot) Angie Pearce



MINISTRY OF DEFENCE