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BRISC
BIOLOGICAL RECORDING IN SCOTLAND

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# Recorder News



## WHAT'S SPECIAL ABOUT FAIR ISLE?

By Roger Riddington

There are plenty of options for an article with the title 'What's special about Fair Isle?' From a natural history perspective, Fair Isle has much to offer. A rich marine environment in particular, some interesting plants (my favourite being a superb colony of oysterplants *Mertensia maritima* at the South Light, and an island mouse, *Apodemus sylvaticus fridariensis*. However, it is birds that the island is really famous for, and this is really the only group that I feel qualified to say anything about – so I am afraid it is birds that dominate the rest of this article.

In the past 60 years Fair Isle has come to mean migrants in spring and autumn and seabirds in the spring and summer, and it is those twin axes that draw the majority of birdwatchers to the island.

Oysterplant *Mertensia maritima* © Roger Riddington

Fair Isle Kirk, December 2008 © Roger Riddington

Fair Isle is famed for its rare migrants. The number of species that have been added to the British List from a single site measuring no more than 5km by 2km, together with its reputation for being one of the best places in the whole of Europe to see Siberian vagrants, draws visitors in from far and wide. **Continued on p.3.**

## Chairman's Column

Well, I suppose that Spring is now over and we are getting to high Summer… well perhaps in date but not in temperature. Due to the changeable weather the number of dragonflies and damselflies on the wing is pretty low, but there are a few about. I have been out in the field a wee bit and enjoying guddling for larvae and getting new 10km square records for white-faced darter, black darter and common darter in Applecross, and new site breeding records for northern emerald and southern hawker in Glen Strathfarrar. I also saw a lovely raft spider *Dolomedes fimbriatus* when dipping there and a very fresh wood tiger moth. To top it all the sun was shining and it was almost warm.

Talking of Dragonflies there is a new Scottish Leaflet out available on the Scottish pages of the British Dragonfly Society's website at http://www.british-dragonflies.org.uk/content/dragonflies-scotland .

It was launched at the Gardening Scotland show at the beginning of this month along with a postcard seeking records of the common darter. If you would like either, contact your local biodiversity officer as they will have them.

Our database of Schemes and Societies will soon be updated. This is a by-product of an SNH contract looking at Biological Surveillance in Scotland. We hope to get the updated list made available over the summer. One interesting finding of the SNH contract was that there was no recording scheme for Annelids apart from earthworms. Are there any Annelidophiles out there wishing to start a scheme?

In May I chaired my first BRISC committee meeting and the room was jam-packed as all the committee turned up. We had a very productive meeting, lots of action points, and started planning for the annual conference and another AGM which will be in Stirling, one Saturday 5 November. We are still finalising the exact details but we will let you know the venue as soon as we have it. One key action is that we are planning more outreach to universities, similar to the event run for the AGM earlier this year in Glasgow, mainly to raise awareness of what is out there and what is going on, and also to try and get more student members.

Something that fell off the agenda due to lack of time was a discussion about the future of BRISC, so a few of the committee members were tasked with drafting a paper for the next meeting in August. We hope that the strategic issues relating to biological recording in Scotland will be dealt with by a larger group of organisations; if this is the case then BRISC needs to focus more on supporting recorders and schemes and societies. If you have any thoughts or ideas about this please do get in touch and let me know. Please note that I have a new email address chairman@brisc.org.uk

In this edition of *Recorder News* we have an article about the Bursaries that BRISC have been awarding. We are very pleased to be able to support this and we see this as a long-term investment in Scotland's biological recording. There is still no news about the outcome of the BRISC petition, but we are hoping for an announcement in the summer outlining the actions required to address the issues the petition raised. I hope to report back to you in the next *Recorder News* with some positive news. Jonathan Willet

## Editorial

The devastating gales which swept through much of Scotland at the end of May have left their very visual mark. Gusts of up to 80mph were recorded here in Anstruther and some up to 100mph at Leven, just 20 miles away. The whole countryside here now looks like autumn – all trees, hedges, even small bushes facing west have had most of their leaves blasted, and these are now falling off, littering the ground as if it is were October. Our Sycamore has lost more than 90% of all leaves and shows little sign of re-growth. Has it given up? How many trees and bushes will now die as a result? I could not do my butterfly transect out at Tentsmuir NNR that week, not only because the weather was unsuitable, but the car park at Kinshaldy had to be closed due to fallen and falling trees. When we had occasion to travel to Oban a couple of weeks later, the story was the just same – everywhere where there should be lovely green foliage, most of this was now brown and dying, and everyone commenting that they had never seen anything like it.

So what will the long term effect be? The short-term effect however, will undoubtedly have be negative impact on our wildlife. Just in our own garden it is usual see a lot of resident or visiting birds picking off insects and caterpillars from the leaves of trees and bushes, but there are few leaves left, and when this loss is extended to most of the area, how will breeding birds find enough food for their nestlings?

However, all is not gloom and doom. An article in a recent BTO News argues that fallen leaves are also a very important food resource, and that the fashion for tidiness and removing leaves, such as by leaf-blowers, is a bad idea. A Breeding Bird Survey in London has found that Blackbirds declined by 13% between 1995 and 2005, and regular autumn counts during the same period in Kensington Gardens, where park keepers are enthusiastic users removers of leaf-litter, showed a fall of 67%, sufficient for Blackbirds to be 'red-listed'. The theory is that fallen leaves protect a 'fermentation layer' beneath, where the recycling takes place, what with worms pulling leaves down and countless numbers of microscopic organisms and invertebrates breaking down the leaves to form new soil. I hate leaf-blowers in any case just because of the dreadful noise they make.

This issue of *BRISC Recorder New*s offers readers a great range of articles, reviews, bits and pieces and a side and a half of field excursions. The national survey on ticks (p.9) is particularly relevant to all active biological recorders, and indeed anyone roaming the countryside. The risk of picking up a tick anywhere in the UK has hugely increased in the last couple of decades, and it is now very advisable always to check yourself over after having been out in the field. AMS

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There is a handful of 'Fair Isle specials', so-called because of the high proportion of all British records that turn up on Fair Isle, but two of these, Pallas's grasshopper and lanceolated warblers - both archetypal small brown jobs - perhaps stand out.

A rich and varied seabird population has been an almost constant draw over the years, and the island is still at its most bewitching on a calm evening in late spring when the clamour and the scent of guillemot colonies on the cliffs vie for your attention with the aerial spectacle of Arctic skuas defending their territories. In the last 10 or 20 years, however, the majority of Fair Isle's seabirds have struggled, testament to the fact that the sandeel bounty of the 1980s is no longer to be relied upon, although gannets (able to bypass local shortages by their ability to stock up at more distant checkouts, comfortably able to travel as far as the Moray Firth on a single fishing trip) have bucked the trend and continue their relentless increase.

Arctic Skua, June 2009 © Roger Riddington

Fair Isle Wren, April 2011 © Roger Riddington

As well as migrants and seabirds there are a couple of special landbirds too. The Fair Isle wren *Troglodytes troglodytes fridariensis* is considered a separate subspecies from the wrens found in Orkney, 40km to the south, and the Shetland wrens *T. t. zetlandicus* another 40km to the north. Fair Isle wrens have, in recent times at least, peaked at 52 pairs (more accurately territories, or singing males – for we think they are monogamous but we do not know for sure) in 1964, and they reached a dangerously low ebb in 1981, when just 10 singing males were found on the annual census. Most of the time the population fluctuates between about 25 and 40 pairs, however, and that makes it not only the rarest endemic subspecies of bird in Britain but probably in Europe as well. In broad terms numbers have been stable since the late 1980s, fluctuating around a mean of about 30 pairs; numbers were somewhat higher in the 50s and 60s, although we do not really understand why. One theory recently put forward is that the island's increasing fulmar population has had a negative impact on the wrens, perhaps through their impact on the cliff vegetation (Fair Isle wrens are confined to breeding territories along the coast – an interesting contrast with the St Kilda wren, which happily takes advantage of inland territories).

Another interesting landbird is the common starling. The subspecies *Sturnus vulgaris zetlandicus* is, as the name suggests, not confined to Fair Isle, but found throughout Shetland; some consider that the form found on Fair Isle and in the Outer Hebrides is intermediate between those in the rest of Shetland and the nominate form found on the mainland. As Fair Isle's commonest landbird, a species that nests in often quite conveniently accessible cavities in the stone dykes that criss-cross the island, the starling has proved a convenient study-organism for scientists over the last 30 years, and currently there are a variety of research projects ongoing, mostly carried out by (or in collaboration with) scientists at Aberdeen University.

Having thus skipped through Fair Isle's special birds in a few short paragraphs, I thought it might be appropriate to spend the rest of this article describing the history of biological recording in Fair Isle, a story that stretches back over 100 years and encompasses the birth and development of one of Britain's oldest bird observatories.

Dr William Eagle Clarke © FIBOT

The discovery of Fair Isle as one of the great bird migration crossroads of Europe is widely attributed to Dr William Eagle Clarke, who first visited the island in autumn 1905. Eagle Clarke was a museum ornithologist (he became curator at the Royal Scottish Museum in 1906) and in Fair Isle he found a place that could rival the German island of Helgoland for bird migration studies. He returned almost annually until the outbreak of World War I but, importantly, he also trained islanders to carry out observations and recording in his absence. The first of these was George Wilson Stout of Busta (who left the island in 1909 and was later killed in the first war), followed by Jerome Wilson of Springfield. Eagle Clarke and his co-workers, chiefly these two, added 35 species of bird to the Shetland list in the first ten years of study in Fair Isle, as well as five species new to Britain.

Other notable ornithologists to visit the island in those early years included Norman Boyd Kinnear (who accompanied Eagle Clarke on his first trip and was later one of the first trustees of the observatory) and Mary du Caurroy Tribe, Duchess of Bedford, who made nine visits during 1909–14.

Eagle Clarke last visited Fair Isle in 1921, and on that trip brought his successor, Surgeon Rear Admiral John Hutton Stenhouse. An enthusiastic collector and recorder during his naval career, Stenhouse was encouraged by Eagle Clarke to make a series of expeditions to Fair Isle, seven in total, between 1921 and 1927. Stenhouse also realised the potential of the island men for recording migration, and developed his own protégé, George Stout of Field, generally known simply as 'Fieldy'. Indeed, for a large part of the inter-war years, at least after Stenhouse's final visit, Fair Isle ornithology was largely in the hands of Fieldy and Jerome Wilson.

Above Surgeon Rear Admiral John Hutton Stenhouse
Below from left to right: George Waterston, George (Fieldy) Stout and James A. Stout. © FIBOT

George Waterston, one of the great pioneers of Scottish ornithology in the middle years of the twentieth century, met Stenhouse at the Royal Scottish Museum and learned of the Fair Isle studies initiated by Eagle Clarke. Waterston's first trip to Fair Isle was in 1935 when his vision for a permanent bird observatory was crystallised. Waterston made several visits in the years before the outbreak of World War II and developed a close relationship with George Stout, often staying with him at Field. The enthusiasm of other luminaries of the birding world in the immediate pre-war years (incuding Harry Witherby and Phil Hollom, who visited the island in 1938) was certainly encouraging.

Sheep Rock, December 2008 © Roger Riddington

The war interrupted progress but Waterston continued to formulate his plans for a bird observatory on Fair Isle while incarcerated as a prisoner of war (he was serving in Crete when it fell to the Germans in 1941, and he was eventually taken prisoner). In 1943, suffering badly from kidney trouble, Waterston was repatriated and it is said that his first sight of British land on the way home was the familiar and distinctive 'armchair' outline of Sheep Rock, on Fair Isle's east coast – surely an omen!

Waterston eventually bought the island in 1948 (for £3,500), and the bird observatory opened on 28th August 1948. The former naval huts at the North Haven were adapted and these housed staff and visitors for over 20 years.

The first warden of Fair Isle was Ken Williamson, who remained in post for eight years, the first in a still fairly select band. Since 1948, the monitoring of bird migration has continued every spring and autumn, using a more or less similar methodology, supervised by the Warden (and usually helped by between one and three assistant wardens, although the first dedicated 'AW', Valerie Thom, was not appointed until 1955). However, the tradition of interest and involvement in bird recording by the islanders has also continued, and particular mention should be made of both Jimmy Wilson of Schoolton ('School Jimmy'), who was the son of Jerome Wilson, and James A. Stout of Midway ('Mires Jimmy'), the son of Fieldy.

School, Setter, Field, Ward Hill. December 2008
© Roger Riddington

Both of these were skilled and accurate observers, who contributed much to the ornithology of the island, without getting the recognition they perhaps deserved. At the time of writing, Mires Jimmy has just celebrated his 100th birthday, though he is now resident in south mainland Shetland.

Towards the end of the 1960s, with the need to replace the naval huts becoming ever more apparent, Waterston launched a public appeal for funds. A new, purpose-built observatory was duly opened at Mavers Cup, just above and to the south of the Havens, in autumn 1969, towards the end of Roy Dennis's seven-year tenure as Warden. A timber building, which was prefabricated in Devon, and brought in by boat from Berwick-on-Tweed, offered new levels of comfort for visitors and became widely (and fondly) regarded as 'the birdwatchers' Hilton'.

Eighteen years later, showing signs of wear and tear, the '69 observatory underwent significant refurbishment during the winter of 1988/89, as Paul Harvey took on the mantle of Warden from Nick Riddiford. Although this facelift extended the life of the building until 2009, a more radical solution was eventually necessary. Following extensive research into the options, including both relocation and wholesale renovation, it was decided that the observatory would close for a season, the ailing buildings would be demolished and a new, energy-efficient version would be rebuilt on the same site. A major fundraising campaign was launched and, with the aid of substantial grants from the Scottish Government, Shetland Islands Council, Highlands & Islands Enterprise, plus smaller grants from many other sources and a successful public appeal, work commenced on schedule in spring 2009. The old observatory was soon demolished and the site prepared, before sections of the building or 'pods' were brought in by barge from Orkney. The second 'new observatory' was duly opened in the summer 2010, coinciding with the final year of a remarkable 12-year stint as Warden by Deryk Shaw.

The new observatory, April 2011 © Roger Riddington

The new building provides a fine platform to look to the future. Along with comfortable, en-suite rooms there is a spacious common room, a well-stocked library, a visitor centre that can double as a lecture room with conference facilities and laboratory space for visiting researchers. And, let us not forget the basics: the kitchen still churns out the home cooking as well as it ever did, while the Obs is now fully licensed and the Good Shepherd bar serves a variety of local beers, as well as wine and spirits. All of which seems a far cry from the situation 20 years ago when your choice was between a can of export or Tennants, - if you were lucky – if you were not, there was either no choice or no beer at all.

With the new building, and a new team in place, under the leadership of Warden David Parnaby, we are looking forward to a future in which Fair Isle continues to play a significant role in the world of biological recording.

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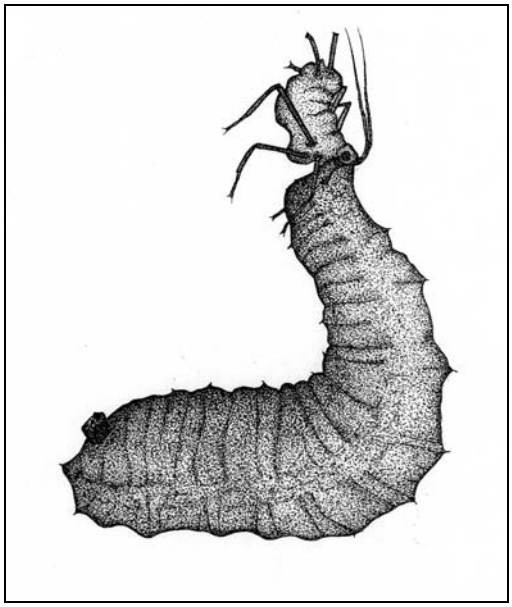
Stackhoull with Hoini beyond, December 2008 © Roger Riddington

Some of the pictures in this article and many other images of Fair Isle can be found in *Fair Isle: through the seasons*, a new book produced to celebrate the opening of the new Observatory – see www.fairislebook.co.uk - proceeds of which are being shared between Fair Isle Bird Observatory Trust and the Fair Isle Community Association.

## Hoverfly Larvae

By Graham Rotheray

Adult hoverflies are justly celebrated for their colours, hovering abilities and flower visiting habits, but their larvae are badly neglected. This article encourages readers to seek them out. Finding and studying larvae is fun, beneficial and there is lots to find out.



Drawing of the lava of *Syrphus ribesii* in the characteristic pose that is taken by aphid-feeding predatory hoverflies
© Graham Rotheray

Larvae may seem featureless but they are far from it. Just like adults they move around, sense their surroundings, defend themselves and of course, eat. But in not flying away, observing them is a lot easier. Hoverfly larvae are recognisable by the projection at the back of the body: the posterior breathing tube. Few other larvae possess this feature. Furthermore, larvae can be easier to identify than adults, but until more are known, this potential way of identifying hoverfly species remains unrealized – so finding unknown larvae is one priority.

For recording, larvae are sometimes a better bet, such as when adults are elusive because they fly high in the canopy or when only a small proportion emerge in any one generation. Scarce adults and abundant larvae mean that species assessed as rare using adult records alone should be treated with caution: for an example see, MacGowan, I. & Rotheray, G.E. (2007). "*Callicera rufa"* (Diptera, Syrphidae) status and trends: an update. *Dipterists Digest* **13**: 113-118). Larvae also tend to be present all year round, so recording need not be restricted to flight periods. The key to using larvae for recording is knowing how to locate and search breeding sites:, for details, see Rotheray, G.E. (1993). "Colour Guide to Hoverfly Larvae" (Diptera, Syrphidae). *Dipterists Digest* **9**: 1-156.

The head of a larva has two sections. On the outside is a fleshy covering for the head skeleton which is inverted inside. The head skeleton is a suction pump for drawing in food. Behind the head are three thoracic segments and eight abdominal segments. The entire body is criss-crossed with indented lines. These lines are places where the body creases during movement. Each segment has up to 24 sensilla. These are important because being legless and lacking eyes, hoverfly larvae have to feel their way forward. To start moving, the larva contracts the rearmost segments which squeezes body fluids ahead and lifts and expands the body forward. This is repeated until the wave of muscular contraction reaches the head when the muscles relax, fluid pressure evens out, and the cycle is ready to begin again.

Four types of hoverfly larvae exist. Microdontine larvae cannot be confused with any other. Their body shape is unique, like a limpet with a fringe of setae skirting the lower margin (Fig 1). Due partly to this strange appearance, these are the most confused and misunderstood of all larvae. Their unusual shape and gliding motion has caused them to be misidentified as molluscs on more than one occasion.

Fig 1. The ant brood microdontine predator, *Microdon mutabilis*, is the large, central larva, head to the left (Rannoch, Perthshire). © Richard Lyszkowski

The appearance of microdontine larvae demonstrates in a remarkable way, the adaptability of hoverfly larvae. Their shape is solely for defence against worker ants, because these larvae live in ant nests and feed on the ant brood. Their domed shape is difficult for ants to bite. They are vulnerable, however, when the body rises during movement. But they protect themselves by a unique fold in the external cuticle or integument which like a curtain, covers the sides. The rounded outline is also significant because muscles on each side of the body have space to operate independently. The result is that by contracting one side of the body and expanding the other, microdontine larvae can turn on a sixpence, very useful in the confined space of an ant tunnel.

Another set of remarkable changes protects the head. The thorax is folded and is fringed like the rest of the body. Hidden behind the thoracic fringe, is the very narrow and retractile head. The fringe opens, like a pair of curtains, to allow the head to protrude and scan for prey. If a prey item is encountered, toothed mandibles pull it rapidly behind the fringe, which closes and prevents ants taking it back. Protected in this way, the larva is able to eat unmolested by irate but hapless worker ants.

Like microdontine larvae, those of the Syrphinae are also predators (Fig. 2). A few feed on root aphids, but the majority develop on aphids and related insects above ground. Living on plants, syrphine larvae face numerous hazards, such as escaping insectivorous birds. Their primary defence is cryptic or camouflaging colouration. Some are simply green, but others have colours that suit particular backgrounds, such as being white among umbel flowers or having projections on the sides and top of the body which, combined with dark body colours, disguise them almost perfectly on bark. Others are smooth-bodied, flattened and green, making them inconspicuous on leaves where the smooth, flattened shape reduces the give-away shadow they might otherwise cast.

Syrphine larvae also have eye-catching splashes of colour. These marks are disruptive in nature, meaning that the eye is drawn to them, not to the body itself and so, the larva escapes (Fig 2). Syrphine larvae also have appropriate behaviours for crypsis: they hide during the day and feed mainly at night. Despite these measures if they are attacked, other defences come into play, such as squirting sticky saliva at an attacker or dropping from the plant.

Fig 2. The cryptic syrphine larva of *Meligramma trianguliferum*, head end uppermost, note the white disruptive mark (Dalkeith, Midlothian). © Graham Rotheray

Syrphine mouthparts operate in a very different way to those of microdontines. Instead of ripping prey apart with toothed mandibles, syrphine mouthparts are sharp and chisel-like. The sharp parts pierce an aphid while the chisel-like mandibles cut up the internal tissues. Aphids try to get away of course, but syrphine larvae have a wonderful set of mechanisms to prevent this. As soon as an aphid is touched, the larva pierces and holds it with sticky saliva. At the same time, the prothorax inverts and forms a bowl shape into which the prey is drawn and held, not only by sticky saliva and mouthparts, but also by a pair of hooks that swing round and grip the prey. Finally, if necessary, the aphid can be lifted above the plant.

The final two larval types belong to the Eristalinae. These are the saprophages (feeding on decaying organic matter) and the plant feeders.

Fig 3. The specialised root feeding eristaline larva of *Portevinia maculata*, associated with *Allium ursinum*, head to the left, note the rasping mouthooks, (Newbattle, Midlothian). © Graham Rotheray

Plant feeders tunnel in stems, roots and occasionally leaves, of a wide variety of non-woody, herbaceous plants but some also feed in fungi. However, foodplants of many species are unknown – another priority for fieldwork. The saprophages include aquatic larvae that live in mud and wet decaying vegetation found in a wide variety of situations, from tree holes to lochs. The main challenge for phytophages is fragmenting plant tissue, while for saprophages, the challenge is imbibing liquids. Phytophages have large, hooked mandibles for rasping (Fig 3 above). Saprophages have filters through which liquids are sucked.

In dead wood saprophages, the front of the thorax is covered with extraordinary arrangements of hooks (by which they can be identified). Functionally, these hooks are used to clear a passage in locomotion. In aquatic species, however, the greatest changes are at the opposite end of the body. The anal segment is hugely extended (Fig 4), forming a supporting sheath for the breathing tube which is unbelievably long and can be drawn out of the body like unravelling a hosepipe. With the tip anchored at the water surface, the larva extends the breathing tube as it sinks to the bottom to feed and breath at the same time. These are the remarkable, so-called, 'long-tailed' larvae. Being inside plants or immersed in decaying matter, eristaline larvae are out of sight and lack the sophisticated defences of microdontines and syrphines. However, they are not entirely lacking in this respect. If disturbed, they may go flaccid and appear dead, or in contrast will wriggle vigorously. Another defence is contracting the abdominal muscles to force body fluids into the thorax which blows up like a balloon. In such a state, the larva is rock solid and apart from startling a predator, it is difficult to handle and hard to bite.

Fig 4. The aquatic, filter-feeding larva of the endangered, dead wood, eristaline, *Blera fallax*, head to the right, note the long 'tail', (Inverness-shire). © Ellen Rotheray

Ant-associated microdontine larvae, cryptically coloured syrphine larvae and tunnelling or filter-feeding eristaline larvae are each highly specialised for their separate ways of life. By whatever measure is applied, hoverfly larvae are sophisticated beyond expectation, and quite as worthy of appreciation and study as the adult stage. Further information on both adults and larvae can be found in the references cited and also, Rotheray & Gilbert 2011. *The Natural History of Hoverflies*. Forrest Text. Ceredigion.

Graham Rotheray
National Museum of Scotland

## MIGRATING MOTHS AND SONGBIRDS TRAVEL AT SIMILAR RATES

(fom BBSRC's News Achive 2011)

A study published on 9 March 2011 in *Proceedings of the Royal Society B* by researchers at Rothamsted Research (an institute of the Biotechnology and Biological Sciences Research Council (BBSRC), a UK funding agency for research in the life sciences, sponsored by Government), and the universities of Lund (Sweden), Greenwich and York, reports the surprising finding that night-flying moths are able to match their songbird counterparts for travel speed and direction during their annual migrations but they use quite different strategies to do so - information that adds to our understanding of the lifestyle of such insects, which are important for maintaining biodiversity and food security.

This new international study of moth migration over the UK, and songbird migration over Sweden, funded by the Biotechnology and Biological Sciences Research Council (BBSRC) and the Swedish Research Council, shows that songbirds (mainly willow warblers) and moths (silver Y moths) have very similar migration speeds - between 30km and 65km per hour - and both travel approximately northwards in the spring and southwards in the autumn.

**Dr Jason Chapman, Rothamsted Research, one of the lead authors on the paper said** "Songbirds such as warblers and thrushes are able to fly unassisted about four times faster than migratory moths, which might appear to be largely at the mercy of the winds. So we had assumed that songbirds would travel much faster over the same distance. It was a great surprise when we found out the degree of overlap between the travel speeds - the mean values are almost identical, which is really remarkable."

The discovery gives fresh insight into exactly how moths are able to travel in their billions from summer breeding grounds in the UK and elsewhere in northern Europe to their winter quarters in the Mediterranean region and sub-Saharan Africa, thousands of kilometres away. This is important information in the context of declining moth populations and a critical need for pollinating insects to ensure maximum yields of food crops in the face of a potential food security crisis - the more we understand about the lifecycle and lifestyle of these insects, the better we can understand and mitigate the challenges they face for survival.

The team used specially-designed radars to track the travel speeds and directions of many thousands of individual Silver Y moths and songbirds on their night-time spring and autumn migrations.

The similarity in speed results from contrasting strategies: moths fly only when tailwinds are favourable, so gaining the maximum degree of wind assistance; whereas birds fly on winds from a variety of directions, and consequently receive less assistance. Our findings therefore demonstrate that moths and songbirds have evolved very different behavioural solutions to the challenge of moving great distances in a seasonally-beneficial direction in a short period of time.

# NEWS AND UPDATES

## Gateway News

**It's a hit! The new Gateway Interactive Map Tool exceeds expectations**

Recent analysis of NBN Gateway usage has revealed that use of the new Interactive Map Tool is twice as high as predicted! Since its launch at the beginning of April there has been a steady increase both in the number of visits per day and in the number of different users per day accessing the new Interactive Map Tool.

Encouragingly, use of the Gateway by logged-in users is also increasing, showing that more people are realising the benefits of registering on the Gateway. The most popular type of data search on the Interactive Map is the single species map, closely followed by the single dataset map.

Feedback has been positive and many useful suggestions have been received. The most frequent request has been for the addition of Ordnance Survey map layers - and the good news is, this is being implemented soon!

**Gateway version 4.01 for release in July**

Version 4.01 of the NBN Gateway will be released in July 2011 and includes new features in response to user requests. Two important improvements are the addition of scale-dependent Ordnance Survey base maps to the new Interactive Map Tool, and the ability to display species records which have been recorded against sites or other irregular shaped polygons rather than against grid references.

New datasets added to the Gateway in June provide valuable information about some of Scotland's threatened species. The RSPB has shared a decade of data on the distribution in Dumfries and Galloway of farmland bird species including corn bunting, curlew, lapwing, linnet and skylark. Farmland bird populations declined in Europe by almost 50% between 1980 and 2005. This dataset of records gathered between 1999 and 2010 was collated to provide insight into population trends of farmland birds in Scotland and will be used to inform responsible land management and conservation initiatives.

Scottish Wildlife Trust has shared records of red and grey squirrels throughout Scotland between 1905 and 2011. These records were submitted to the Scottish Squirrel Database, an ongoing system to survey and monitor squirrel populations in Scotland. This dataset is used to identify areas of importance where habitat management or grey squirrel control will benefit red squirrel populations, and also to understand natural changes in their populations. Additional information can be found at http://www.scottishsquirrels.org.uk/

## Did you know...?

**You can promote your training courses and events on the NBN events calendar**

With so many events taking place around the UK it can be difficult to keep track of what's happening and where. We have aimed to create a one stop shop for information on seminars, conferences and training courses in our events calendar, which can be found at http://www.nbn.org.uk/News-and-Events/Events-calendar.aspx

If you have an event you want to promote just complete the online form or get in touch with Mandy Henshall at m.henshall@nbn.org.uk

**We list the top referring sites to the NBN and NBN Gateway in each eNews**

If you receive NBN eNews each month, you will see that we show which organisations are sending the most traffic to the two NBN websites. It is always interesting to see the changes each month, so why not add an NBN link to your website and you could soon be challenging for a place in the top 10!

## NBN News

**More species added to the RISC project**

Four more species have been added to the RISC (Recording Invasive Species Counts) project – Southern green shieldbug *Nezara viridula*, Wakame *Undaria pinnatifida*, Western conifer seed bug*Leptoglossus occidentalis*, Rhododendron leafhopper *Graphocephala fennahi*

The full list is now:

- Water primrose *Ludwigia grandiflora*
- Muntjac deer *Muntiacus reevesi*
- American skunk cabbage *Lysichiton americanus*
- Chinese mitten crab *Eriocheir sinensis*
- Zebra mussel *Dreissena polymorpha*
- Tree of heaven *Ailanthus altissima*
- American bullfrog *Lithobates catesbeianus*
- Water fern *Azolla filiculoides*
- Floating pennywort *Hydrocotyle ranunculoides*
- Citrus longhorn beetle *Anoplophora chinensis*
- Southern green shieldbug *Nezara viridula*
- Wakame *Undaria pinnatifida*
- Western conifer seed bug*Leptoglossus occidentalis*
- Rhododendron leafhopper *Graphocephala fennahi*

The project uses Indicia http://code.google.com/p/indicia/ for its online recording forms, so if you see any of these species why not record your sighting at www.nonnativespecies.org/recording

**New Business Administrator for the Trust**

Sarah Hyslop has now joined the NBN Trust as its Business Administrator. Sarah previously worked for Nottingham City Council as an Administration Co-ordinator and is now responsible for the administration and finance functions of the Trust as well as the smooth running of the Nottingham office. Sarah can be contacted at s.hyslop@nbn.org.uk or 0115 959 6433

## In Practice

**Data management workshops 2011**

The Joint Nature Conservation Committee and the National Biodiversity Network are hosting two one-day data management workshops in October and November 2011.

The aim of the workshops is to engage data providers with available data management tools and to obtain feedback for further development. There will be demonstrations of the new Gateway Interactive Mapper, online data verification and Web Services, as well as opportunities for hands-on experience of using NBN Record Cleaner to validate and verify datasets, and Indicia and Drupal to create online data entry solutions.

The first workshop will take place in Scotland and the second will be in London. **Attendance is free** but places are limited and must be booked in advance. The workshops will be of interest to anyone who manages biodiversity data, particularly staff and volunteers from national recording schemes, natural history societies and local records centres. Each workshop session will end with a discussion of how the tool could be used within the participants' data management and survey activities.

Dates and venues will be published soon, so keep an eye on the NBN website or contact Paula Lightfoot for more information and to register your interest: p.lightfoot@nbn.org.uk.

**Create and share maps using the new Interactive Map Tool**

The Gateway Interactive Map Tool now has a handy new feature which lets you share a map you created with others. The new 'Get Map URL' button allows you to create a hyperlink to a customised map on the NBN Gateway – it is so easy to do!

First, set up the Interactive Map with the data you wish to display: zoom in to the location you are interested in and select the relevant species, habitat or site boundary layers, filtered by year range if you wish. Next, click the 'Get Map URL' button in the bottom left corner of the screen and copy and paste the URL into an e-mail, webpage or document. You can even use the URL to embed the customised Interactive Map into your own website using an iframe. This is a great way to share information with others or simply to enable you to return quickly to maps displaying the data and filters you have selected

## Light Pollution
## An important report from Buglife

A new report has been launched by Buglife about the impacts of emitted, polarised and reflected light on invertebrates. The collation of the information available paints a very concerning picture of the damage that light pollution can cause to invertebrates and ecosystems.

This is the first report to pull together all the evidence relating to all forms of light pollution and make policy and practical recommendations. We believe that Local Authorities and Government departments have a particular responsibility and must take a lead on reducing the impact of light pollution.

Artificial night lighting is the most obvious threat that needs to be tackled. It disrupts the natural rhythms of light and dark which govern the feeding, breeding and migration patterns of nocturnal insects, including moths, beetles, water fleas and lacewings. This can have a profound effect on ecosystems.

Another developing problem is polarised light pollution. For the whole history of the Earth all flat shiny surfaces that reflected polarised light were ponds or rivers. Suddenly there are thousands of similar artificial surfaces such as plastic sheeting on agricultural fields, shiny tarmac, cars, and now proliferating solar panels. Expectant aquatic insects are attracted to these surfaces and, believing them to be watery habitats, deposit their precious eggs; sadly the eggs all dry and perish in the sun.

The report includes the following recommendations:-

- Incorporating patterns of rough or painted glass on the inactive parts of solar panels to break up the polarised light.
- Switching off outdoor lights – especially decorative and advertising lighting – between midnight and 5am when few people are active.
- Incorporating motion-sensors to switch off security and footpath lighting when not required.
- Reducing polarised light pollution by locating car parks away from water bodies and using rough tarmac surfaces.
- Avoiding bulbs that emit ultra-violet light, to which invertebrates are most sensitive.
- More careful planning of lighting schemes in sensitive locations such as conservation areas, ponds, rivers and the sea.
- Routinely including certain light pollution data in Environmental Impact Assessments.
- Identifying and protecting wildlife-important areas that currently have low lighting levels, and designating new Dark Sky Preserves.

The full report and a press release on www.buglife.org.uk

**14 September is Deadline for the October 2011 issue.**

Please send all material, preferably in electronic format, to anne-marie@smout.org or by post to Anne-Marie Smout, Chesterhill – upper flat, Shore Road, Anstruther, KY10 3DZ tel 01333 310330

## TICK RECORDING SCHEME.

In collaboration with the Biological Records Centre (www.brc.ac.uk), the Health Protection Agency aims to collate and enhance existing data on the distribution of all British ticks (available on the National Biodiversity Network gateway (www.searchnbn.net), in order to fill the gaps in our current understanding of tick distributions and to encourage the sharing of up-to-date distribution data. This will improve our understanding of the public health risk posed by ticks and tickborne infections. Information about Lyme disease and tick awareness is available on the Health Protection Agency's Lyme borreliosis webpage.

Individuals and groups are invited to assist in the development of the NBN (National Biodiversity Network) database (www.searchnbn.net) on tick distributions by sending in any ticks collected, along with details of:

- date of collection
- specific location (grid reference)
- general location (nearest town/village)
- local habitat (e.g. woodland, pasture)
- host from which tick was collected (e.g. human, dog)
- contact details of the individual sending in the sample

You can download a tick recording form at http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1194947411565

- If more than one tick is collected from different hosts or different locations they should be placed in separate labelled containers.
- If more than one tick is collected from the same host or habitat on the same day, they may be sent in one container.

All specimens sent in will be identified, and thus provide regular updates for the NBN gateway. This will enhance our knowledge of tick distributions in the British Isles, and improve our understanding of the public health risk posed by ticks and tick-borne infections.

### How to send ticks

Please send any ticks collected in a crush-proof, plastic container (e.g. an old camera film case, or alternatively, plastic vials can be supplied on request to the address or email below) along with the details outlined above to:

Tick Recording Scheme,
Microbial Risk Assessment
Health Protection Agency,
Porton Down, Wiltshire,
Salisbury SP4 0JG

Email: tick@hpa.org.uk

### Posting ticks

The Royal Mail requests that live insects are carefully packaged for posting, so that there is no danger of the ticks escaping or posing any risk to mail handling staff if the package becomes damaged during transit. Please use the screw-top plastic containers provided or ensure that other crush-proof containers are securely fastened (e.g. with tape). Please post the container in a padded envelope with a visible return address and mark the package as 'urgent - live creatures'.

If you are not able to post the ticks immediately or soon after collection, please place them in a fridge or cool, dark place until ready to post. This will prevent any deterioration of the specimens.

**Instructions on how to remove ticks safely**

Information on tick removal can also be found at:
http://www.cdc.gov/ncidod/dvbid/lyme/ld_tickremoval.htm

- Using a pair of forceps or tweezers, or tick removal hooks, grip the head of the attached tick as close to the point of attachment on the skin as possible
- Gently apply pressure and pull steadily upwards, without twisting and taking care not to crush the tick
- Clean the skin with soap and water, or skin disinfectant
- Wash hands after tick removal
- Do not be alarmed if the tick mouthparts remain in the skin as this will not increase the risk of acquiring lyme borreliosis. Using a skin disinfectant on the area will reduce the risk of developing ordinary skin infections
- Do not burn the tick off, nor use Vaseline, alcohol, nail varnish remover or other substances to remove the tick
- Place the tick/s in a plastic container and seal
- Label the container so that the accompanying details recorded can be identified
- Place sealed container in an envelope and post to the address above

Should you develop any symptoms of illness (rash, fever, flu-like symptoms) following tick removal, please seek advice from your GP. For more information on British ticks see www.britishticks.org.uk

*The text above is from the following website:*
http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/LymeDisease/OtherInformation/TickRecordingScheme

## BUGS IN GARDENS

### Harlequin Ladybird Reaches Dumfries And Galloway

Dumfries and Galloway Environmental Resources Centre's Bugs in Gardens (BiG) project has confirmed the first record of Harlequin ladybird *Harmonia axyridis* in the region. The species was verified in May 2011 from a photograph taken near Dalbeattie. More records are expected during the summer and autumn as species continues its spread northwards.

The BiG project continues to engage members of the public, especially gardeners, in recording some of the different invertebrate groups that people readily come into contact with in their gardens. Survey cards have been prepared for garden ladybirds and common bumblebees, moth traps have been loaned to gardeners, and with the support of the Project Officer and national experts a number of informal courses have been held throughout the region helping people to learn about different species groups. A spring wildlife gardening conference was well received by over 70 people, and plans for a Wildlife Gardening Festival at Threave Gardens, Castle Douglas on 31 July are well underway.

The project has already turned up some interesting finds. As well as the Harlequin ladybird, there have been new regional records for red mason bee *Osmia rufa* and tawny mining bee *Andrena fulva* in local gardens, both of which are common further south but relatively scarce in Scotland. Sloe and juniper Shieldbugs (*Dolycoris baccarum* and *Cyphostethus tristriatus*) were also new to the region. New sites have also been confirmed for holly blue and the impressive longhorn beetle *Rhagium mordax*.

Left *Ypsolopha sequella*

The elegant micro-moth pied smudge *Ypsolopha sequella* was recorded at the project launch in summer 2010, one of only a handful of Scottish records for this species.

*[DGERC's host organisation (Solway Heritage) is sadly being wound up and the centre is now in the process of moving to a new host. Hopefully there will be some more news about that in the October* Recorder News *ed]*

## BRISC PROJECT UPDATE

### 2011 BRISC/GNHS Bursary Report

By Samantha Ranscombe

This year we continued with our joint bursary scheme with Glasgow Natural History Society (GNHS), making four awards with two funded by BRISC and two funded by GNHS. The awards are for up to a maximum of £200 or 75% of the cost of the course – whichever is the lower. Awards were paid direct to the course providers. More applications were received than in other years – four of these from BTCV Natural Talent apprentices who are being specially trained up to be involved in recording but have limited financial means to attend training and courses from the scheme.

A Selection Board was set up with representatives from both organisations, and members of the Board were asked to rank the candidates. Selection criteria included the mentioning of contributing records and sharing the new skills with others, whether the bursary would give the applicant an opportunity they would not otherwise be able to have, and also how 'neglected' or otherwise was the subject of the chosen course

Four applicants were chosen on this basis:

**Michael Beard**
AWARDED BRISC BURSARY: £200
COURSE: Certificate in Practical Field Botany - Royal Botanic Garden Edinburgh

**Daisy Shepperd (BTCV)**
AWARDED BRISC BURSARY: £176.25
COURSE: Sphagnum moss - Field Studies Council Kindrogan

**Chris Johnson**
AWARDED GNHS BURSARY: £200
COURSE: Identifying Fungi - Field Studies Council Kindrogan

**Lesley Gregg (BTCV)**
AWARDED GNHS BURSARY: £200
COURSE: Freshwater Algae - Field Studies Council Kindrogan

It was decided that BRISC could support an additional two ex-gratia bursaries to a further two BTCV apprentices in support of the scheme which aims to skill up the natural recorders of

the future, particularly in under-recorded species or endangered habitats. The two apprentices were

**Alison Murfitt (BTCV)**
AWARDED BRISC BURSARY: £100
COURSE: Grass Identification – Field Studies Council Kindrogan

**Gwen Potter (BTCV)**
AWARDED BRISC BURSARY: £100
COURSE: Dragonflies & Damselflies - Field Studies Council Kindrogan

At the BRISC committee meeting on 19 May 2011, it was agreed that the bursary scheme should continue for another three years (2012, 2013 and 2014) on the basis of awarding

- Two BRISC bursaries (max £200 each)
- Two GNHS bursaries (max £200 each)
- Two ex-gratia BRISC bursaries for BTCV Natural Talent applicants (£100 each) for 2012 only*

*It was noted that the BTCV apprenticeship scheme for new apprentices was finishing in 2011, and although we may have applications from some current apprentices in 2012, all would be finished by 2013.

*[Read below how the first of the bursary recipients got on at her course: ed]*

## Sphagnum Moss ID Course

**with Martha Newton at Kindrogan Field Centre**

My name is Daisy Shepperd and I am a BTCV Natural Talent Apprentice, surveying lowland raised bog invertebrates. My apprenticeship is hosted by Buglife and Butterfly Conservation and I am based in their offices in Stirling. I am really keen to learn about all aspects of bog ecology, and I was very fortunate to be awarded a grant from BRISC to help fund the cost of a *Sphagnum* moss identification course led by Martha Newton at the FSC Kindrogan in Scotland. The course consisted of four days of visits to beautiful local sites and evening lab work. Attending the course offered an excellent opportunity to improve my botanical skills and learn about the principal peat-building material – *Sphagna*.

I arrived on the first evening, full of enthusiasm and armed with my hand-lens and some newspaper packets for collecting samples. After our introductory dinner we assembled in the lab for an "introduction to *Sphagnum* moss" with Martha, which turned into a detailed description of each of the 34 British species. It was gone 11pm when we finished for the night, with the instruction to be up bright and early for breakfast.

Our first day consisted of a morning in the woods at Kindrogan and then off to a raised bog about half an hour away. We learnt how to identify the more common species and even encountered a few rarer species, such as the scarce *Sphagnum austinii.* We arrived back at the centre just before dinner was served, and had a short time to replenish our energy before it was back to the lab to look at our specimens under the microscope (until bedtime)!

Days three and four were equally as intense, but we were so fortunate to be out in the sunshine at beautiful sites such as the slopes of Glenshee and a juniper woodland on the fringes of Braemar. I learnt so much about *Sphagnum* mosses, such as which species indicate certain ecological conditions and that it is very difficult to distinguish some species from others, even with a microscope. Overall, I feel confident to tackle species that I'm likely to encounter at my study sites. When I went back to work I was able to use my new skills to help out with an ecological survey on a bog, which was great fun. I can't wait to pass on my new knowledge to others and I will be sure to submit my *Sphagnum* records to BRISC.

## LAST BUT NOT LEAST

By John McFarlane, BTCV Scotland Environment Development Officer

The final four candidates have joined BTCV's Natural Talent programme providing paid 'apprenticeships' for people passionate about the natural world, enabling them to spend 12-15 months on a particular area of ecological study in Scotland and Northern Ireland.

I first heard about Natural Talent in November 2006. To be honest, at the time I did not fully understand or appreciate how valuable its apprentices would be to BTCV and other environmental organisations. But, over the past four years the programme, backed by the Heritage Lottery Fund, has gone from strength to strength and has been a real success story for everyone involved. I began co-coordinating the programme in March 2008, since when it has been both a privilege and a pleasure to work with so many great people.

In January 2011 we appointed our final four apprentices of the programme, joining the six currently in post. So, who are the Fab four and what will they be doing? Here, they each give a little glimpse of themselves and their new roles:


From left to right: Hayley Wiswell, Daisy Shepperd, Hannah Urpeth and Claire Foot.© BTCV

**Hayley Wiswell** is the Caledonian Pinewood Invertebrates apprentice: "I'm originally from St Helens near Liverpool, I became hooked on insects following my university degree and my MSc project on beetles in the Cairngorms which sealed my passion for pinewood creepy-crawlies! Based with the Macaulay Institute in Aberdeen, I'll also be working alongside the RSPB and the National Trust for Scotland in the gorgeous Cairngorms National Park. I'm going to explore the relationship between wood ants and their forest home, including how they interact with other invertebrates living there. I'll also be on the trail of the rarest wood ant species to see how this ant is coping in Scotland, as well as helping

conservation groups to promote the importance of wood ants to land managers and the wider public."

The new Saltmarsh apprentice is **Claire Foot**: "This is a new habitat for me and so there will be lots to learn, experience and see. I'll be based with the RSPB in Inverness, and will work on their saltmarsh sites at the bays of Culbin, Udale and Nigg. At university I studied Environmental Politics, Geography and History, and then had a thirst to become involved in practical conservation. I have previously worked and volunteered on bogs and marshes, in pine forests and in the uplands, undertaking various roles from practical work to species monitoring and protection, and people management. This is going to be a great experience for me which I think will be life enhancing!"

**Daisy Shepperd** will be concentrating on Lowland Raised Bogs: "I'm based in Stirling and my apprenticeship is hosted jointly by Buglife and Butterfly Conservation Scotland, so I have access to a goldmine of expertise! I'm originally from London but life in the big city didn't do it for me so I left it all to live in Scotland. I've had many unusual and interesting jobs, from zoo keeper to hedgehog trapper for Scottish Natural Heritage in the Outer Hebrides. I also studied Wildlife Conservation at university, but nothing comes close to the experience of being outside and getting your hands dirty! Bogs are amazing places but not enough people get the chance to really explore them. They are home to fantastic invertebrate species, and I'm going to enjoy learning all about them this year."

And finally, the fourth of this last batch of apprentices is **Hannah Urpeth**, studying Soil Biodiversity: "I'll mainly be working with soil invertebrates at the Macaulay Land Use Research Institute in Aberdeen but first I'm spending six week at the Scottish Crop Research Institute in Dundee where I'll be straight out into the field to do soil sampling and I can't wait to get stuck in! As well as my degree, a BSc (Hons) Conservation and Environment, I've been lucky enough to gain field experience in lots of lovely locations, from the wilds of Equador to the wilds of Essex. I just hope the biting insects of the Amazon have prepared me for the terror of the Scottish midge!"

Natural Talent has opened doors for BTCV Scotland and given us a voice in the wider conservation sector. And, the Natural Talent apprentices have provided the inspiration for our new 'Natural Communities' scheme, again supported by the Heritage Lottery Fund. Looking ahead, BTCV are partners in the exciting Citizen Science programme to be rolled out in 2011, hosting a Citizen Science co-coordinator at our Stirling HQ. More information about this SEPA-funded initiative will be given on BTCV's website.

So, thirty two Natural Talent apprentices later, WOW! What a great bunch of individuals. Each one is a shining example of how you can turn dedication, passion and enthusiasm for a specialist subject into a real expertise. Specialist subjects such as Lichenology, Hymenoptera, Bryology, Hoverflies, Grassland management, Coleoptera, Machair management and Riverflies are just some of the specialist Taxa and Habitats that have been covered by the scheme.

On behalf of BTCV, I would like to take this opportunity to thank The Heritage Lottery Fund, all of our apprentices, their mentors, supervisors, placement providers and everyone who has supported and contributed to the success of the Natural Talent programme. Without you, this would not have been achievable.

Keep up to date with the work of the apprentices on the Natural Talent blog at www.btcv.org/naturaltalent

John McFarlane

## REVIEWS - Electronic APPs

**BirdGuides (2010) Moths of Britain and Ireland app for iPhone, iPad (+some iPods).**
**Produced & Published by BirdGuides in partnership with A&C Black in association with UKMoths. BirdGuides Ltd, 3 Warple Mews, Warple Way, London.**
**Apple App store £14.99**

"The principle aim of this app is to provide sufficient information to be able to identify almost any moth or butterfly recorded in Britain". This reviews the functionality of this App, considers if this claim is justified and assesses its field-guide potential. For brevity the arbitrary division into Macro/ Micro Lepidoptera are abbreviated as macros/micros.

**How it Works.**

Based on the book by Chris Manley *British Moths and Butterflies* 2008 it connects to two other data sources – UKMoths and distribution maps from National Biodiversity Network (NBN). The links bypass usual entry menus for the sites directly accessing species accounts, images and maps. As long as there is an adequate connection this is seamless and it appears that all is on the iPhone. The "How to use this App" section states that data for the App is "based on these three sources" but potential users/purchasers need to be aware that only one of these datasets (the book with a little more) is on the device itself – access to the others, essential for some species, relies entirely upon signal strength which depends upon where you are at the time. The BirdGuide e-store states more accurately that the app is based on the book and accesses the other two data sources; when not on line it covers 1693 species (the UK list is 2500+).

The backbone of the App is the searchable "Systematic List" giving access to species accounts; it is also the basis of the taxonomically ordered list from which species accounts can also be viewed. There is a significant problem with the list used; it is not actually the UKMoth list; see below.

The app is very stable and despite extensive use in testing for this review never 'crashed' once.

**Accessing Species Information**

Searching for species is easy using common and scientific names. Type in the genus and members of that genus are listed, specific name brings up the species. For search functions typing part of the name suffices – e.g. ***hawo*** gets *Glyphipterix haworthana*, Haworth's Minor and Haworth's Pug. ***Carpet*** gets anything with Carpet in the name; the list includes a thumbnail on the right if the image is on the App and UKMoths logo if not. One can browse Families in Taxonomic order or moths alphabetically – ordered by vernacular name for macros and scientific name (genus) for micros. After the species is selected the species page appears, where thumbnail images available in the app itself are to the right of the main image and those that can be accessed on UKMoths below.

Below Screenshot of the Moths of Britain and Ireland app for iPhone/ iPad


For macros and some Pyralids each species page lists "confusion species". This is a useful facility with generally appropriate species chosen. Some species accounts also contain helpful comments such as the Haworth's pug entry ***Adult Identification – light red-brown band at base of abdomen*** - one can then swipe the screen to the picture to see this. Having both swallow/lesser swallow prominents on the same photograph avoids having to flip back and forth. One significant omission is of the three UK *Shargacucullia* species – mullein, striped lychnis and water betony –do not have the 3rd included as confusion species. The latter has very few UK records and is inseparable on adult external characteristics, very easily confused.

**Images on the App**

Photographs are superb, as they are in the book, and many are the same. Some do not show distinguishing characteristics as well as set specimens (e.g. crimson underwings) but this is unavoidable with resting postures. For Langmaid's yellow underwing diagnostic characters are well shown in a somewhat inelegant but very helpful pose of a live moth. An idea of scale would have been useful, as for some similar species confusion is avoided if the size is known. The size in the species accounts refers to wingspan of set specimens not the moth in nature. Some have early stages illustrated, e.g. dark/grey dagger, which can only be distinguished by larval colouration or adult genitalia.

I found only one id error amongst macros and pyralids – the second image of the pyralid *Dioryctria abietella* is *D sylvestrella* as evidenced by the smooth undulating subterminal line and large salmon-pink basal patch.

The photos do not have locality information. Some species have varying local forms and some images are probably of continental examples that are different, e.g. pale shining brown. For some such as bordered gothic regional subspecies are different – that figured looks like the Irish subspecies *hibernica* not the English one - and this should have been indicated. Likewise the great brocade looks like the greyish migrant form, quite unlike the rich blackish resident population of the central highlands, which should have been figured in preference.

**Accuracy of Species Accounts**

Text entry is brief and similar to UKMoths. Some information is outdated; e.g. pine-tree lappet - is established as a breeding species on Scots pine in woodland west of Inverness and not a "vagrant/accidental" as stated. Oak processionary moth - since 2006 this defoliating species has bred in West London with much effort and money spent on control, featuring in national newspapers and TV. The impact on human health is significant; larvae should not be handled or nests disturbed without protection. None of this is mentioned. Gypsy moth - described as "vagrant/ accidental" but which has been resident in London since mid 1990s, Buckinghamshire and coastal Dorset since 2006. These species accounts should have been up to date before release or at the very least updated since.

Many micros have no species account at all so require access to UKMoths, if reception is poor this is unavailable.

Difficult groups such as grey/dark dagger, marbled/rufous/tawny minor are honestly described as being inseparable on external characters (larvae of grey/dark daggers are illustrated), and the authors are to be commended in resisting the temptation to devise features to separate these because they are so unreliable.

**Accuracy of the Systematic list**

The list that has been used to structure this app is not the British moth list; it is unfortunate that this incomplete version was used. The result is that some UK species cannot be found; e.g. a search for the plume moth *Hellinsia chrysocomae* (long recognised UK species) comes up with nothing - it does not feature anywhere. On the UKMoths lists it is absent from ***moths with images*** but present in ***without images*** and can be found from the moth search. From the app it cannot be found at all, so there is no link to UKMoths to find out more. This situation is not unique – and picking just plumes on the UK list 7/43 of them are missing from the species list on the app; not listed as "no photos refer elsewhere" but omitted entirely. The similarity between the "species with photos" list on UKMoths and the systematic list is very striking indeed.

The curious absence of the Irish annulet from the book is maintained– it is included in the species list but without photograph or even the briefest of species account without leaving the dataset on the iPhone and accessing UK Moths. It is a pity that three years after the book was published and ten years after its discovery that this omission remains.

Inclusion of some species with doubtful records and exclusion of others with more legitimate claims to British List is unexplained; the reviewer suspects it has more to do with the availability of photographs. Union rustic, extinct resident, last recorded in 1935, and exactly the sort of species that could be rediscovered, is not included in the species list so cannot be searched. It is listed (no image) under vagrants and accidentals in the introduction; it is neither. Conversely Cumberland gem, one highly dubious record, is included with a wonderful photograph.

**Field Tests**

Many potential purchasers/users might consider the potential for the iPhone with apps as a lightweight field guide. Mobile reception is key to accessing UKMoths and maps, a problem in mountainous or remote areas. Even on the shingle at Dungeness, Kent, reception was mediocre and UKMoths images took time to download; no maps were accessible. In a wooded railway cutting in Tilgate Forest, West Sussex (no reception at all) it was shorn of these extra dimensions (UKMoths and maps) and reverted to being just an eBook of Manley's book with superior search facilities and species information (some out of date). You also need to have some idea of the moth you have before you start. For example with a brown Oecophorid I had a suspicions as to what it might be

but was quite unable to recall a name, it was just too tedious to go flicking though all the images. It took five minutes with a book to indentify.

An obvious advantage is illumination – using books in the field requires a torch or angling the page towards the MV light to see pictures. The iPhone is backlit and can zoom images to get close ups of various parts of the moth, hard to do with a book at night.

**Who is it for**?
A user might want the App to search by colour and size but unless very striking "4 inches with skull mark" many searches would be "brown/grey/small" and it is hard to imagine how this would help. The same argument can apply to birds: - large, white, with sinuous neck and a sharp peck gets you to swans from which you can select, but a small brown bird list may offer far too many.

It is more appropriate for somebody with a degree of familiarity with moths and some idea of what they might have; then looking at potential species and comparing with confusion species will aid accurate identification.

Distribution maps are useful for the "out of area" lepidopterist. When recording outside your own area a common scenario is to know what you have but not how significant it is for that region. Voucher specimens are required to confirm some identifications, and it is galling not to have kept one if the local recorder needs it. Accessing maps in this situation would help the decision about retaining vouchers, but maps do not load unless signal strength is high.

**Updates**
In the introduction it states "future updates will be available to purchasers to expand their original app". It is not clear from this statement if these will be charged or if those who have already purchased the app will get updates for free; my interpretation is that they will be charged. It is hoped that if the species list problem could be corrected and updated species accounts created and maintained it might then be a more worthwhile investment.

**Conclusion**
Does it *provide sufficient information to be able to identify almost any moth or butterfly recorded in Britain?* It probably fulfils this objective in the macros and butterflies but falls far short of this ideal in the micros (which outnumber the macros) many of which have no information or images and some of which are entirely absent due to the problem with the species list. The dependence on a good data connection means that in the field it is of far less use unless in an area with good phone signal or within range of an accessible wireless network – most fieldwork happens far away from wireless networks in areas where phone reception is poor or nonexistent. It requires the user to have some basic moth knowledge and an idea of what they might have.
Does it rival the two most widely used field guides to the macros, Skinner and Waring? It is seriously let down by the species accounts, however its portability is a massive advantage in the field. There are limitations to any mobile data device; these are expensive; can be dropped, broken and lost; do not thrive in heavy rain and require a certain familiarity with technology. This app has been written for the iPhone (+iPad/iPod) and no other devices.

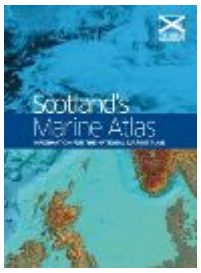
Any mobile data device can access UKmoths for free – and there are other sites with iPhone optimised pages/section such as Norfolk Moths which has a good species accounts (albeit Norfolk orientated as the site title suggests) and photographs. Records could even be submitted directly from the iPhone to the Norfolk recording scheme.

**Written References**
Manley, C., 2008 *British Moths and Butterflies – a Photographic Guide*. A & C Black, London, UK.
Skinner, B. 2009 *Colour Identification Guide to Moths of the British Isles*. Apollo Books, Stenstrupp, Denmark.
Waring, P., Townsend, M., Lewington, R. 2009 *Field Guide to the Moths of Great Britain and Ireland.* British Wildlife Publishing, Gillingham, Dorset, UK.

**Web References**
Birdguides http://www.birdguides.com/ accessed 10-13/6/11
UKMoths http://ukmoths.org.uk/ accessed 1-13/6/11
Norfolk Moths
http://www.norfolkmoths.co.uk/index_mobile.php accessed 6/6/11

Julian Clarke

## BOOK REVIEWS




**Baxter, J.M., Boyd, I.L., Cox, M., Donald, A.E., Malcolm, S.J., Miles, H., Miller, B., & Moffat, C.F., eds. (2011) *Scotland's Marine Atlas: Information for the national marine plan*. Marine Scotland, Edinburg. 191 pp. ISBN 987-0-7559-8254-7. Sbk. available by e-mailing marinescotland@scotland.gsi.gov.uk.**

This is a monumental work in every sense: the softback version weighs in at more than 1.5kg! However, weightless, electronic versions of the individual chapters can be downloaded from www.scotland.gov.uk/marineatlas. And it is, as the Ministerial Forward by Richard Lochhead points out, an important step in the development of a plan for the continuing management of Scottish marine waters out to 200 nautical miles.

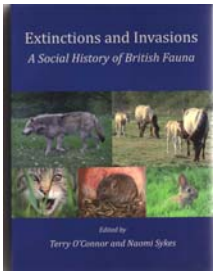
The atlas has been structured around the Scottish Government's vision for Scotland's marine environment ("clean, healthy, safe, productive, biologically diverse marine and coastal environments ..."), so the main chapters are entitled "Clean and Safe", "Healthy and Biodiverse", and "Productive". Fortunately, the contents lists are less opaque, and these can be used to identify the most interesting chapters for readers of *Recorder News*. They are Chapter 4, which provides clearly illustrated summaries of the current status of a number of species groups and six broad habitats (intertidal rock, intertidal sediment, subtidal rock, shallow subtidal sediments, shelf subtidal sediments, and deep-sea habitats) and their associated biological communities for 14 Scottish sea areas, and Chapter 6, which provides a very brief description of the potential impacts of climate change. There is also an extremely useful graphical Overall Assessment in a fold-out chart at the very front of the atlas. A quick glance at this chart reveals that things look reasonably good for most of the habitat types in most of the sea areas, with many green and amber indicator lights signalling no, few, or some concerns. However, the species assessments are much less reassuring, with a preponderance of amber and red lights (some or many concerns). Only waterbirds (waterfowl and shorebirds),

cetaceans, grey seals and demersal fish appear to be doing reasonably well in all sea areas.

This is not to say that the other chapters are uninteresting. As with every good atlas, a quick dip into any chapter is bound to reveal tantalising morsels. For example, the fishery for Norwegian lobster or *Nephrops* (most of which are turned into scampi) on the Fladden Grounds in the North Sea, is now the largest fishery of its kind in the world. And, although it came as no surprise to learn that the region around Peterhead and Fraserburgh has the highest proportion of total employment in fisheries related activities, I was surprised to discover that the next most important regions are Berwickshire and the southern islands of the Outer Hebrides.

The editors have provided a fantastic service by bringing together an enormous amount of information from a great diversity of sources into a consistent and highly visual format, and one of them (John Baxter) has even provided many of the photographs. Even if you don't obtain your own hard copy, I'd suggest that the atlas website should be your first port of call if you are looking for any kind of information on the Scottish marine environment. Inevitably, with a work on this scale, every reader will have a few quibbles: I found it a bit confusing that different symbols are used in the maps for each species group, the boundaries of the14 sea areas will not be particularly familiar to most readers (although some of their names will be familiar from the Shipping Forecast), and the different chapters are not always as joined up as they might be. But these are very minor blemishes on a splendid and beautiful volume.

John Harwood




**O'Connor, T. & Sykes. N. (eds) (2010)** ***Extinctions And Invasions: A Social History Of British Fauna.*** **Windgather Press, Oxford. ISBN Sbk £28**

This is a book fundamentally written by archaeologists for archaeologists, and consists of twenty-one essays on several selected extinctions and invasions of wild and domesticated fauna. Thus there are chapters on cattle and horses, even on donkeys and mules, but not on sheep or goats: on wolves, lynx, bear and cats but not on dogs: on elk, red deer, and fallow deer, on boar and beaver: on rabbits but not hares, house mice but not field mice, black rats but not brown rats. Most of the book is therefore about mammals, and serves as an update of Derek Yalden's *History of British Mammals* (London 1999), and indeed Yalden contributes an interesting conclusion. There is brief treatment of birds - six extinctions are considered in one chapter, and five introductions (all domestic, plus the pheasant) out of 300, in another. There is a chapter on freshwater fish, another on molluscs, and an interesting one on insects, which deals primarily with beetles and shows how dynamic the coleopteran fauna has been since the Late Glacial and Early Holocene.

It is not really about invasions except where man is responsible, and it just concerns species likely to be found in archaeological deposits. The time horizon of most interest to the contributors stretches from before the dawn of the Holocene to the Middle Ages: recent centuries get very scant treatment, and the sense in which it is a 'social history' is not defined. The geographical treatment of most chapters concentrates on England and Wales, where the archaeological record is usually fuller, and Scottish references can be sparse. The discussion on the great auk, for example, makes no reference to excavations on the Isle of May, where bones from at least four birds were deposited at different points between the Neolithic and the late Middle Ages, and the account of house mice mentions the introduction to St Kilda but overlooks the development of a distinct race there, and its rapid extinction when the human population left.

Of special interest to Scottish readers will be Jaqui Mulville's chapter on red deer on the Scottish islands, including Orkney, arguing for Neolithic introduction and subsequent decline in average size there, and David Hetherington's account of lynx, which demonstrates survival in North Yorkshire into post-Roman times, with oral, linguistic and pictorial evidence of possible survival into the Middle Ages. He discusses a carving on a ninth century Pictish stone from Eigg which seems to show a lynx. Similar carvings of bear and a creature that could be an auroch on the Drostan stone, however, are not mentioned in the book. Bryony Coles' chapter on beavers is no substitute for her excellent book, *Beavers in Britain's Past* (Oxford 2006), where the case for survival into recent centuries is argued at greater length.

There are welcome new insights and revisions. Fallow deer are seen as not having been permanently introduced until the early twelfth century, by the Normans, and rabbits not until sometime later. The Neolithic origin of Orkney voles is not now seen as the Balkans (Yalden, p.228), but France or Spain. The pine marten and the pygmy shrew in Ireland are not closely related to their Scottish counterparts but were also early introductions from Spain: possibly the fox and the badger were also introduced to Ireland. The white-tailed eagle is seen as having had a commensal relationship with man, perhaps even serving as a ritual scavenger of human corpses, and only began to decline in Medieval times. This is an interesting book, but the reader with a wider interest in biodiversity will be left with the feeling that there is much more to be said, also by others than archaeologists, under the general heading of its ambitious title.

Chris Smout

## DATES FOR THE DIARY:

**The Wildlife Information Centre for the Lothians and Borders : Field Excursions July - October 2011**

Please note that although there is no need to "book" a place on excursion, those planning to attend are encouraged to let the TWIC know in advance so that they can be notified if there is a change in plans. For further information please visit the TWIC website http://www.wildlifeinformation.co.uk/, contact the TWIC office (01875 825968) or email info@wildlifeinformation.co.uk.

**9 July - Toxside Moss, near Penicuik, Midlothian (NT277540)** Toxside Moss covers some 115 ha and consists of two geographically distinct areas. The main habitats are dry acid dwarf shrub heath, unimproved acid grassland, marshy grassland and woodland. There is some swamp and mire vegetation in the northerly half and a pond in the southerly half. Butterfly records for the site include the large heath, small heath and small pearl-bordered fritillary.

**31 July - Penmanshiel Wood, Scottish Borders (NT794686)** Penmanshiel Wood is a large site, just south of Pease Bridge

Glen SSSI. As the name suggests, most of the site consists of woodland – mostly mixed plantation woodland, however there are smaller areas of coniferous and semi-natural broadleaved woodland as well. A number of burns cross the site, most notably Pease Burn. Within the site, there are several Craigs and areas of open water and scrub. We currently know very little about the site.

**7 August - Wester Shore Woods, near Blackness, West Lothian (NT068793)**

This woodland is located on the north coast of West Lothian, adjacent to the Firth of Forth SSSI. The track through the wood roughly follows the coastline and will allow us to access all parts of the site. Eyebright, eelgrass and dwarf eelgrass have been recorded here.

**21 August - Water of Leith - Slateford to Roseburn, City of Edinburgh (NT228732 to NT220708)**

This excursion will cover the Slateford to Roseburn section of Water of Leith walkway; a stretch of river familiar to many in the city. The full walkway is 12 miles long, starting in Balerno and finishing in Leith. The site is one of the City of Edinburgh's proposed Local Biodiversity Sites (LBS). This excursion will compile botanical species data for the site using the Phase 1 map recently produced as part of the CSGN funded LBS survey.

**28 August - Aikengall Glen, near Innerwick and Oldhamstocks, East Lothian (NT707715)**

This is a valley adjacent to the Cauld Burn Wildlife Site and in close proximity to the Lammermuir Deans SSSI. The site is notable in that it holds the largest population of Dark Green Fritillary in the Lothians.

**4 September - *Site to be confirmed***

This a joint field trip with fungus group of South East Scotland (FGSES). Site to be confirmed.

**2 October - Little Thairn and Muckle Thairn, near Kelso, Scottish Borders (NT664374)**

The site contains volcanic outcrops with notable grassland habitats. Maiden pink and the rare lesser screw-moss (Syntrichia virescens) have been recorded in the area. This recording excursion will target fungi.

**Highland Field Trips July – October 2011**

Compiled by Ro Scott

Please always contact the organiser to check before attending any of these events – details can change after publication.

**Key to organisations:**

**BC –** Butterfly conservation Highland Branch – except where otherwise listed contact: Jimmy McKellar, Tel: 01463 241185, Jimmy.mckellar@btopenworld.com

**IBotG** – Inverness Botany Group – see http://www.invernessbotanygroup.com/calendar for more details or contact Audrey Turner, Tel: 07784000263, e-mail unicorn64@btinternet.com.

**TDFC** – Tain and District Field Club – see http://tainfieldclub.org.uk/ for updates or contact David McAllister, Tel: 01862 892302

**HBRG -** Highland Biological Recording Group – see individual events for contacts.

**Friday 1 – Monday 4 July – IBotG**

Weekend at Durness contact: 01463 237836

**Sunday 3 July – BC** Creag Meagaidh for mountain ringlet. Meet at 10.00am at the Creag Meagaidh NNR car park Grid ref. NN483873. Duration approx 3 hours but will run on if the weather is good and there is a lot to see so bring a packed lunch. Leader Pete Moore, Tel: 01479 872261, mobile 07866 578079, e-mail theconfused@btinternet.com

**Saturday 9 July – BC.** Dundreggan Estate, Invermoriston. Meet at Dundreggan at 10.00am at Grid ref. NH333146, Duration about 6 hours i.e. till 4.00pm. Leader Jane Bowman, Tel: 01320 340245.

**Tuesday 12th July – BC** Insh Marshes RSPB Reserve for moths, northern brown argus etc. Meet at 09:30am at the RSPB Insh Marshes car-park, Grid ref. NN776998. Duration approx 3 hours but will run on if there is a lot to see so bring a packed lunch. Leader Pete Moore:- Tel 01479 872261, mobile 07866 578079, e-mail theconfused@btinternet.com

**Thursday 14 July – IBotG -** Grantown-on-Spey, Dava Moor contact Audrey Turner, Tel: 07784000263, e-mail unicorn64@btinternet.com.

**Saturday 16 July – IBotG -** Dunbeath with Ken Butler. Contact Margaret Fraser, Tel: 01463 792716, email frasermarg@aol.com

**Saturday 23 July – IBotG -** Fort Augustus area contact TBC – see website for update.

**Saturday 6 Aug – BC -** Loch Fleet NNR Open Day, moths and butterflies with Grayling one of the specialities. Meet at 10.00am at the car park at Littleferry, Golspie, Grid ref. NH806955. Duration 1 hour 30 minutes on official programme but can be extended. Leader Tony Mainwood Tel: 01408 633247, email tony.mainwood@btinternet.com

**Saturday 6 August – IBotG -** Culbokie Woods contact TBC – see website for update.

**Saturday 6 August – TDFC -** Rockpooling at Wilkhaven, followed by barbecue/picnic lunch. Low water 11.42 BST.

**Sunday 14 August – HBRG -** Dundonnell Estate. 10am to 4pm. The aim of this visit is to record as much as we can, as this site has relatively few records. Please try to car-share, meet at Dundonnell House at 10am. Contact Jonathan Willet for more information and car-sharing co-ordination on 01349 861994.

**Saturday 17 September – BC -** Butterfly work party at Polmaily, near Drumnadrochit, clearing scrub to benefit pearl-bordered fritillary and dingy skipper. Please wear old clothes and bring tools if you have them. Meet at 10.30am at the end of the forest track into Polmaily, Grid ref. NH484304. The plan is to stay till about 16.00 but you can join in or leave whenever you want to. Contact Tom Prescott, Tel: 01540 661469, Mobile: 07979 785665, Email: tprescott@butterfly-conservation.org

**Saturday 1 October - HBRG** - Balnacoil, Strathbrora. Aiming to record as much as we can in poorly-recorded squares NC71 & NC81. For details of meeting place and time contact David O'Brien Tel 07745 483912 or email Jeanette Hall at gentiananivalis@hotmail.com

**NBN Conference 2011**

The NBN Trust is pleased to announce that this year's NBN Conference will be held at the Royal Society in London on Friday 18 November. Further information will be available soon on the NBN website: www.nbn.org.uk

**BRISC Annual Conference 2011**

**Date - Saturday 5 November - 10.00-17.00**
**at Stirling - venue tbc**
**Theme Citizen Science and Biological Recording**

**Field trips to Wester Moss & Kippenrait Glen**