

Countryside Jobs Service

Focus on Wildlife

In association with The Wildlife Trusts

25 June 2012



100 years of The Wildlife Trusts



Woodwalton Fen was the first place Charles Rothschild saved for nature.

succeeded in enlisting the support of 50 Fellows of the Royal Society, the Foreign Secretary Sir Edward Grey and future Prime Minister Neville Chamberlain, while the Speaker of the House of Commons, James Lowther MP, became the first president.

The initial aim of the SPNR was to create a list of Britain's finest wildlife sites for potential purchase as nature reserves. Three years of information gathering followed - the first ever national survey of wildlife sites - in England, Scotland, Wales and Ireland. Rothschild and his colleagues were looking for the 'breeding-places of scarce creatures', the 'localities of scarce plants' and areas of 'geological interest'. By 1915 they had compiled a list of 284 sites 'worthy of preservation' - the Rothschild Reserves.

Following Rothschild's death in the 1920s, the stewardship of the SPNR passed to the renowned geologist Herbert Smith. Smith pursued the idea of a system of national parks and nature reserves throughout the darkest days of World War II.

It was in the 1940s that nature conservation made it onto the statute with the National Parks & Access to the Countryside Act in 1949. As a result of SPNR influence, the UK government began the process of setting up statutory nature reserves. National Parks were established, alongside protected areas such as Sites of Special Scientific Interest and National Nature Reserves.

Formation of individual Wildlife Trusts

Wildlife Trusts were beginning to appear, in response to the widespread devastation of natural habitats. First to form was the Norfolk Naturalists' Trust, which bought Cley Marshes in 1926. It was followed by the formation of a Trust in Yorkshire in 1946 and Lincolnshire in 1948. Lincolnshire Wildlife Trust's founder Ted Smith began helping others to establish in counties up and down the UK. By the end of the 1950s it was clear this growing movement needed national representation and in 1959 the SPNR became its central co-ordinator.

Between 1960 and 1970 the number of nature

1912 marked the beginning of nature conservation as we know it. It started with banker and expert naturalist, Charles Rothschild, whose vision for protected areas for nature laid the foundations of The Wildlife Trusts.

Rothschild's vision was a radical one. Before 1912, the emphasis was on trying to protect individual species from collectors and persecution. Rothschild had a very different idea. He understood the importance of protecting places and planned to safeguard where wildlife lived – the moors, meadows, woods and fens under attack from rapid modernisation.

On 16 May 1912, Rothschild called the inaugural meeting of the Society for the Promotion of Nature Reserves (SPNR) at the Natural History Museum. He had

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reserves owned by Wildlife Trusts grew from 46 to 547, reflecting the emergency measures being taken to protect local wildlife from threats such as intensive agriculture and development. The Scottish Wildlife Trust was founded in 1964, and in 1978 the founding of Ulster Wildlife Trust extended that coverage to the whole of the UK.

Meanwhile, the SPNR was developing its role as the Trusts' national association, gradually transferring ownership of its nature reserves to local Wildlife Trusts. In 1976 the SPNR changed its name to the Society for the Promotion of Nature Conservation and 1977 saw the formation of the junior branch, Wildlife Watch. 1981 brought about another name change, to the Royal Society of Nature Conservation (RSNC), before becoming the Royal Society of Wildlife Trusts (RSWT) in 2004.

From 1970 The Wildlife Trusts collectively campaigned to halt damage to and destruction of Sites of Special Scientific Interest (SSSIs), culminating in the 1981 Wildlife and Countryside Act, which was Britain's first comprehensive legislation for wildlife. Throughout the 1980s the movement began to protect wildlife in towns and cities as well as the countryside – in 1980 Avon Wildlife Trust created the UK's first urban nature reserve, a small meadow on the slopes of Brandon Hill in the centre of Bristol. Encouraged by the urban Trusts, people discovered they could help nature in their own back yard, and wildlife gardening took off.

Today there are 47 individual Wildlife Trusts, with more than 800,000 members, managing around 2,300 nature reserves. As well as protecting what already exists in reserves and other special places, Wildlife Trusts are working with landowners, local communities and partners to aid nature's recovery on a wider scale.



The Wildlife Trusts have launched the Friends of MCZ campaign to ensure wildlife rich areas in our oceans have adequate protection. (Dan Bolt)

twentieth century, as our understanding of climate change and habitat fragmentation grew, more and more Wildlife Trusts concluded they needed to restore, recreate and reconnect habitats on a landscape-scale and, in 2006, a vision for A Living Landscape was launched.

Today, there are more than 100 Living Landscape schemes being run by Wildlife Trusts, benefiting wildlife in a huge variety of ways. For example, in Cheshire, the Gowy and Mersey Washlands Living Landscape scheme is creating a landscape where a resilient network of coastal and floodplain grazing marsh provides flood water storage. The restoration of this habitat will benefit a number of priority BAP species, such as lesser silver water beetle, otter and water vole. And Norfolk Wildlife Trust's Gaywood Valley Living Landscape scheme is restoring rare heathland habitat, home to nightjar, woodlark, black darter dragonfly, lesser butterfly orchid, sundew, adder, 31 species of butterfly and 23 species of nationally scarce invertebrates.
www.wildlifetrusts.org

Marine protection

During the 1970s the movement had also begun working to help save marine wildlife. After many years of campaigning and local successes, a major breakthrough came with the passage of the Marine & Coastal Access Act in 2009, finally putting the protection of our seas onto the domestic statute. The Wildlife Trusts were instrumental in building cross-party support for this legislation.

Through the Living Seas campaign, The Wildlife Trusts remain at the forefront of those pressing for implementation of the Marine and Coastal Access Act, in particular the creation of an ecologically coherent network of Marine Protected Areas in UK waters. Most recently, The Wildlife Trusts' launched the Friends of Marine Conservation Zones (MCZs) campaign, aiming to recruit passionate advocates for the network of 127 MCZs which has been proposed to Government in English and offshore Welsh waters www.wildlifetrusts.org/mczfriends.

Nature's recovery

The UK's natural landscape has changed dramatically since Rothschild's concept of nature reserves was first introduced. As a result, our approach to nature conservation has changed dramatically too. Towards the end of the



Today, Woodwalton Fen is part of an inspirational project to create a huge 3,700 hectare wetland.

(Mike McFarlane)

Information about the distribution and abundance of species is vital to help us make informed decisions to protect our wildlife. The NBN Gateway currently provides access to almost 80 million UK species records, supplied by 160 different organisations, as well as habitat data and designated site boundaries. Such easy access to wildlife information, via the internet, means the data are being used in an increasing number of ways. For example, by students for research, conservation organisations for reserve management, government agencies for policy making and by local authorities via their Local Record Centre for planning. www.nbn.org.uk and <http://data.nbn.org.uk> Email: support@nbn.org.uk



NATUR, the Welsh Institute of Countryside and Conservation Management, is the professional institute for all those who manage, conserve and promote the living and cultural environment of land and sea in Wales. To find out about the benefits of membership and how to join, visit: www.natur.org.uk

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We run regular field meetings, wildlife surveys, training sessions, public events and an annual conference. The records we collect are made freely available to inform local conservation projects and land-management decisions.

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The natterjack in Britain today

Only seven amphibians are native to mainland Britain but conservation action is just as imperative as in countries with more types. The challenge for amphibian conservationists the world over is to hang on to their native species whilst implementing plans for their long term survival.

Following the first indications of widespread global amphibian declines about 20 years ago a rapidly expanding research effort has attempted to quantify the extent of these declines and understand their causes. The global amphibian assessment (GAA) by the IUCN in 2004 indicated that amphibians had decreased more rapidly over the previous 30 years than other vertebrates for which data were available. This and other studies highlighted multiple likely causes including habitat destruction, climate change, agrochemicals, pollution, enhanced UV-irradiation and emerging diseases e.g. the chytrid fungus. Further factors identified in Britain are road mortality, pond acidification, inbreeding in isolated populations, and, in the case of the natterjack toad, competition from the common toad after habitat change.



Natterjack toad pair in Amplexus
(Ash Bennett)



A sound knowledge of former distribution is essential for re-introductions. Data on current distribution and population size are needed for the evaluation of conservation. In Britain there is arguably a longer history of recording, and attempting to

conserve, a wide range of species groups than anywhere else in the world. This stems from the early activities of Victorian naturalists in the nineteenth century, the establishment of natural history societies and, since the mid-twentieth century, a range of national recording schemes and organisations actively involved in conservation.

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In 1776 the first record of the natterjack toad in Britain was made near Revesby Abbey in Lincolnshire, but it was not until 1948 that the full distribution in Britain was more or less completely reported and a spot map produced. Knowledge of natterjack distribution at a $10 \times 10 \text{ km}^2$ level was essentially complete by 1970 and thereafter intensive study discovered increasing numbers of individual populations within these squares for a further 20 years. The last new population was found in 1993 and knowledge at this finest scale "number of occupied sites" has almost certainly been complete since then.

There were many more natterjack sites in the years before the 1970s; it is estimated that the remaining populations represent only 20-30% of those in existence a century ago. These populations are monitored every year by local surveyors, site managers and volunteers. Their annual reports confirm continued presence and the number of spawn strings found indicates population size. Details including metamorphic success are summarised in the Natterjack Toad Site Register for the UK.

The 1999 edition of the Site Register considered the 38 known native localities to be separate populations. The population structure has now been rationalised on the basis of genetic studies to determine which are true population metapopulation clusters rather than arbitrary survey sites. There are now considered to be 13 true native populations (some with several subpopulations) and 16 successful translocations. However translocations are not an easy conservation option. The average size of native populations is four times that of translocated ones and more than 77% of British natterjacks live in native populations. Clearly the main thrust of conservation effort should be to maintain native colonies with some effort put into translocations.



Fully grown tadpoles (John Buckley)

Data from the decade 2000 to 2009 suggests that, very approximately, the total adult breeding population of the UK in 2009 was 4,000 individuals. Seventy percent are found on the west coast bordering the Irish Sea, with slightly more on sites along the Merseyside Coast and North Wales than in Cumbria and along the Scottish Solway. The remaining natterjacks are on sites in East Anglia and the south of England.



Breeding pool at Priestside (Bill Shaw)

Overall the British natterjack population was stable between 1999 and 2009. However, trends differed among the regions. In southern England and the South Irish Sea areas (Merseyside and North Wales) populations overall were rising; in the North Irish Sea region (Cumbria and the Scottish Solway) they were stable; but in eastern England they were declining. Trends of decline correlate with the proportion of years in which no toadlets were produced.

The natterjack toad is a creature of open habitats. It is an active predator and thrives where there are large areas of bare ground, or very short vegetation, and shallow, un-shaded, ephemeral pools. It burrows well to avoid extremes of temperature and dryness and its long breeding season allows for the unpredictable nature of ephemeral ponds. The

natterjack's three main habitat types in Britain are sand dunes, upper salt marshes and heathland. Population decline has been witnessed in all three types but the most severe decline has been on heathland habitats.

With increased understanding of natterjack ecology the success rate for post 1980 translocations has improved to an average of 67%, but it remains far easier to re-establish natterjacks at coastal dune sites (75%) than on heathland ones (58%).

Chytrid was first identified in natterjacks at a site in Cumbria and has since been found at many sites on the west coast. At places where natterjacks have declined it is hard to decide whether this is due to the effects of chytrid or simply adverse changes in the habitat. It may yet prove to be the case that whilst chytrid is affecting individuals it is not having an effect on the populations, where the habitat remains good. Chytrid is present at the two biggest thriving natterjack colonies in Cumbria.

Despite all the conservation effort natterjack numbers have not risen over the last decade and we are in the position of having to work hard just to stand still. Fortunately the analysis of data for the 1970 – 2009 shows

a way forward. At sites where there is grazing natterjack populations are faring better than those where this is not the case. Conservation effort should now be directed more towards the terrestrial elements of the natterjack habitat since pond creation and management are relatively well understood and implemented.

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Celebrating Great British Insects

Get ready to celebrate all things great about British insects during National Insect Week 2012 – 25 June to 1 July.

Organised by the Royal Entomological Society, the week will see scores of events held across the UK, from bug hunts and bioblitzes to minibeast safaris and moth walks.



Other events are planned at key locations which include:

- Cheltenham Science Festival – science expert Dr Adam Hart will be at the festival to talk about insect phobias
- Yorkshire Air Museum – a summer-long celebration of British insects which includes the opportunity to look at the ‘Nature of Flight’ and take part in an insect design competition with entries displayed on the nose of a Nimrod jet
- RAF Museum, London – a day of fascinating facts about insects and creepy crawlly crafts
- The British Film Institute – a showing of ‘Bugs!’, a 3D film featuring real-life insects
- National Trust Fountains Abbey, North Yorkshire – a chance for schoolchildren to try edible insects cooked by a local chef, hear about their role as a sustainable food source and take part in a bug hunt.



Male early bumblebee in flight

National Insect Week coordinator Luke Tilley said: “Great Britain has some fascinating insects and we are incredibly lucky to have such brilliant examples of biodiversity on our shores. We have some great events and initiatives coming up to celebrate National Insect Week and we really want to encourage everyone to get involved in celebrating our insects this summer.”

National Insect Week will also feature its ever popular photography competition in which people are invited to submit their best shots of brilliant British bugs. This year’s competition – launched during Insect Week – is sponsored by Olympus, supported by the Riverfly Partnership and the Environment Agency.

National Insect Week’s main sponsor is Lafarge Aggregates & Concrete UK who are staging two major bioblitz events during the week itself. The week is also supported by more than 60 partners, including the

National Trust, National History Museum, the RSPB, Wildlife Trust and the Royal Horticultural Society to name but a few.

To learn more about National Insect Week and the events taking place near you, visit www.nationalinsectweek.co.uk You can also register your own National Insect Week event through the website: http://nationalinsectweek.co.uk/event_submit.php

And you can follow National Insect Week on Twitter at @insectweek or on Facebook at facebook.com/nationalinsectweek.



Deer Management in Modern Britain.

There are six species of deer (four are introduced, non-native) living wild in the UK, and it is generally accepted that all species of deer are increasing in number and expanding their range in England. There is currently no obvious reason why this trend should not continue.

Deer at relatively low densities can be responsible for helping to create a variety of levels of open space in a habitat and this can have a positive influence on biodiversity, but where deer impacts are too intensive the effect is nearly always negative both for their habitat and ultimately their own health and wellbeing.

Deer populations have increased rapidly in recent decades due to several factors, including:

- Milder winters
- Lack of natural predators
- Changes to agriculture such as the planting of winter crops
- Increased woodland cover
- Escapes and releases from parks and farms



Fallow Deer (Jackie Pringle)

At present, there may be as many as 2 million deer in the UK. However, accurate assessment of deer numbers is very difficult because they are secretive animals and are free to roam the landscape. Evidence for increasing deer numbers is found in the expansion of their geographic range and an increase in activity and impact indicators. Deer occurrence is not restricted to rural areas, and they are increasingly found in suburban and urban areas.

With a lack of natural predators in the UK, the role of human control becomes more important. An estimated 350,000 deer are culled each year. Road accidents are the second biggest cause of deer mortality with an estimated number of 74,000

incidences per year. Despite this, deer are continuing to expand in range and it appears that current mortality rates are not high enough to prevent the rise in deer populations.

Deer have evolved as prey animals and prefer to spend their time in cover or where they feel secure. With a large rumen they can ingest large quantities of bulky plant food then return to safe areas to lie down (couch) and ruminate (chew the cud). Deer graze and browse, that is, taking ground-level plants as well as food from higher shrubby plants and trees. Each species has its own preferences which may vary according to habitat; some are especially selective in their feeding habits. In woodland habitats, succession and structure may be modified as a result of the activities of deer. Heavy browsing modifies the form of seedlings, often preventing a shrub layer developing and in old woodland creates a browse line beneath which no young living tree shoot survives. Selective browsing can radically alter the proportions of different plant species present and even eradicate some. Deer can also be very destructive to trees, damaging them by browsing and by debarking when they remove the velvet from their antlers by rubbing them against tree trunks.

Individual habitats can tolerate a certain number of deer without them being permanently harmed or changed. Unfortunately deer numbers, if not carefully managed, can easily exceed the "carrying capacity" of a habitat. The consequences vary but commonly those plants that can tolerate deer impacts may survive or even thrive



Signs of Impact: Fallow deer browse line on a Yew tree, Wyre Forest (Colin Slater)

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while those that are vulnerable perform badly or may be greatly diminished or lost. The physical structure of woodland and its ability to regenerate naturally can also be affected. In addition, fauna such as birds and butterflies that are dependent on certain plants or on a particular woodland structure can be negatively affected by high deer numbers.

Increased fragmentation of available habitat from competing land-use and encroachment of urban development further into the countryside can also bring deer into closer contact with humans. At present deer populations are not always so large in all parts of the country as to threaten established woodland and other ecosystems, but populations and distributions continue to change and under conditions that allow them to multiply rapidly, the outcome is often widespread ecological, economic and cultural damage.

Even before habitats are seriously affected by high numbers of deer there may be other human interests that require that numbers are kept under control. Deer vehicle collisions, and damage to agricultural and forestry crops can all be significant, meaning that there may be a "cultural carrying capacity" above which deer numbers become harder to tolerate.



Signs of Activity: Fallow deer rack in the Lower Wye Valley (Colin Slater)

Therefore effective management cannot focus on delivery of anyone single aim in isolation and management of wild deer should not focus on managing populations in isolation at a site scale. Management needs to be considered and integrated within a wider framework of how they themselves and their management relate to other land-management aims and objectives in more general terms.

In much the same way it is clear that to be effective management must be carried out at the landscape scale or at the very least at an equivalent geographical scale to that of the range of the population to be managed.

the positive benefits to be enjoyed from deer and the negative impacts.

If you would like to know more please visit our website www.thedeerinitiative.co.uk
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The Humble Hedgehog – an alien?

Can you class the hedgehog as an alien species? Yes, if it's on one of the islands of Uist.

Hedgehogs are not native to the Western Isles of Scotland. They were first introduced to the islands in 1974 by residents to help control slugs and snails in gardens. Unfortunately they have also developed a taste for the eggs of ground nesting wading birds. The habitat on the islands proved perfect for the hedgehog with the long grass of the machair, the Gulf Stream keeping the area warmer, and very few predators on the islands - although it is known that eagles will occasionally take them. These factors therefore contributed to a population explosion taking numbers to around 5000 individuals in 1997 and resulted in a major impact on the successful breeding of the waders.



Hedgehog captured in a live cage trap by Uist Wader Research trappers (SNH)

The Uist Wader Project was established in 2000 (now called Uist Wader Research) in response to concerns about the decline in the internationally important wader populations nesting on the islands of North and South Uists. These concerns included oystercatcher, ringed plover, snipe with the most threatened being redshank, lapwing and dunlin.

In general, ground nesting birds were found to be in decline over most of the previous 25 years and extensive research showed that this was largely due to predation of their eggs by hedgehogs.

Experimental use of hedgehog-proof fencing, previously successfully tested by RSPB on the islands in 1998 showed that by excluding hedgehogs from nesting areas, it had the effect of doubling hatching success for waders (*Jackson DB 2001*), but it was acknowledged, that this offered only a short-term limited solution. A more permanent solution was required and removal of hedgehogs, initially on a trial basis, began in 2002 with a programme of trailing, location, finding and removal methodologies.

Hedgehogs hibernate in winter so most of the fieldwork is carried out between mid March and the end of October. The methods of removal include live cage trapping, spot-lamping and sniffer dog.

Trials show that sniffer dogs are the most effective method of finding hedgehogs, although trapping causes less interference and intrusion at sensitive times of the year such as Spring when there is lambing and calving.

Welfare of the captured hedgehogs is of great importance to the project. Currently, all captured hedgehogs have been handed over to the care of the Uist Hedgehog Rescue and translocated to the Scottish mainland.

BTO Scotland is leading a consortium of scientists which will assess the breeding wader populations in areas where hedgehogs have been removed and assess any other measures which could be taken to help the recovery of the breeding wader populations. This research expands on previous survey work and will span three field seasons, 2012 - 2014 with results available in 2015.

Efforts will continue into preventing hedgehogs re-colonising areas already cleared. Hedgehogs had been eradicated from North Uist but a couple of isolated pockets have again been identified. It is unclear how the animals returned, but possibly they arrived in building material or cattle feed and straw. Work will carry on looking at hedgehog data collected to inform hedgehog removal strategies and capture methods.

So, on the islands of Uist and Benbecula, the hedgehog can be termed as an alien species. In stark contrast to the mainland the Hebridean, alien hedgehogs are highly successful. In 2010 a report by the British Trust



Amanda MacDonald and her dog Jackson searching for hedgehogs. (SNH)

for Ornithology (BTO) commissioned by PTES and the British Hedgehog Preservation Society (BHPS) to determine the state of Britain's hedgehogs, indicated that at a conservative estimate a quarter of the population has been lost in the last ten years.

The reasons for the decline are not clear but more intensive agriculture involving larger fields, the loss of hedgerows and the reduction in permanent grassland is likely to have played a role. The use of pesticides too will reduce the amount of prey available. In towns and villages, smaller and tidier gardens with fencing that prevents hedgehogs moving between gardens may have reduced suitable urban habitats.

New buildings and roads carve up suitable habitat, so that small populations can become isolated and more vulnerable to local extinction. Tens of thousands of hedgehogs are killed by road traffic each year and road deaths might be an important cause of decline locally.

Badgers are a natural predator of hedgehogs and hedgehogs actively avoid sites where badgers are present in high numbers. When the habitat provides sufficient cover and good foraging opportunities, badgers and hedgehogs can coexist, but when there is no safe refuge and the prey that the two species compete for are scarce, hedgehogs may be in serious trouble. (*The state of Britain's hedgehogs 2011 Report, PTES*)

Find out more about the translocation of hedgehogs from Uist on the Uist Hedgehog Rescue website www.uhr.org.uk/

With help from SNH

Hawes Hill Rural Services

We offer natural habitat management solutions using our own pigs. Ideal for undergrowth clearance, Balsam control and creating woodland regeneration conditions. Free initial site visit. For more details see <http://www.hawshill.co.uk/consultancy.html> or contact Jon on 07890 025266.

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Venables Pest Control Service

Eradication of all known pests in the UK, fully qualified, insured and discrete. Quotations available upon request. Contact C.Venables on 07500 668521 and or e-mail coachofclays@yahoo.co.uk

From using and reviewing products to education consultancy and photography, WildlifeKate can support your business, particularly in relation to education. I have extensive experience in writing educational materials for a range of companies and websites. Take a look at my work at www.wildlifekate.co.uk and contact me to discuss your project.

Microbee Environmental Services

Invested in improving the state of the environment, particularly in increasing biodiversity. We offer a wide range of services including bird box installation, as well as tree, lake and wildlife management . Microbee is providing management advice, solutions and control to clients for everything from the tiniest mite to large deer. www.microbee.co.uk

British Flora

Specialist grower and supplier of British native wildflowers, aquatics, grasses and sedges and seed mixes. All aspects of habitat creation, bioengineering and restoration. Listed supplier on Flora Locale website. Technical and ecological advice available. Contact 01494 718203 info@britishflora.co.uk

Update on the Alien Harlequin Ladybird

The spread of the harlequin ladybird *Harmonia axyridis* from its native range (Russia, Mongolia, China, Japan) is considered one of the fastest global insect invasions. The harlequin was deliberately released in various European countries to control pest insects and was first recorded in Britain in 2003. It arrived here from Europe and North America with produce and by means of flight and wind. The harlequin is a large, voracious, feeding and habitat generalist. It out-competes most of the other 46 ladybird species resident in Britain for food (aphids) and predaes the eggs and larvae of ladybirds and other insects.

The harlequin spread very fast (moving northwards at about 100 km per year) in the first few years of colonisation. It is now firmly established over much of Wales and all of England as far north as North Yorkshire. There are also many scattered records of the species across northern England and Scotland. Although there is some effect of lower recording in these more sparsely populated regions, the establishment of this species seems to be limited north of the Pennines. The same is true of many native ladybird species, which like warm and moderately dry conditions. So, whilst there are records of the harlequin as far north as



Orkney and Shetland, there is no evidence that the species successfully breeds north of Glasgow. The main invasion front of the harlequin reached its northern limit a few years ago.



Harlequin ladybird *Harmonia axyridis* colour form succinea. (Mark Bond)

Regarding the dominance of the species in areas further south, the story is mixed. The harlequin is certainly thriving in many areas, but the situation is patchy and some recorders have seen numbers drop in recent years. For example, in regular standardised surveys in East Anglia, harlequins reached a peak in 2009, accounting for over 40% of all ladybirds, but dropped back to 24% in 2011. This was partly due to the 7-spot ladybird, our most common species, bouncing back after some poor years. The 7-spot is a large ladybird that has a rather different niche to the harlequin, and has probably not been affected in a major way by the arrival of the alien species. Unfortunately the same is not true of all other ladybirds, some of which suffer predation by the harlequin. The small 2-spot ladybird seems to have been most severely affected and has

shown to be in decline here and elsewhere in Europe. In Britain we have carried out molecular work confirming that harlequin larvae feed on 2-spot (and 10-spot) ladybird larvae and believe that this explains part of the reason for the observed 2-spot decline.

There is still no clear solution to tackle the harlequin problem, with possible control ideas lacking efficacy-testing and are either too expensive (pheromone traps) or too risky (introduction of a mite that makes female harlequins sterile). Natural control by native predators (e.g. spiders), parasitoids (e.g. the braconid wasp *Dinocampus coccinellae*) or diseases (e.g. fungal pathogens), is the best hope. The evidence is that these attack harlequin ladybirds to a lesser extent than they do native ladybirds. Additionally there is little evidence to suggest that natural enemies play a major role in regulating ladybird populations. Nevertheless, over time natural enemies may adapt and control harlequin numbers more effectively. In the meantime, we will have to live with our attractive but unwelcome arrival.

Please submit records of any ladybird species to www.ladybird-survey.org (ideally with a photograph for verification).

Peter M.J. Brown & Helen E. Roy, UK Ladybird Survey

Postgraduate Certificate in Ecological Survey

Techniques with the University of Oxford Department for Continuing Education. Online tutor-led training to enable conservation students & practitioners to conduct mammal & reptile surveys. The course (60 CATS points at Level 7 FHEQ) is a one year, part-time, modular programme starting 1 September 2012. 01865 286953, est@conted.ox.ac.uk www.conted.ox.ac.uk/est0112

Professional Training Services

Ecology Services UK Limited provides high quality training for Ecologists and other countryside personnel. Come and join our courses, where we provide training in bat ecology, bat survey and assessment techniques, bat mitigation and lots more. Call Pat for a chat about your requirements. info@ecologyservice.co.uk 07753 397624 www.ecologyservice.co.uk

Biocensus Training

One day training course: Phase One Habitat Surveying: 09/07/12 and 30/07/12. Aimed at those required to carry out habitat surveys for development, planning, countryside management, mitigation or conservation. A comprehensive introduction to survey approach and discussion of related techniques then practical instruction in the field. 0845 4594810 enquiries@biocensus.co.uk www.biocensus.co.uk

Field Studies Council

A leading provider of taxonomic and environmental training. Over 200 courses each year in all identification areas and habitat and community analysis including NVC. 17 UK Centres. Call 0845 3454071 or visit www.field-studies-council.org/professional

Essex Wildlife Trust Fingringhoe Wick Nature Reserve

Fingringhoe Wick is a 120 acre site of woodland & heathland which lies on the banks of the river Colne close to Colchester. Visitors are treated to stunning panoramic views of the saltmarshes that stretch south towards Mersea Island. Open Daily 9am - 5pm www.essexwt.org.uk

The Sanctuary Wildlife Care Centre, Northumberland

Opportunities for work experience, wildlife training, wildlife experience days, hands on guided tours & educational & group visits at the largest wildlife rescue centre in the north east. Over 170 animals in care inc foxes, badgers, hedgehogs and owls. Family run, est 1993, not for profit charitable organisation.
www.wildlife-sanctuary.co.uk Tel: 01670 791778

www.sheprethwildlifepark.co.uk: Since opening its doors in 1984, Shepreth Wildlife Park, set in natural grounds, has become one of East Anglia's major attractions and is home to tigers, otters, monkeys, reptiles and even creepy crawlies!. There's so much to do from daring to enter the Nocturnal House, to playing 'pirates' or even stroking a cockroach!



OPAL and the value of citizen science

What are the benefits of citizen science? Can the public really contribute to meaningful scientific research?

Although voluntary wildlife recording has been well established in the UK for several hundred years, there is a growing consensus that in order to tackle the environmental challenges we face and acquire wide public support, we must not only communicate science better but also engage the public directly with it.

The Natural History Museum runs a range of citizen science projects to involve the public in its research, and a flagship project over the past few years is OPAL – an initiative that has provided the opportunity to experiment with innovative approaches to citizen science. The surveys and resources described here demonstrate the challenges and benefits of engaging the wider public with biological monitoring and scientific research.

What is OPAL?

OPAL (Open Air Laboratories network) is an England-wide initiative that runs local and national environmental projects that are accessible, fun and relevant to all. A key element of OPAL is the programme of citizen science surveys that feed into ongoing scientific research. OPAL, funded by the Big Lottery Fund's Changing Spaces programme, brings together 15 of the leading scientific and environmental organisations in the UK, including Imperial College London and the Natural History Museum. Regional Universities across England employ outreach staff called 'Community Scientists' who engage local communities with the project and provide training and support for the national surveys.

OPAL surveys – getting the public involved

OPAL has developed six citizen science surveys that focus on different aspects of the environment: Soil, Air, Water, Hedgerow Biodiversity, Climate and Bugs Count (a study of invertebrates in the built environment). Participants follow the instructions in survey packs (available in print and via the OPAL website), then submit their results online. So far more than 42,500 survey results have been submitted.

Bugs Count was developed by the Natural History Museum. It asks participants to carry out 15 minute bug hunts in their garden or local outdoor space and record what they find. An identification guide is included in the survey pack, which can be downloaded from the OPAL website. When the results are submitted online, participants can instantly see their results on a map and compare their results with others. The results are helping scientists from the Natural History Museum assess how invertebrates may be affected by the built environment.



Hundreds of schools took part in the OPAL Bugs Count survey
(Natural History Museum)

Benefits of citizen science

The benefits of citizen science are many and diverse, but include:

- Cost-effective collection of large amounts of data
- Data collection in areas that scientists would not normally have access to e.g. private gardens
- Increased public awareness and interest in the environment
- Improved wellbeing from spending time outdoors with friends and family

On a broader level, a goal of the Natural History Museum and wider OPAL partnership is to improve scientific understanding of the environment and to inspire a new generation of nature enthusiasts. Citizen science can play a key role in this.

Data accuracy

One of the greatest concerns when considering a citizen science project is the quality of data collected. Can it really be relied upon, given that no prior knowledge or experience is required to take part?

OPAL scientists have carried out a range of data quality exercises to quantify the error rates in the data, and the surveys are designed to minimise the impacts of any errors. For example, participants in the Bugs Count survey are asked to identify invertebrates to Order level, rather than species level. Mistakes may be made between species, but it is less likely that someone would mistake one Order for another.

New technologies in biological recording

As part of Bugs Count, participants are asked to look for six species in an activity called Species Quest. These species are easily identified to species level and are either spreading, declining or under-recorded, hence the need for new distribution data.

To enable the verification of records, participants are asked to submit a photo of their observation. However in the first few months, a fairly low percentage of records were backed up by a photograph. To facilitate photo submission, the Natural History Museum developed a mobile phone app which allows participants to take a photograph of the invertebrate using their phone's camera and then instantly submit it to the OPAL database. The date and location of the observation are collected automatically by the phone and attached to the photo. As long as the species can be identified from the photo, this is a highly accurate species record.

A lasting impact



You can help scientists learn more about the distribution of the Green Shieldbug
(Natural History Museum)

National Biodiversity Network and funded by OPAL, Indicia is a free online recording toolkit that lets you easily collect wildlife observations online. It can be added to any existing or new website. The software comes with pre-installed species lists.

Identify wildlife with iSpot iSpot is a fantastic website to help you identify wildlife. Simply upload a picture of your observation and a growing community of experts and knowledgeable volunteers will help you identify it.

Useful links

OPAL – www.opalexplorenature.org Indicia - <http://bit.ly/Indiciatoolkit>

OPAL Bugs Count survey - www.opalexplorenature.org/bugscount

OPAL Bugs Count mobile app - www.opalexplorenature.org/bugs-app

Help the RSPB tackle swift population decline by logging known swift nests at www.rspb.org.uk/helpswifts Also log your sightings of swifts giving their characteristic 'screaming' call and flying at roof level, which usually means they are nesting nearby.

The Game and Wildlife Conservation Trust and the Natural History Museum are embarking on an exciting new project to study how the New Forest's wildlife is affected by heathland management and is recruiting volunteers to do wildlife surveys. Contact Barbara at GWCT on 07733 268651 or email info@gwct.org.uk to volunteer

Seawatch - All eyes to the sea!

National Whale and Dolphin Watch July 27-29 Anyone can take part to help build a picture of the UK's whales, dolphins and porpoises. Set up your own watch, join a manned watch or an accredited boat operator. Find out how at www.seawatchfoundation.org.uk or call 01545 561227.



The Bugs Count app lets users submit accurate scientific records via their mobile phone (Natural History Museum)

OPAL is a great example of how anyone can get involved in scientific research while inspiring people to reconnect with their local environment. OPAL surveys are ongoing and people are still encouraged to take part. Scientists continue to analyse the data and OPAL research has been published in a number of peer-reviewed journals with several more papers in preparation.

Lessons learned through OPAL and a guide for practitioners to share OPAL's experiences will be available online in early 2013, so please keep an eye on the website. If you'd like to involve the public in an environmental recording project, the following OPAL-funded initiatives may be of assistance to you.

Indicia – collecting records online Developed by the

National Biodiversity Network and funded by OPAL, Indicia is a free online recording toolkit that lets you easily collect wildlife observations online. It can be added to any existing or new website. The software comes with pre-installed species lists.

Identify wildlife with iSpot iSpot is a fantastic website to help you identify wildlife. Simply upload a picture of your observation and a growing community of experts and knowledgeable volunteers will help you identify it.

The Vincent Wildlife Trust is collating sightings and evidence of pine martens in England and Wales. If you think you have seen a pine marten, the Trust would be very interested to hear about it. Please report your sighting at www.vwt.org.uk or phone 01531 636441.

Help local wildlife – volunteer! People from all walks of life become volunteers with Warwickshire Wildlife Trust. You could be helping with practical conservation activities, surveying a reserve, assisting our Education team, helping run our visitor centres or delivering our magazine. There is something for everyone! Contact amanda.evans@wkwt.org.uk to find out more.

Northumberland Wildlife Trust relies on the support, energy and enthusiasm of countless volunteers, who give their time to protecting wildlife and landscapes in the region. We have lots of volunteering opportunities, whether you prefer helping on our reserves or running fundraising events! Email mail@northwt.org.uk or visit www.nwt.org.uk for more information.

Is your eagle legal? Photography of rare breeding birds, the law, & the science bit.

By Andy Hay



The conservation work of the RSPB is very much science-led. It has to be! Part of my role as

Volunteers collecting insect specimens (from pitfall traps). Andy Hay (rspb-images.com)



have to photograph the species being studied, which may be easier described than done. Working alongside other staff shortcuts my research time – they know where the critters are, and they know their habits, locally. They have often established the most productive locations to work at, and tend to be positive about my working alongside them – knowing that if they help me, I can help them. However, out of necessity, my work often has to play second fiddle to theirs, particularly if there's any likelihood of my activities compromising what they've already started. So I have had to learn diplomacy!

the RSPB's staff photographer is recording that work – not for archival reasons alone, but also for the illustration of reports and scientific papers.

To that end I often find myself recording the techniques that our scientists employ – which I find fascinating, and a learning experience. I approach such assignments as if new to the subject, bearing in mind that what may startle me, might equally startle, excite, or impress our members. I am intrigued by the arcane sampling methods and devices that fall outside the expected use of mist nets for ringing birds, and microscopes for examining "other samples". The technology varies from sky-high in the case of satellite-savvy GPS tags, to home-made Heath Robinson (but effective) solutions such as half-brick ballast for devices for sampling aquatic insect larvae, or cardboard periscopes used in vegetation measuring.

As "Jack-of-all-trades", I also



Chris Bailey weighing 5 day old Skylark chick. Near nest in Rape at RSPB's Hope Farm Andy Hay (rspb-images.com)



Stone curlew Oedicnemus burchinus, adults changing over (sitting), at their nest on a plot managed specially for them. Andy Hay (rspb-images.com)

Is that Eagle legal? By the nature of the RSPB's work we tend to work with species that are endangered, and within the UK many of those are granted special protection under the Wildlife & Countryside Act (1981). As part of that protection "it is an offence ... to intentionally or recklessly disturb any wild bird on Schedule 1 [the most vulnerable] while it is nest building or is at or near a nest with young; or disturb the independent young of such a bird". That has two immediately apparent implications, in that both scientific study, and photography may well constitute disturbance, and both activities would therefore require licenses from (as appropriate) Natural England, Scottish Natural Heritage, The Countryside Council for Wales, or D.O.E.N.I. / Northern Ireland Environment Agency. Although it is allowed under the terms of a license for scientific shenanigans to take photographs of that same activity, or within the

context of it, one might only be able to obtain for example, an image of a bird in the hand – which of course is very much a "single use" kind of picture. The scientists themselves may well be content with that, as it tells the story of their work, and it is usually the case that they are so wrapped up in what they are doing (and in minimising distress) that they do not find the time to take their own pictures.

But to take photographs of a wild bird, behaving naturally, a different kind of disturbance is necessary, which is that engendered by setting up and using a hide. So already the photographer is working out-with the terms of the science-license, and although it might be possible to gain entry to or exit a hide "under cover" of the

work of others, the photographic activity largely constitutes another kind of commotion, and for licensing purposes the end-use of the pictures (particularly if wholly or in part commercial) is considered differently.

Various factors are taken into consideration by the licensing authorities when examining an application – you will be asked to describe your likely methods, the equipment you will be using, and to identify any helpers. Also there may be a requirement for you to submit photographic examples of your previous at-the-nest photography. All this is in order to assess your experience, the care that you may take, the potential quality of your results, and the validity of the reasons for your doing the work in the first place. If your nest photographs feature examples of careless “gardening” (pruning-back of vegetation to expose the nest – obviously a problem if irrevocable), or disturbed behaviour by the parents, you will not succeed. Additionally, the licensing officers may well be aware of other likely disturbance factors likely to occur within that particular area – survey work for example.



Hen harrier *Circus cyaneus*, adult male perched in flight with twig Andy Hay (rspb-images.com)

obtain pictures of the species in its breeding habitat, or exhibiting breeding behaviour (of course making for a more interesting photograph), a nest is simply a place where you can guarantee the bird will visit, thus making a hide more effective and worthwhile. But it is possible to reduce disturbance further by photographing the parent birds making their way to or from the nest, and by using super-telephoto lenses.

That really is skating over the surface of the subject, but of some use I hope, particularly in conjunction with the links below. Images taken by myself & other, freelance photographers can be ordered online from www.rspb-images.com, RSPB's picture library, which was created as a resource for our staff, with its commerciality as an increasingly successful side-line. You will find an abundant range of subject matter there, but will not as a member of the public be able to view pictures of people, particularly children (engaged in environmental studies, for example).

Additional information available here:

Royal Photographic Society <http://bit.ly/KvDTfk>
Natural England <http://bit.ly/KfmjHJ>
SNH <http://bit.ly/Mhukzv>



Dave Flumm sieving mud sample for invertebrates. Saline lagoon
Andy Hay (rspb-images.com)

After
expounding

on nest photography, I'm now going to be seemingly contradictory ... and tell you that I do it as infrequently as possible! Firstly the RSPB doesn't tend to make use of pictures of birds at the nest unless there is a specific reason to do so. Secondly there is the onerous responsibility for small feathered lives to worry about if something goes wrong – more onerous still in the case of a Schedule 1 species. So why do it at all, if it may be possible to photograph the species at roosts, or locations where they feed, bathe, or drink? Depending on the species in question, it may not be possible to observe all aspects of their life cycle within the UK. Or it may simply be that they are spoilt for choice – feeding across a vast mud flat for instance. Outside of a specific requirement to

Are you an amateur Wildlife Film-maker wanting more exposure? Sign up as a member of [Wildlife-film.com](http://wildlife-film.com) at half price for a year:
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Submit your work online for the Society of Wildlife Artists' Annual Exhibition. Deadline: 12 noon, 16 August 2012
Up to six paintings, drawings, sculptures or original prints on wildlife subjects can be submitted at £12 per work (£6 for artists under 35 years old) www.swla.co.uk

RSPB <http://bit.ly/LgtO5c>
CCW <http://bit.ly/NK4bvH>
DOENI <http://bit.ly/MAVI0R>

Chris Shields - Wildlife Artist. Thousands of stock Natural History illustrations available to licence on my website: www.illustratedwildlife.com. I am also happy to undertake new commissions for natural history illustrations or other subjects you may require. Please take a browse through my library, which is constantly updated with new work.

Will Nicholls Photography
Beautiful photographs of wildlife around Northumberland by award-winning 17 year old wildlife photographer Will Nicholls. Visit my website online www.willnicholls.co.uk to view my full portfolio. Framed and mounted prints available.

Our Wild Life

Nature photography by John & Tracy Langley. Mounted photographs, greeting cards, notelets, bookmarks & calendars. Several illustrated talks available to local groups. www.ourwildlifephoto.com
ourwildlife@btinternet.com

2020VISION

For the first time ever 20 of the country's top nature photographers have come together, not simply to present a portfolio of dramatic images, but to tell the story of the UK's ecosystems, what's being done to repair them and how that benefits every person in the land. www.2020v.org

Ron McCombe Wildlife Photography

I have a large library of stock images of British wildlife, reasonable rates for images for web pages and to illustrate articles. Commissions undertaken, illustrated talks from half hour to two hours on wildlife in general and I specialize in birds. ron@wildlife-photography.uk.com www.wildlife-photography.uk.com 01890 840504

The right kit for working with wildlife.

By Ron Bury

My principal ecological perspective is presence/absence surveying for red squirrels and the elusive Scottish wildcat. I have been recording squirrels in the highland region of Scotland for several years and following a recent move to the Glen Affric National Nature Reserve area I decided to also focus on wildcat because of their rarity and endangered status.



All of my work is towards finding and recording indications of the presence of these animals and in the first instance involves getting a feeling for an area by generally exploring the woods, forests, hills and farmland, until I feel as comfortable and familiar with the environment as the animals that live there. Once I've got a mental map of the topography of the area I can start to look at it more from the point of view of the resident wildlife and develop an understanding of where different species will be feeding and breeding throughout the year.



Glen Affric National Nature Reserve
 (Ron Bury)

ground sheets/capes, together with a small gas stove, canteen and enough food to sustain comfort into the next day.

Knowing where you are.

A map, compass and GPS are obvious requirements, although I don't rely on the latter for navigation because forests and mountains can cause inaccuracies. I have a Garmin etrex Summit which is a tough little unit and I use it for logging sightings, tracks and signs; but because I worry about lost information I use a note pad to record everything the Garmin tells me.

I print off a section from Memory Map software for the area I'm working in, which I can write notes on if I want, without destroying a bought map.

Observations and Visual Records.

Most people will opt for a pair of binoculars for distance observation and I have always found that 8x40s are the most useful to carry all the time. I have a problem with eye muscles when I try to view through both eyes under magnification so I carry a 10x50 monocular made by Barr and Stroud. This is impressively light and easy to use with good light gathering due to the 50mm objective but is completely let down by the case (literally) as the belt loop stitching is useless.



Barr and Stroud 10 x 50
 Monocular (Ron Bury)

Ltl Acorn 6210MC Trail Camera
(Ron Bury)



I carry an Olympus E620 DSLR camera with a single zoom lens which covers everything from close up to medium telephoto, and a small scale rule which I place in the image area when recording tracks and feeding signs etc.

A couple of years ago I got interested in the use of Infra Red Remote cameras, so that I could watch several places at once without the need to be there. The right camera offers minimal disturbance and influence upon animal behaviour; and used properly can dramatically reduce the amount of work required to gather x amount of data. Remote wildlife cameras or trail cameras were originally used by hunters for tracking game movement and are now becoming very popular among ecologists and the broader scientific community for researching everything from animal presence to river erosion using time lapse.

I tested and experimented with a number of different makes before eventually adopting the Ltl Acorn series cameras. Like all such devices they have their issues but on a balance of specifications, size, weight, price and performance I decided that this was the camera for me. I don't have the space in this article to go into much detail, but a visit to my web site at www.ronburyswildlife.com will give you most of the information you'll ever need about these cameras.

Analysing data and creating inventory.

Arguably the most time consuming part of any ecological census is sorting out the information you gather during the project. Regardless of the methodologies you use, data will have to be crunched.

My own personal view is stick with a windows based system for a computer, as it will prove the most adaptable and compatible for most software you are likely to employ; such as excel spreadsheets etc. For processing and analysing digital images I have used Paint Shop Pro for many years prior to its joining the Corel stable and apart from being easier to use than Adobe Photoshop, it does much the same job for a fraction of the cost.

VideoPad Video Editor from NCH Software is a great, low cost programme for editing and producing video files; and VideoMach from Gromada.com is a free multimedia converter software useful for creating videos from stills and time lapse sequences.

Links.

Scottish Wildcat Association (SWA) - www.scottishwildcats.co.uk
Highland Red Squirrel Group - www.redsquirrelsofthehighlands.co.uk
Corel Paint Shop Pro - <http://www.corel.com/corel/allProducts.jsp>
VideoPad Video Editor - <http://www.nchsoftware.com/videopad/index.html>
VideoMach - <http://gromada.com/videomach/>

Clearview binoculars have now moved to Mapplewell S75 6GG, and specialise in Visionary, Ostara & Olivon binoculars and Telescopes as well as repairing all brands of binoculars & Telescopes.
Tel: 01226 383736 sales@clearviewbinoculars.co.uk
www.clearviewbinoculars.co.uk

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Biotrack design and manufacture highly regarded wildlife tracking devices. With our research and conservation background we can advise and supply the optimal equipment from our wide range of technologies. How can our tools help your wildlife research? Contact sarah@biotrack.co.uk or call 01929 552992.

BAP Mammals. An essential publication for consultants and conservationists involved in surveying and protecting the UK Biodiversity Action Plan Mammals Species. The Mammal Society www.mammal.org.uk 02380 237874

DMAP - Software for biological distribution and diversity mapping. www.dmap.co.uk

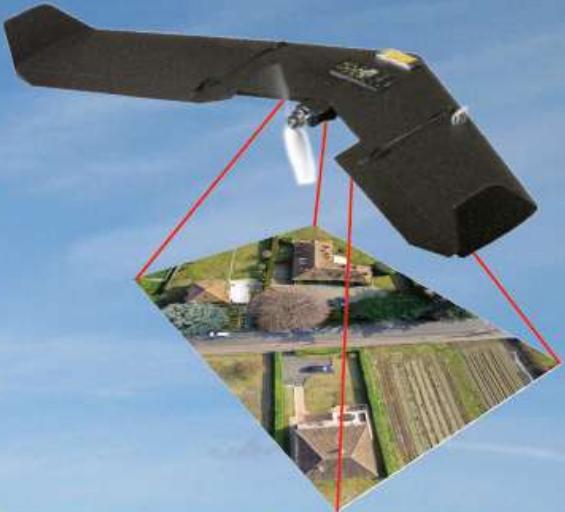
NHBS - Everything for wildlife, science & Environment

Over 110,000 wildlife & science books, and ecology & conservation products. John Poland, MD of Hampshire Ecological Services Ltd uses NHBS to supply bat boxes: "We welcome the range and price of boxes available and have been delighted with the speedy service compared to other suppliers." 01803 865913; customer.services@nhbs.co.uk; www.nhbs.com

Footprint Tunnels. Non-invasive survey tool to determine the presence of a range of small to medium sized mammals. The Mammal Society www.mammal.org.uk 02380 237874

Atropos Books is the mail order book service for insect enthusiasts, dealing in field guides and key titles. Order online at www.atroposbooks.co.uk Atropos journal is published 3 times a year for butterfly, moth and dragonfly enthusiasts, dealing with all the latest news and developments within the subject. www.atropos.info

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Tel: (01874) 711145
Email: xginfo@esdm.co.uk



Dormouse Nest Tubes. A cheap and easy method for those with a dormouse license, surveying to determine the presence of dormice in an area. The Mammal Society www.mammal.org.uk 02380 237874

Wildlife Conservation versus Visitor Engagement

At Mid Point a lone, old ambulance stands incongruous. The ever changing Severn Estuary stretches out in front of it, sometimes brimming full, sometimes just trickling across hectares and hectares of mud. Here it is easy to see why Peter Scott chose Slimbridge to found the charity that has become the Wildfowl & Wetlands Trust (WWT).



Mid Point at WWT Slimbridge: the final destination of the summer walkway (Nicholas Cottrell / WWT)

Lauri MacLean, WWT's Senior Reserves Management Planning Officer, explains that this dilemma has physically shaped WWT reserves: "If you look at a map of Slimbridge, you'll see that the visitor centre and the grounds where visitors can freely walk are in the centre with all the hides looking out onto the surrounding reserve."

The birdwatching hide is one way we get around the dilemma of conservation versus engagement. Again, Peter Scott had clear ideas on hide design. They were not just a place for people to observe nature, but also

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Mammals of The British Isles Handbook. A classic reference source detailing the biology, ecology and conservation of every mammal occurring in Britain and Ireland. The Mammal Society www.mammal.org.uk 02380 237874



Saving wetlands for wildlife & people

Mid Point is at the end of Slimbridge's Summer Walkway. The name is a clue to one of the big challenges WWT faces. With reserves that are famous for ground nesting waders in spring and overwintering wildfowl throughout the darker months, it is crucial that WWT can restrict public access through much of the year to give the birds a chance to breed or feed and rest.

Peter Scott was an early champion of the benefits of engagement. He believed the only way to build support for nature was to give people an amazing, up close experience of wildlife. He built WWT on the basis of "conservation, research, education and recreation" and back in the 1940s the latter two were really quite revolutionary. But if the reserve is out of bounds for much of the year, how do we engage visitors with nature?

a building which would be acceptable to ducks. He would even go to the length of stipulating that cow dung be thrown onto the tiled roofs of new hides to quickly encourage lichen growth and age the tiles. We also create special habitats close to hides, such as the bank of nest holes by the Kingfisher Hide at Slimbridge – the diameter and length of the holes have been designed specifically to suit kingfishers and the depth of water outside is perfect for them to fish. Similar banks, but designed for sand martins, have been built at the London and Arundel Wetland Centres.

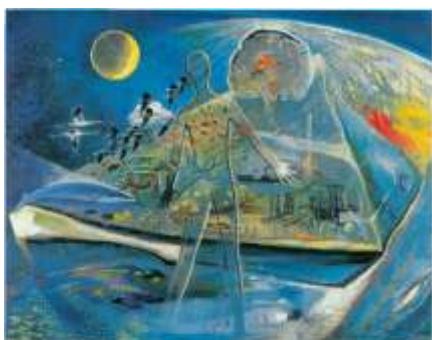
And so, with some careful thought, it becomes less of a trade-off between what's good for the birds and what's good for the people. The birds don't feel threatened by the obvious presence of people and the people get a chance to observe them up close. Another trick that Scott championed is shielding the approaches to hides with earthen banks and avenues, allowing you to reach your vantage point in comfort without flushing the birds or having to stoop and crawl.

Comfort has been another guiding factor at WWT. Scott was apparently inspired on a trip to a North American hunting lodge where he was able to watch roosting snow geese through a picture window from the comfort of an arm chair. The effect is recreated in WWT throughout the UK. And it fits with Scott's intention that a day out at WWT should be as appealing to those in smart coats and high heels as it is to those in wellies sporting binoculars. It is something that Lauri also picks up:

"I think the thing that sets WWT apart from other places I've worked is the lengths it goes to engage as wide an audience as possible. It's fantastic because pressure on conservation is increasing everywhere as populations grow, so it's vital we get people to value nature. Obviously as a Management Planner I can see the limitations, but a lot of thought goes into opening up areas wherever possible."

WWT Arundel Wetland Centre is cited as one of the best places in the UK to see water voles. You might see them if you wait patiently on one of the paths, but your chances are much increased if you take one of the free, guided electric boat safaris. Silently gliding across the water, getting away from the paths and the noise, many people come away having heard the distinctive plop and seen a water vole's whiskery nose and bright eyes propelled across the surface. It's a thrilling experience and one that brings the best of both worlds. The voles are thriving and the visitors are too.

Similar experiences can be had at Slimbridge, Llanelli and Martin Mere in the two-man Canadian canoes for hire. Low to the water and gliding quietly through reed beds, visitors get a completely different perspective on reed warblers, purple loosestrife and water voles. Well thought out access to parts of the reserve opens a window on a world that is often the preserve of reserve staff and volunteers but is truly powerful stuff.



The natural world of man: Peter Scott's painting represents man's dilemma in his relationship with nature. (The Scott Family)



Wetlands Discovery: electric boat tours at WWT Arundel – possibly the best place in the UK to see water voles.

(Heather Tait / WWT)

Engagement is in the DNA of WWT but there's no doubt that we have to manage for wildlife by limiting access. For all the weight that Peter Scott gave people in the success of conservation, he was far from blind to the impact of humanity. In one of his more radical paintings, *The natural world of man*, man's dilemma in his relationship with nature is symbolised by his one white hand and one black hand.

So really, does it just come down to a moral balance? Is there always a trade off between conservation and engagement? Well, with a bit of thought, it seems there are all sorts of neat ways to allow wildlife space and peace whilst people still get up close and, hopefully, become totally enthralled in wildlife and conservation.

To find out more about the work of WWT check out their website www.wwt.org.uk

The CJS Team would like to thank everyone who has contributed adverts, articles and information for this CJS Focus publication. Next edition will feature Water, published 29/10/12.