



Scottish Charity No. SC024418

BRISC

BIOLOGICAL RECORDING IN SCOTLAND

Issue No 69 April 2008

ISSN 0966-1964

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UK species retain the same basic shape and morphology that can be found in fossil specimens such as *Cremygale chasei*, a spider found on the Isle of Wight encased in amber around 125 million years old.



Coverage map, showing each 10km square from which at least one spider record has been received @ Provisional Atlas of British spiders

The Spider Recording Scheme: An Update

D.J.Beaumont

What seems like a lifetime ago, I gave a presentation to the 1990 BRISC AGM on the Spider Recording Scheme and work being done in Scotland. An update on what this scheme produced and current work is well overdue, so I was pleased to hear from BRISC with this request.

Spiders are an amazing group of animals, widely distributed in almost every terrestrial habitat and amongst the most abundant invertebrates. They are an incredibly diverse and successful group with nearly 650 species in the UK. Most

There is a long history of our fascination with spiders from the earliest naturalists through to the 20th century and the publications of identification keys for British Spiders (Locket & Millidge 1951, 1953; Locket, Millidge & Merret 1974, Roberts 1985, 1987), the formation of the various spider study groups and the development of the British Arachnological Society.

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CHAIR'S COLUMN

On the last week end of March BRISC had a very successful and interesting Conference and AGM in Kingussie with some 45 Members and Speakers/Guests attending. We had been awarded a very generous grant from the Cairngorms National Park Authority and this defrayed the expenses of the Conference and also enabled a number of the attendees to take advantage of the greatly reduced room rates for one or two nights.

Jonathan Willet, who had taken on the main organisation of the Conference, has written up a summary of the talks which is now available on the website. I found the whole day most enjoyable, informative and interesting, and BRISC are most grateful to all the speakers for the time they gave us, particularly Dick Balharry who, in addition to his Saturday contribution, took some of us up into Glenfeshie on the Sunday, to show us the practical impact of reducing grazing pressure on the regeneration of juniper and native Scots pine – I thought it was quite staggering and most exciting to see how quickly it was coming back and take my hat off to the estate for the commitment that they are obviously making.

The AGM was held after lunch at which the Committee presented a draft e-petition to encourage the Scottish Government to 'put an onus on Local Authorities to support financially Local Records Centres in their area'. This produced some very interesting comments from the floor, including whether LRC was the right thing to press for, rather than, say, an 'Environmental Data Centre', or whether an e-petition was the right way to go about it; there was a concern that we might not get an adequate number of signatures and that could be worse than no petition.

It did bring home to me the problem that all committees have, namely are they reflecting their members views correctly? The thrust of what we were trying to achieve was not the problem, but the wording was not considered entirely appropriate, and as a result the Committee will reconsider both the content and the approach. I am very glad that we did have the discussion and that views were expressed from the floor, as it is essential that all aspects of these public views of BRISC really are what Members approve of – please do not assume that you have a minority differing view and therefore fail to express it!

Patrick Milne Home
April 2008

Current passwords to the Members Only webpages are

Username	whales
Password	dolphins

Deadline for the April issue of BRISC Recorder News is 20 June.

All material to Hanne-marie@smout.org (Please note email address!) or by post to Chesterhill, Shore Road, Anstruther, Fife KY10 3DZ or Tel 01333 31033



EDITORIAL

The ongoing series "What's special about ..." this time takes us to the Black Isle, evocatively presented by Ro Scott, whose local knowledge is second to none. Here is another very rewarding area to visit. In addition, this issue is packed with articles on a wide range of subjects, from spiders and lower plants to turtles and basking sharks, from garden moths to wildcats and what the Scottish Forest Alliance project delivers for wildlife and biodiversity. It is really very heartening to read how much is going on in Scotland.

I would also remind readers about Nature's Calendar, organised by the Woodland Trust, which anyone can take part in by going to www.naturescalendar.org.uk/ and do look out for moths on Saturday 7 June, this year's National Moth Night (and Day). Especially do not forget to send in your records!!

Readers are also reminded about the visit BRISC has arranged to the natural history collections of the McManus Galleries and Museum in Dundee. Please email David Lampard (see p.16) to let him know you are coming. A visit to Perth Museum is planned for the autumn, so watch this space.

As anyone attending the annual conference at Kingussie will know, this was very successful event. A full report, with articles by the speakers and a photo gallery will appear in the July issue of *BRISC Recorder News*. If anyone has photos they would like to have included, please email them to me.

The Wildlife Counts project is now taking on a new phase as explained by John McFarlane (p.13). It is frustrating that it is so difficult to get money to continue an existing project, however successful. Interestingly, the NBN Trust is planning to develop and deliver a series of training events for biological recorders over the next three years, details still to come.

It seems always easier to get money for new projects. Read about 'grabbing a grant' worth between £50 and £250 for practical environmental projects on page 16. Deadline is end of July this year.

As part of the Business Plan, BRISC is drafting a scoping project to research how many and where important biodiversity dataset exist in Scotland, which are still to be computerized. More about that in the next issue.

Finally, Pisces Conservation latest catalogue has landed on my desk. They offer a large selection of specialist software for analyzing data as well as e-book editions on CD of entomological and aquatic biology titles now out of print and difficult/expensive to get. Worth taking a look at www.pisces-conservation.com/

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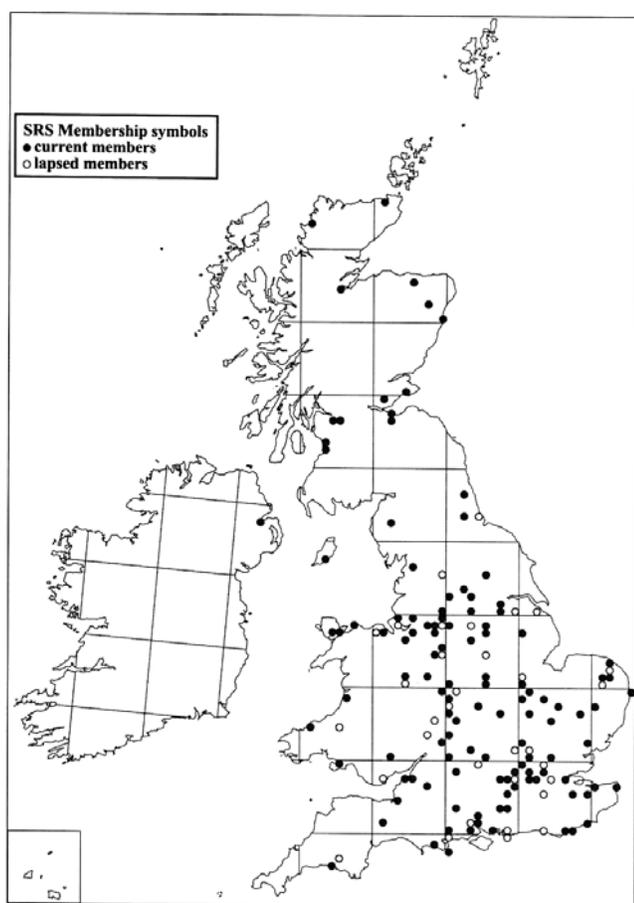
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Continued from p.1

This relatively widespread interest, for a group of invertebrates, and the more general interest in biological recording was captured by the Biological Records Centre and the late Clifford Smith when he helped to develop and implement the Spider Recording Scheme in 1987.

By 1999, the scheme had received at least one record from over 86% of the 2,862 10km squares in Britain that contain some land. A total of 517,000 records from 2,470 different 10km squares were used to produce the provisional atlas published in 2002 (Harvey, Nellist & Telfer 2002). This was the culmination of the first phase of the SRS and provided the baseline for spider distribution in the UK from which further advances in conservation and knowledge of British spiders can be made.

The first use of the data was by Craig Slawson in July 1999 for an article in the SRS Newsletter (34: 3) entitled "*Homo arachnophilus* - Slawson". This plotted the home address of all the recorders registered or lapsed from the SRS between 1987 and 1999 (see below).



The distribution of members of the Spider Recording Scheme, by home address, plotted on a 10km square grid @ Provisional Atlas of British spiders

Of the 151 dots on the map of the UK, only 24 were from north of the Humber with 14 in Scotland, and one each from the Isle of Man and Northern Ireland. Comparing the map Craig produced with the map of coverage (see page 1), gives some indication of the considerable efforts made by the few recorders and area organisers active in the scheme. A total of 75,556 records were submitted from Scotland. From the map of

coverage, gaps in the recording in Scotland are clearly shown with South West Scotland being the most data deficient. Perhaps surprisingly, most of the islands are relatively well covered with the exception of Lewis and Tiree.

The recorders also noted the habitats and month of collection, so the information allows us take a provisional look at the ecology and geographic range of each species. This then can be used to assign a conservation 'status' to each species and formulate and implement any required actions.

The 2002 atlas shows eighteen of the UK spiders to be limited to Scotland, not surprisingly all of these have already been assigned a conservation status – two are RDB1 (nationally endangered), six are RDB2 (nationally vulnerable), one is RDB3 (nationally rare), two are nationally notable A, and six are nationally notable B. The remaining spider *Wabasso quaestio replicatus*, was only discovered in the UK, at the RSPB Insh Marshes Nature Reserve, in 1999. At a wider UK level, the atlas information was used during consultations with JNCC over the revised list of UKBAP species. This new list now contains 31 spiders, though surprisingly none of those unique to Scotland.

However, these spiders are not out-with the UKBAP process as most of these 'Scottish' spiders are typically found in two broad habitat types, Caledonian pinewoods (*UKBAP = native pinewoods*) and montane (*UKBAP = mountain heaths and willow scrub*). One species (*Dictyna major*) mainly found in dunes and strand lines (*UKBAP = coastal sand dunes*) and *W. quaestio replicatus* from fen (*UKBAP = upland flushes, fens and swamps*).

This is quite a good reminder to us of the value of these uniquely Scottish habitats and reinforces the need to conserve existing Caledonian pinewoods and also expand the area of this habitat to its former extent, where possible. There are several initiatives to do just this, coordinated via the UKBAP for this habitat, so the outlook for the six spiders dependant on Caledonian pinewoods may be good.

However, the unique biotas that rely on the harsh and extreme conditions currently found on our mountain tops are likely to be the first casualties of climate change. With warmer winters and less snow, lying for fewer days in the year, we can expect dramatic changes to this habitat that may well see the disappearance of dependant flora and fauna, including the ten spiders below. Research on Ben Lawers suggests that even under a 'low' greenhouse gas emissions climate model, snow cover in the 2050s is projected to be reduced by 93% at 130m asl, 43% at 600m asl, and 21% at 1,060m asl. Under the high emissions model these reductions are changed to 100%, 68% and 32% respectively (Trivedi et.al. 2007).

Indeed, a large amount of the information in the atlas regarding the montane species comes from work coordinated by Isobel Baldwin of the National Museum of Scotland. In the early to mid 1990s Isobel encouraged members of the Scottish Mountaineering Club to collect spiders from any Munro bagging or hillwalking expedition they went on. Collections were made by turning over stones and capturing spiders, sending the specimens to the museum for identification. A total of 1,176 spiders were collected and these comprised 21

montane species (802 specimens) and 50 non-montane species (374 specimens). A full account of the results was published by Isobel in the Scottish Mountaineering Club Journal (Baldwin 1996), as a thank you to all the volunteers involved and disseminating all of the interesting findings and follow up work.

Given the rate of change in temperatures being predicted, perhaps BRISC could coordinate a repeat survey over the coming years, with the SMC and other relevant walking/mountaineering clubs and interests throughout Scotland. A possible funder for this would of course be Tiso's, especially given that one of the species concerned would be *Tiso aestivus*.

Table 1. Numbers of species restricted to Scotland per habitat:-

	RDB1	RDB2	RDB3	NA	NB
Caledonian pine	1	4		1	
Montane	1	1	1	1	6
Coastal dunes		1			

Table 2. Spiders unique to Scotland (in the UK), and the habitats they are found in.

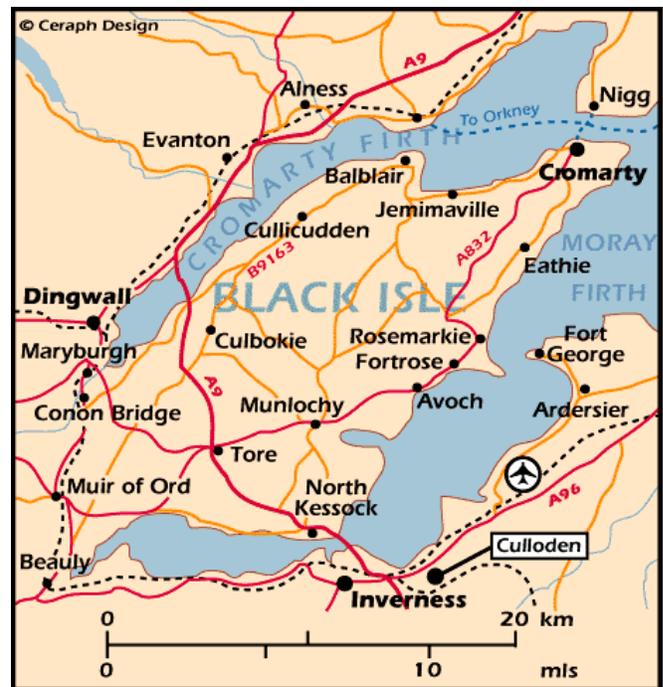
	Caledonian pine	Montane	Fen	Coastal dunes
Theridiidae				
<i>Dipoena torva</i>	X			
<i>Robertus scoticus</i>	X			
Linyphiidae				
<i>Dismodicus elevatus</i>	X			
<i>Pelecopsis elongata</i>	X			
<i>Tiso aestivus</i>		X		
<i>Wabasso quaestio replicatus</i>			X	
<i>Erigone tirolensis</i>		X		
<i>E. psychrophila</i>		X		
<i>Mecynargus paetulus</i>		X		
<i>Halorates hoemgreni</i>		X		
<i>Meioneta nigripes</i>		X		
<i>Lepthyphantes whymperi</i>		X		
<i>L. antroniensis</i>		X		
<i>L. complicatus</i>		X		
Dictynidae				
<i>Dictyna major</i>				X
Clubionidae				
<i>Clubiona subsultans</i>	X			
Gnaphosidae				
<i>Haplodrassus soerenseni</i>	X			
<i>Micaria alpina</i>		X		

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WHAT'S SPECIAL ABOUT THE BLACK ISLE?

Ro Scott

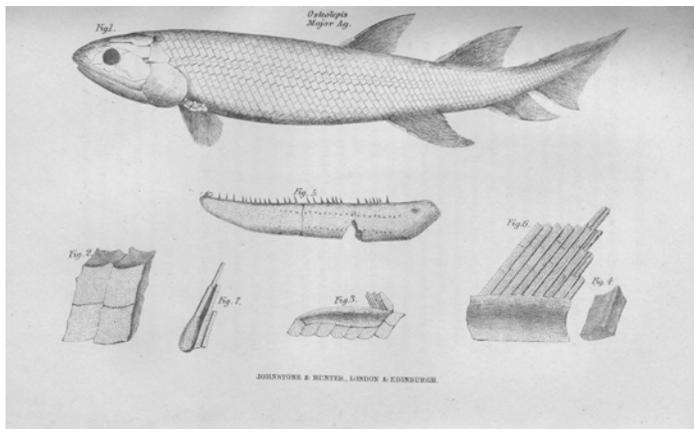


The Black Isle - @ Blackmap

An Isle but not an island, located in the Highlands but essentially lowland in character, intensively managed but sometimes surprising in its wildness, the Black Isle is a land of contradictions and contrasts. In reality a peninsula, the Black Isle extends approximately 16miles/25km from its somewhat arbitrary landward boundary between Beauly and Conon Bridge to its extremity at Cromarty, and measures roughly 6miles/10km in width. Bounded to the north by the Cromarty Firth and to the south by the Beauly and Inverness firths it was,

until the construction of the Kessock Bridge in the early 1980s, relatively remote and isolated from the 'mainland' of Easter Ross. Now well within the Inverness commuter belt, it is subject to development pressures, particularly demand for housing, resulting from the booming economy of the new 'Millennium City'.

The underlying geology is predominantly Old Red Sandstone, made famous by the Black Isle's most illustrious son, 19th century stonemason, geologist and writer, Hugh Miller. In some localities, such as at Cromarty and Eathie, the sandstone is rich in fossil fish. Examples first described by Miller may be seen in the museum, run by the National Trust for Scotland, which now occupies his birthplace in Cromarty. Horizontal bedding in the sandstone gives rise to a tiered landform of short steep rises interspersed with more gently-sloping plateaux. The maximum altitude of 841ft/256m is reached at Mount Eagle, near to the Black Isle's major landmark, a huge telecommunications mast. The sandstone is varied in composition with some notably calcareous layers. Soils are fertile, but not as freely-draining as one might expect because of a significant clay component. In the south-eastern corner, a band of conglomerate underlies the landfall of the Kessock Bridge and extends northwards to form the bold headlands of Craighow and Wood Hill, which frame the mouth of Munloch Bay. The South Sutor, and its companion to the North, which similarly guard the entrance to the Cromarty Firth, are composed of ancient Moine schists, which elsewhere are overlain by the sandstone. On the shore at Eathie, below the fossil fish bed, is an outcrop of Jurassic shale containing ammonite and belemnite fossils. The whole coastline from Rosemarkie to Cromarty is a Site of Special Scientific Interest (SSSI) for its geology and botany, and fossil-hunters are asked to collect only from loose material on the beach, rather than hammering the rocks *in situ*. The combination of sandstone and sea has produced some spectacular erosion features – rock pinnacles, caves, and at MacFarquhar's bed, further north towards Cromarty, a huge sea-arch.



Osteolepis major - a fossil fish found by Hugh Miller in the Old Red Sandstone.

Remnants of glaciation are more visible around the coast than inland. The cliffs along the south-eastern coast are set back from the sea by a raised beach – which makes for easy walking along the shore. Chanonry Point, jutting out into the Moray Firth from Fortrose, is the top of a huge bank of morainic material which nearly blocks the Firth, leaving only a 1km wide

tidal-race gap between the Point and Fort George on the other side.

The maritime influence and relatively low altitude give the Black Isle a milder and more equable climate than the more mountainous mainland surrounding it. With an annual rainfall averaging between 25" and 40" (600mm to 1,000mm) it is one of the drier parts of Scotland. The fact that the Black Isle remains snow-free, when the hills around are white, is thought to be one potential explanation for its name. (Another is that it is a conflation or confusion of 'dubh', the Gaelic word for black, and 'Duthac', the name of a local saint.)

Because of its relative fertility, benign climate and easy accessibility by sea, the Black Isle has a very long history of human occupation. Along the south-eastern shore, which parallels the Great Glen Fault, Mesolithic hunter-gatherers left shell middens outside their cave shelters at the base of the cliffs. Inland, Bronze Age cairns and Viking and Pictish remains testify to early settlement by farming peoples. Fortrose, with its now-ruined cathedral, was described in 1693 as "the seat of law, divinity and physic". This long-vanished ecclesiastical settlement has left its own legacy of medicinal plants which still survive in the local flora.

Land use now consists of smaller farms and crofts raising livestock towards the 'mainland' western end of the Black Isle, with larger, mainly arable, units towards the eastern end. The main crops are oilseed rape, seed potatoes, malting barley and carrots, with occasional forays into the more exotic such as linseed (flax), as subsidies dictate. These high-value crops are intensively managed, which does not leave much room for 'weeds'. Extensive Forestry Commission plantations, some dating from the 1920s, now cover the central spine of the Black Isle, known as the Mulbuie (Am Maol Buidhe; the yellow rounded hill). This was formerly common land, a mixture of moorland and scrub, used by the local population for grazing, firewood collection and peat-cutting, until appropriated by the landlords in 1828, and now the property of the state.

The Coast

Perhaps the most famous inhabitants of the seas around the Black Isle are the Moray Firth bottlenose dolphins, which now form the basis for a local wildlife tourism industry. As well as land-based viewing from Chanonry Point, specialist boat operators run tours in summer from Cromarty and Avoch (pronounced "Och"). The dolphins, along with the common (harbour) and grey (Atlantic) seals and harbour porpoises, which also inhabit the firths, are studied by Aberdeen University from the Lighthouse Field Station at Cromarty. There is a chance of seeing these species from almost any coastal walk.

Along the wilder parts of the coastline, as from Rosemarkie north-eastwards, otter signs are frequently seen, although the animals themselves are more elusive. Walking this stretch, along the base of the cliffs, it is difficult to believe that you are within a stone's throw (literally) of the intensive agriculture going on above. Just north of Rosemarkie, a rocky nose plunging directly into the sea renders this route impassable for a couple of hours either side of high tide. It pays to be first along after it clears, to catch any otter footprints in the sand before they are obliterated by other walkers.



The wild south-east coast of the Black Isle

Because they are set back from the sea by the raised beach, the cliffs here are well-vegetated, with areas of mixed woodland, and scrub of blackthorn and elder. The songs of whitethroats and wrens seem to be amplified by the cliffs. Where the sandstone is calcareous, more unusual plants such as the rock whitebeam, bloody cranesbill, common rockrose, spring cinquefoil, carline thistle and meadow and mossy saxifrages can be found. Other plants, such as deadly nightshade and henbane are thought to be early garden escapes, having originated as medicinal herbs used by the monks at Fortrose.

These sun-baked south-east facing cliffs support a population of the northern brown argus butterfly, whose larvae feed on the rock-rose. Where the cliffs are too sheer for plant growth, ledges are utilised by nesting fulmars and shags. Fulmars also nest practically *in* the village of Rosemarkie, on unstable cliffs eroded from deep glacial deposits forming steep valleys known as the Dens. Peregrines hunt along the cliffs, for rock doves and feral pigeons which roost in the caves. Near to the Eathie Burn is the only Black Isle site for the purple oxytropis, *Oxytropis halleri*. Unfortunately this stretch of cliff was planted with conifers some years ago and the few remaining plants are now in danger of being shaded out.

At the foot of the cliffs there is, in places, a narrow strip of sand dune vegetation with marram and lyme grasses, burnet rose, sand sedge, sea sandwort, common storks-bill, purple milk-vetch and wild liquorice, *Astragalus glycyphyllos*. Where water trickles out of the sandstone, small patches of marsh occur, with hemp agrimony, ragged robin, glaucous sedge and a variety of orchids.

In complete contrast to these rocky shores, the heads of the Beaully and Cromarty firths, as well as Udale and Munloch Bays (on the north and south sides of the Black Isle respectively) are gently-sloping, and offer huge expanses of intertidal mud and sand. It is here that enormous numbers of wildfowl and waders congregate in winter to exploit the rich feeding resources of shellfish and eel-grasses. These areas form part of the Cromarty and Moray firths Special Area of Conservation (SAC) and Special Protection Areas (SPA) designated under the European Habitats and Birds Directives. The most numerous wintering wildfowl species are wigeon, teal and mallard, but others, such as mute and whooper swans,

shelduck, and red-breasted merganser, occur in smaller numbers. Further out in the firths, scaup, long-tailed duck and eider may be seen. Among the waders, oystercatcher, curlew, redshank, turnstone, ringed plover, dunlin, knot and bar-tailed godwit occur in good numbers.

The best viewing-point for wildfowl and waders, at the right state of the tide, is the RSPB hide, beside the B9163 at Udale Bay near Jemimaville. This hide looks out from the mouth of the Newhall Burn across the shallow bay, which forms a two-part National Nature Reserve with its twin, Nigg Bay, on the north side of the Cromarty Firth. Beyond the mouth of the burn, where a variety of gull species (black-headed, common, herring, greater black-backed) are usually squabbling and preening, is an area of salt-marsh vegetation with some clumps of smooth cord-grass, *Spartina alterniflora*, which has persisted since being planted for coastal reclamation in the 1920s, and is much less invasive than its hybrid relative *S. x townsendii*.

In winter, the Black Isle spectacle *par excellence* is the daily commute of thousands of pink-footed and greylag geese between their roosts on the firths and feeding grounds on the farmlands. This uplifting sight and sound is not so popular with the farmers, though. In spring and autumn, the geese which spend their whole winter in the Black Isle are augmented by those on passage to or from more southerly wintering grounds.

Arable landscape

The vast majority of the Black Isle landscape is dominated by agriculture. Where herbicide use is less rigorous, some small patches of corn marigold, and even smaller patches of cornflower, make an annual appearance. The first year of set-aside gives rise to sudden outbursts of poppies and field pansies – but this looks set to end with the inception of new European agricultural rules. Roadside verges are garnished with a creamy froth of cow parsley, sweet cicely and meadow-sweet flowers, followed by the blue and yellow of tufted vetch and meadow vetchling. These rough and untended patches support populations of field voles which feed the kestrels.



Corn Marigolds

In spring the song of the skylark still fills the air, occasional pairs of lapwings attempt to nest, and brown hares cavort in the fields, but populations of grey partridge are struggling, and the

corn bunting is now extinct. The East Ross group of the Highland Biodiversity Partnership has set up projects to assist some of these farmland species. In most summers a small number of migrant quail are reported, usually identified by their 'beep-be-deep' calls from the depths of a cereal crop. In winter, mixed flocks of finches and buntings – linnets, redpolls, yellowhammers and sometimes snow buntings, scour the fields for spilled grain. Rook populations seem to withstand the annual shooting of the 'branchers' - young which have left the nest but cannot yet fly - and flocks can be seen probing for leatherjackets and other invertebrates in the fields, sometimes accompanied by the smaller jackdaws. Is it just coincidence that their noisy and bustling rookeries are now increasingly built in the villages rather than the open countryside? The 'ordinary' crows are also interesting in that the Black Isle falls on the hybrid zone between the black and hoodie morphs. Mixed pairs produce a range of intermediately bicoloured offspring. The ubiquitous farm steadings provide nesting sites for swallows and house martins, and there is also a small population of barn owls. During times of passage in spring and autumn, a variety of upland bird species pass through the Black Isle on their way to and from the hills – golden plover, wheatear, and hen harrier. Of the predatory mammals, foxes, stoats and weasels are present but seldom seen. Large numbers of pheasants and some red-legged partridges are released for shooting, and predators are not popular.

Around the large houses built by the 18th and 19th century agricultural improvers, such as Rosehaugh (demolished in the 1950s), Newhall and Braelangwell, are policy woods and gardens from which a variety of exotic plants have escaped into the wild – winter heliotrope, lords-and-ladies, leopards bane and dame's violet. Another legacy of the long history of agricultural 'improvement' in the Black Isle is that many of the boggy places and freshwater lochs have been drained. In very wet winters, the ghosts of some of these, such as the Manse Loch at Rosemarkie, appear as wet patches in the fields. Perhaps the best known casualty of the mania for drainage was the Alpine butterwort, whose only British site was the 'Moss of Auchterflow', a huge bog occupying the valley of the Killen Burn, which runs parallel to the central Mulbuie ridge. First discovered in 1831 (and suspected by some of not being genuinely native), a combination of drainage, tree-planting and the Victorian craze for plant-collecting saw the species' demise by 1919. Although the Alpine butterwort has gone, the demise of the bog is not quite complete – its name lives on in the farms of Auchterflow, Bog of Auchterflow and Easter and Wester Strath of Auchterflow. Small remnants of the boglands remain, and may give some clue as to the appearance of this vanished tract of the wild Black Isle.

Heaths, Moorlands & Boggy bits

The Black Isle moorlands and heaths are a curious mix of the acidic and calcareous. Where water flows out from the more base-rich layers of the Old Red Sandstone, heather, deer grass and bog asphodel may grow in close proximity to calcicolous species. A good example of this can be seen at the Scottish Wildlife Trust Reserve of Belmaduthy Dam (NH643571), which is managed in partnership with the Forestry Commission, who owns it. Here, heathland with juniper, willow bushes and pine trees is intersected by calcareous runnels in which grow

black bog-rush, tawny sedge, carnation sedge, broad-leaved cotton grass and yellow saxifrage (at its lowest-altitudinal occurrence in eastern Scotland). In June and July the site supports a profusion of orchids including twayblade, coralroot, early marsh, northern marsh, lesser butterfly and heath spotted, as well as other lime-loving plants such as globeflower, northern bedstraw and grass of Parnassus. The openness of the vegetation must be maintained by autumn grazing using a neighbouring farmer's sheep or cattle. A recent discovery, made by Barry Colville and Richard Marriott, is the tiny snail *Vertigo geyeri*, which lives in the calcareous flushes and is thought to persist only in areas which have remained open since the end of the last ice age. Similar combinations of plant species are found in the SSSIs at Roskill and Braelangwell Wood, and hints of the richness of pre-improvement Black Isle vegetation can be glimpsed in numerous small forgotten pockets among the forestry plantations and fields.

Woodlands & Forestry

The unusual juxtaposition of the acidic and calcareous continues into the woodlands. A Scots pine wood with an understorey of juniper but ground flora including hair sedge, Alpine meadow-rue and black bog-rush, as found at Braelangwell Wood, certainly strikes one as peculiar. The most extensive natural pinewood is the Monadh Mor (Big Moor), towards the western end of the Black Isle. This is designated as an SAC under the Habitats Directive, for its bog woodland, which has affinities with the boreal taiga. The attractions here include kettle-hole lochs and pools with bottle sedge and bog-bean, *Sphagnum* lawns through which creeps the small cranberry, and hare's-tail cottongrass bog.

More conventional pine wood remnants can be found among the forestry plantations, many of which are also of Scots pine, and provide a reasonable facsimile of native pinewoods. Here, the creeping lady's tresses orchid, chickweed wintergreen and lesser wintergreen can be found among carpets of blaeberry. Recently, BSBI Recorders Brian and Barbara Ballinger have discovered a population of twinflower.



The Moschatel or 'Town-hall clock'.

Many exotic conifers have also been planted, including Sitka and Norway spruce, lodgepole pine, Douglas fir, larch and Western hemlock. These large blocks of coniferous woodland support populations of red squirrel and pine marten, crossbills, goldcrests, siskins, crested tits and even capercaillie. Although unsuitable to host a permanent population of caper, the Black Isle woods form part of the range of the East Ross population.

The deciduous woodlands comprise a variety of oak, ash, elm and birch, depending on the soil type. At the Drummondreach Oakwood SSSI, near Ferintosh, the soils are acidic and oak is dominant. The Fairy Glen RSPB Reserve at Rosemarkie is more calcareous and ash, sycamore, and elm predominate, along with beech and other introductions. In spring the woodland floor is carpeted with bluebells, wood anemones, wood sorrel, lesser celandines, and in places, the tiny town-hall clock or moschatel. The burn here is one of the few places where you may see dipper and grey wagtail. Of the woodland mammals, badgers are less common in the Black Isle than might be expected. Their setts are found only where glacial deposits of sand and gravel lie on top of the sandstone, presumably because the underlying soils are too shallow or waterlogged for a comfortable under-ground existence. Roe deer are frequently seen feeding in the fields early in the morning, but retire to the numerous wooded gullies or 'dens' once human activity starts for the day.

The re-introduced red kites breed well in the Black Isle and are a joy to watch from the roadsides (but preferably not while you are driving) as they dance overhead. Detailed studies by the RSPB have shown that unfortunately the population is not thriving, due to persecution of the young birds after they disperse to other parts of Scotland before reaching breeding age, when those that survive return to their natal area. Of the other breeding raptors, buzzards are common, particularly where there are rabbits, and tawny owls are more often heard than seen. Although freshwater lochs are few and far between, the short flying-distance between the woods and the firths enables ospreys to nest inland but feed from the sea.

Recorders and recording

The Black Isle forms a small part of a very large Vice-County - VC104, Easter Ross. In terms of recording effort, it probably suffers from being so close to the more charismatic and mountainous northern Highlands. As part of Highland Council's administrative area it falls within the remit of the Highland Biological Recording Group, who have custody of all the records previously held by the now-defunct Inverness Museum Records Centre.

Vascular plant botany is well-covered with a published flora (Duncan, 1980) and formally-appointed BSBI Vice-Country Recorders. The bird-life is similarly well studied, with the annual Highland Bird Reports published by the local SOC Group, organised monitoring in the form of WEBS counts and Breeding Bird Surveys by local BTO members, and the activities of the RSPB members' group and Highland Ringing Group. An innovative community-led survey of the bird-life of one of the Black Isle parishes, Ferintosh, took place in 2004/05. As a mammal recorder for HBRG and the Mammal Society, I try to keep tabs on the mammals, and have undertaken Winter Mammal Monitoring, roadside verge small-mammal trapping, fox, red squirrel and water shrew surveys in recent years. Many other local societies, such as the Highland branch of Butterfly Conservation, Inverness Botany Group, Tain Field Club and SWT Inner Moray Firth Members' Centre conduct field trips to the Black Isle. The more demanding groups of organisms, particularly the invertebrates and lower plants, depend on sporadic visits from itinerant specialists, and are patchily recorded. Last year, for instance, the British Plant Gall Society

visited the Black Isle. If you have a specialised interest, or are caught out by bad weather in the hills, why not visit the Black Isle - there are undoubtedly still new discoveries to be made. Records can be submitted via the HBRG website www.hbrg.org.uk or by e-mail to records@hbrg.org.uk

Ro Scott

Highland Biological Recording Group

Further reading

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Jewels of Scotland's Seas

Anne Saunders

Think of Scotland's seas, and images of oil rigs, fishing boats and windswept beaches come to mind. All of these are *above* the sea, but how many people know about the amazing scenes found just beneath the waves? The Marine Conservation Society (MCS) hopes to redress this balance and open up the world that lies on and below the surface of the water.

Anne Saunders has recently taken up the new post of MCS Scottish Projects Officer, with a focus on public involvement with the marine environment. Scotland's marine environment is so spectacular, with its great scenery and beaches, and thousands enjoying trips to the coast every year. MCS aims to raise the profile of our rich marine natural heritage, the threats it faces and how people can get involved in MCS conservation projects. If you spend time at sea, there are a number of animals that MCS would like you to look out for.

Basking Sharks

Unlike other sharks, this giant feeds only on plankton, tiny animals found in seawater. They are generally only seen in surface waters whilst they feed, and are harmless to humans. Basking sharks (*Cetorhinus maximus*) can reach lengths of 11metres and weigh up to 7tonnes. They have enormous mouths, which filter up to 2,000 cubic metres of seawater every hour.

Basking sharks migrate into UK waters during summer months to feed on the abundant plankton. They can be seen anywhere around the UK but mainly in the west, due to the larger volumes of plankton present. Hotspots include the Inner Hebrides and the Firth of Clyde.

Little is understood about the distribution, population size, and biology of this species. What is known raises concerns, and the species is listed as endangered in the NE Atlantic. Basking sharks are slow to reach reproductive maturity, and only give birth once every four years. This low reproductive rate, plus

their susceptibility to disturbance and threats from fishing, makes the species very vulnerable. The more knowledge we gain, the more that can be done to protect this species. Therefore, sightings from members of the public are vital.

MCS promotes public involvement and collects sightings, resulting in the UK's largest database on basking shark ecology. Information gathered has led to successful MCS campaigns to provide basking sharks with full protection under UK law, and closer monitoring of the trade in basking sharks and their by-products through the Convention of International Trade in Endangered Species (CITES).



Basking Shark – @ Jeremy Stafford-Deitsch / MCS

Marine Turtles

As well as sharks being found in UK waters, it is perhaps even more surprising to know that there are also turtles. Only seven species of marine turtle exist, five of which have been recorded in UK waters. Of these, the most commonly found is the leatherback turtle (*Dermochelys coriacea*).

The leatherback is the largest of the marine turtles and is named after the black, leathery skin covering its shell. Uniquely, these reptiles have some control over their body temperature, so can survive in temperatures lower than 5 degree centigrade and can dive to depths of over 1km. They are usually around two metres long and weigh 600kg. Leatherbacks migrate from Central and South America and West and South Africa to the UK during summer to feed on the abundant jellyfish. Like basking sharks, these turtles can be seen anywhere round the UK coast, but they are usually found in the west.

Leatherbacks are critically endangered. Nesting females are often killed for their meat and eggs. At sea, leatherbacks are vulnerable to entanglement in fishing gear. Trade in all species of marine turtles and their parts is currently banned under CITES, but some illegal trade continues to endanger these species.

As well as sightings of turtles, MCS needs sightings of turtles' prey: jellyfish. Increased knowledge of the abundance and distribution of jellyfish will provide valuable information on the distribution and movements of turtles, and will contribute to their conservation in the UK and globally. Report your sightings of jellyfish strandings on beaches and jellyfish swarms at sea. It is also useful to know when no jellyfish were seen during trips at sea or to the beach.

Conservation

So next time you are at the beach or out in a boat, keep a look out for what is in the sea below you. You'll be surprised at what you see once you start looking. All sightings of basking sharks, marine turtles and jellyfish, whether alive or dead and from any location in the UK, are valuable and will contribute to the work being done by MCS to help conserve these fantastic species.



Lion's Mane – @ Jo

Jamieson/MCS

Please report your sightings online at www.mcsuk.org. Copies of the survey forms can be requested from Anne on 0131 226 2391 or anne.saunders@mcsuk.org.

You would be warmly welcomed in joining MCS as a supporter – annually for just £25, or from £3 per month by Direct Debit. Membership makes an ideal gift. MCS also runs a coastal challenge – if you swim, sail, climb, kayak, or just walk, you can raise vital funds for our conservation projects. Please call 01989 566017 or visit www.mcsuk.org for further information.

Anne Saunders
MCS Scottish Projects Officer
0131 226 2391
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NEW PLANTLIFE PROJECT giving a boost to the conservation of LOWER PLANTS AND FUNGI IN SCOTLAND

Matilda Scharsach

A new project led by Plantlife Scotland is celebrating the amazing world of mosses, liverworts, lichens and fungi and the extraordinary richness that exists in Scotland. The three year project will deliver training and awareness-raising across the spectrum from the public, to land managers, to experts. Matilda Scharsach, the project officer appointed in October 2007, will be working alongside specialist consultants, and the programme for year one is already well underway.

Bringing the lower plants to life for the public.

Lower plants and fungi often get a low profile with the public. They lack the cuddly, fluffy factor needed to compete with puffins or otters, for example. However, lower plants and fungi are not only astoundingly beautiful but come with a fascinating collection of facts and stories associated with use,

folklore and longevity. Spread the roots of an ancient oak end to end, and they would cover a few hundred metres. Do the same with the fungal mycelia from the same tree and they would reach three times around the earth. Matilda is developing leaflets, posters and interactive sculptures to bring this information to the public, and thereby also delivering important messages about their conservation.

Information exchange and events

The project acts as a contact point for queries relating to lower plants and fungi, for example by providing links to experts regarding identifying difficult taxa, so if you have any queries of any kind then feel free to get in touch. A web page will be established with links and information, with recommended publications, lists of events, and many more useful resources. Events such as lichen forays, or ranger trainings will hopefully be set up once the project is further established.

Filling the publication gaps

The project is conducting an information needs analysis to find out what is missing for lower plants and fungi. Already several clear gaps are emerging, for example a set of guides to lichens by habitat (e.g. atlantic oak, or native pinewoods). These guides would be laminated and easy to use in the field, and would suit those who want help with basic species identification, ecology and management. For fungi, there is a large jump between simple leaflets for the public, introducing the very basics of fungi, and the identification guides that are often too complicated and overwhelming for those who want to progress their knowledge. What is needed are shorter, more easily understandable identification guides that focus on identifying the groups, e.g. boletes and russulas, giving examples of the most common species within these groups as opposed to showing all species. The project aims to help fill these and other gaps where possible.

Training and support on the management and ecology of UKBAP species.

Four one-day courses this year will look at species identification, survey methodology, ecology and habitat management for four UKBAP priority species or genus and, for each, a suite of associated species found in the same habitats. The chosen species are:

- *Weissia rostellata* (beaked beardless-moss),
- *Stipitate hydroid* fungi (tooth fungi),
- *Collema dichotomum* (River jelly lichen)
- *Buxbaumia viridis* (Green shield moss).

Agencies represented on the Plantlife Link Scotland (PLINKS) Lower Plants and Fungi Steering Group, namely Scottish Environment Protection Agency, Scottish Natural Heritage and Forestry Commission Scotland, helped to select the species on the basis of their obligations under UKBAP.

Weissia rostellata is an ephemeral species of moss that grows on reservoir edges where water levels have been consistently low for six weeks or more. It therefore thrives when there has been planned draw-down or drought in reservoirs, and the course will benefit those involved in water management. The tooth fungi course will be of interest to those involved in or interested in woodland management. These species tend to fruit when there has been ground disturbance and associated exposure of inorganic material, so that operations such as

scarifying or the creation of forestry tracks will have relevance for their conservation. River jelly lichen is an aquatic lichen that grows on shallowly shelving submerged rocks in partial shade in fast-flowing intermediate and upland streams. The course will be of particular relevance to ecologists surveying and monitoring species in relation to the Water Framework Directive. Finally, *Buxbaumia viridis* is a moss associated with 20-30-year-old, wet, deadwood in humid conditions. The course will look at deadwood management in general and also at a broader range of species associated with all types of deadwood.

These events are primarily for officers from the main environmental agencies and will provide skills and information to give people from a range of backgrounds the confidence to work proactively to conserve these species on sites they are involved with. As a simple example, land managers may suspect that they have tooth fungi on a site, but do not know how to take samples or photos that are sufficient for identification. Do they take a whole fruiting body, or just cut a section? Are they legally allowed to take samples, how do they preserve samples, and who do they contact for help with identification? The courses will be complemented by leaflets, available also on-line, summarising the course information.

Sustainable use

There are currently few guidelines on collection of bryophytes, lichens or algae. This project aims to assess scientific data on the impact of collection of lower plants and fungi and to use this to inform collection guidelines. This work continues alongside initiatives at the British Lichen Society and Reforesting Scotland.

This project is supported by Plant Link Scotland, the forum for organisations working to conserve plants and fungi in Scotland and is funded by Scottish Natural Heritage, SEPA, Forestry Commission, British Bryological Society and British Lichen Society. To find out more about the Lower Plants and Fungi project, contact

Matilda Scharsach on 01786 469778,
matilda.scharsach@plantlife.org.uk,
www.plantlife.org.uk



Hydnellum – a tooth fungi @ David Genney

The project aims to bring beautiful Scottish lower plants and fungi into the public limelight, as well as working with land managers to ensure their effective conservation.



Lobaria virens- late summer/autumn @Matilda Scharsach



Fox-scat moss *Tetraplodon mniodes* Loch Crochach hills
@ Gordon Rothero



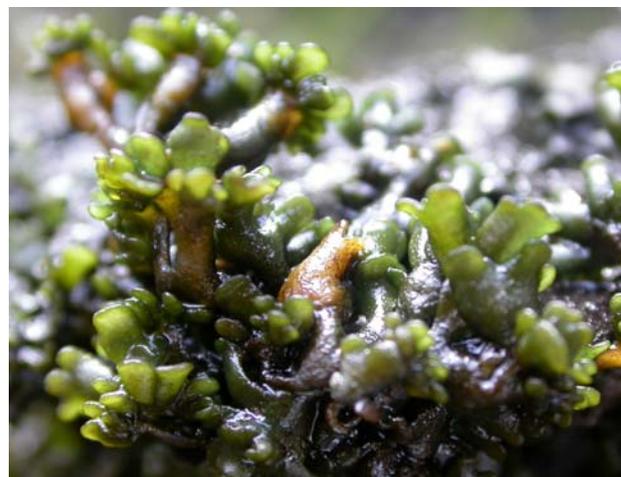
Slippery Jack *Suillus bovinus* and Rosy spike *Gomphidius roseus*
@ David Genney



Hare's foot inkcap *Coprinus lagopus* @ David Genney



Sarcodon imbricatus – a tooth fungi @ David Genney



Collema dichotomum - a river jelly lichen @ John Douglass

GARDEN MOTHS COUNT

Paul Kirkland

From 21 June to 6 July you and your family can take part in Garden Moths Count, a nationwide survey of an overlooked but vital part of our garden biodiversity. There are more than 2,500 species of moths in Britain and your back garden could easily have a hundred species. Moths can be just as colourful as butterflies and, with their caterpillars, play essential roles in the garden ecosystem, as pollinators and as food for toads, hedgehogs, bats and birds.

An alarming number of moth species have declined dramatically in recent decades. For example the once common Garden Tiger, with its familiar brown 'woolly bear' caterpillar, has decreased by almost 90% since the 1960s. A few species have increased, like the spectacular Humming-bird Hawk-moth, a migrant which has been seen more frequently as our climate has become warmer.

Garden Moths Count is an online survey aimed at complete beginners to raise awareness and appreciation of moths. It focuses on twenty beautiful and easily-identified species found in gardens. Anyone can take part, adults or children, and no specialist equipment is required. Fun ways for children to attract moths are described, and there is an online gallery for identification. Full details are on the Garden Moths Count website (www.mothscount.org).



Humming-bird Hawk-moth



Garden Tiger

Garden Moths Count is part of the Moths Count project, led by Butterfly Conservation, which aims to improve knowledge and conservation of moths in the UK. For more information about moths and the project, including free moth events you can attend, see www.mothscount.org

SCOTTISH WILDCAT SURVEY 2008

Ro Scott

The wildcat (*Felis silvestris*) is one of our most elusive native mammals. The last national survey of its distribution and status was carried out in the 1980s (Easterbee, Hepburn and Jefferies, 1991). As well as being protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), the wildcat is now a European Protected Species (EPS) because it is listed on Annex IV of the European Habitats Directive (1992) and, since the priority species and habitats review in 2007, is listed as a UK Biodiversity Action Plan (UKBAP) priority species (www.ukbap.org.uk). It is also one of 22 species targeted for conservation action in the five-year Species Action Framework for Scotland drawn up by SNH (www.snh.org.uk/speciesactionframework).

In an attempt to determine what changes may have taken place during the intervening 20 years, the survey is being repeated in 2008, using similar methodology. This involves a combination of targeted interviews with land managers (stalkers, keepers, shepherds, forestry workers, nature reserve wardens etc.) and a public participation survey. Although there is controversy over how many 'real' wildcats may remain, because of their ability to interbreed with domestic pets and feral domestic cats, we now have an agreed set of published criteria (Kitchener et al., 2005), which can be used to determine the likelihood of any cat being a wildcat, domestic cat or hybrid. These use a scoring system applied to seven features of the cat's markings ('key pelage characters'). Anyone who has seen an apparently wild-living cat anywhere in Scotland within the last five years or so is invited to fill in a questionnaire based on these pelage characters. This can be done either online at www.naiadecology.co.uk or via a leaflet which has been widely distributed. SNH's contractor tasked with co-ordinating the survey is Adrian Davis of the Naiad Environmental Consultancy. He can be contacted via the above website or on 01351 727201. If you have seen any wild-living cats, alive or dead, or know anyone who has, please do ensure that the records are submitted to Adrian as soon as possible. The results of the survey are due to be written up by December 2008.

Ro Scott

SNH

References:

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WILDLIFE BENEFITS FROM THE SCOTTISH FOREST ALLIANCE (SFA)

SFA is a woodland conservation project uniting BP, Forestry Commission Scotland, the Woodland Trust Scotland and RSPB Scotland in a unique collaboration designed to span a remarkable two centuries. BP has pledged £10 million over 10 years in the biggest ever corporate commitment to the environment in Scotland. Currently the SFA is regenerating Scotland's fragmented native woodlands at fourteen sites. The ultimate aim is to create 10,000 new hectares, promoting biodiversity, encouraging community involvement and furthering the aims of carbon sequestration.

Three million trees have been planted or allowed to naturally regenerate at fourteen Scottish sites over the last seven years of the SFA project (1,200 trees every day so far), and these sites are already important for a number of rare and endangered species of butterflies, moths, spiders and fungi.

Over the past few years, specialist surveys have been undertaken to ascertain the importance of the SFA project sites for these species. A number of important recordings have been

made, including species listed in the UK Biodiversity Action Plan (UKBAP) and UK Red Data Book. For example, at Glen Finglas in The Trossachs, a 4,085 hectare Woodland Trust Scotland site at the heart of the Loch Lomond and The Trossachs National Park, surveyors recorded both *Entelomas* ‘Pinkgill’ fungus and *Hygrocybe* ‘Waxcap’ fungus, making the site of national importance for these species. The surveyors also made the first ever Scottish record of the fungus, *Corioloopsis gallica*. At Glenmore Forest Park in Strathspey, a 3,500 hectare Forestry Commission Scotland site at the heart of the new Cairngorms National Park, surveyors recorded the fungus, *Hygrophorus camarophyllus*, for the first time in the UK since 1902. They also recorded the fungus, *Cortinarius subtilior*, which, when confirmed, will be a new species to the UK. At Corrimony, a 1,530 hectare RSPB reserve near Loch Ness, the endangered Rannoch brindled beauty moth *Lycia lapponaria scotica* and argent and sable moth *Rheumaptera hastate* were recorded, as were a number of UK Red Data Book listed species of fungi.

Other important species of butterfly and moth were recorded on SFA project sites, including the nationally scarce northern brown argus butterfly *Aricia artaxerxes* and the notable small chocolate tip moth *Clostera pigra*, as well as a number of species of spider, including the nationally notable spider species *Hilaira pervicax* and *Hilaira nubigena*, and the vulnerable species, *Centromerus levitarsis*.

The fourteen SFA Project Sites are Abernethy (Strathspey), Barclay (Galloway); Corrimony (Loch Ness), Darroch Wids (Huntly), Drumbow & Crossrigg (Falkirk), Geordie’s Wood (the Ochils), Glenmore Forest Park (Strathspey), Glen Finglas (Trossachs), Glen Quey (the Ochils), Glen Sherup (the Ochils), Inversnaid (Loch Lomond), Kinloch Hills (Skye), Loch Katrine (Trossachs)

More information about the SFA project can be found at: www.scottishforestalliance.org.uk.

REQUEST FOR BODIES!

Vic Simpson

Wild animals dying of disease are rarely seen by humans. As a result, most of our knowledge of wildlife diseases has come from post mortem examinations. Examples are lead poisoning in mute swans, calicivirus infection in brown hares and, of course, poxvirus in red squirrels. However, you may be surprised to learn that healthy wildlife, such as those killed in road accidents, also have a vital role to play in understanding wildlife diseases. A veterinary wildlife pathologist needs to know what is normal before they can suspect that something is abnormal. For most domestic animals, the shape, colour, texture, size or microscopic structure of the various organs is well documented but for most wildlife species such information is poor or non-existent. Corpses of healthy animals can provide this important data. In addition, animals thought to be healthy can, on occasion, be shown to be suffering from previously unrecognised disease.

I set up the Wildlife Veterinary Investigation Centre in 2001. Since then I have examined over 1,500 specimens, including otters from as far away as Shetland, pine martens from Scotland

and red squirrels from the Isle of Wight. The majority of the otters and red squirrels and all the pine martens in these investigations were animals killed in road accidents. These investigations have resulted in the identification of several new diseases, including bile fluke infection of otters in southern England, a novel bacterial infection in an otter from the Isle of Harris, a heart parasite of pine martens and a blood parasite of red squirrels on the Isle of Wight.

Most of the research in UK into diseases of red squirrels has focused on the squirrel poxvirus but other conditions are now emerging. Studies by the Veterinary Laboratories Agency have shown that red squirrels in northern England and in Anglesey are affected by a previously unknown adenovirus. More animals need to be screened but at present this infection has not been seen in Scotland. Similarly, I have not yet found the Isle of Wight squirrel parasite in Scottish squirrels, although I have identified it in squirrels from Cumbria. On the other hand, I recently diagnosed an unusual fungal infection in a red squirrel from East Scotland, but I have never seen this in an English red squirrel. In this particular case I needed a tongue from a freshly dead normal red squirrel for comparison and within a month of putting out a request I had received several. Support like this from a network of enthusiasts in the field is just as important as high science when investigating wildlife health problems.

I would encourage anyone finding a dead red squirrel or pine marten to collect it, put it in a cool place and contact me by telephone or email asap. Carcasses are best chilled at around 4 degrees Celsius. They should only be frozen as a last resort as this makes the tissues unsuitable for detailed examination. If anyone has existing agreements to collect carcasses for other organisations they should be given preference.

Vic Simpson, BVSc, DTVM, CBiol, FIBiol,
Hon.FRCVS

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Tel. 01872 560623

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BRISC WILDLIFE COUNTS PROJECT

UPDATE

John McFarlane

So far, 2008 has been very busy year for the Wildlife Counts project. With kind support from SNH, BTCV, HLF, FET (Falkirk Environmental Trust), Falkirk, North Lanarkshire and Stirling councils, John McFarlane has put together a series of 2-day advanced workshops for the Wildlife Counts volunteers to get their teeth into. Working closely with the local Biodiversity Officers, the workshops have been designed specifically to ‘tool up’ volunteers who have the ability, enthusiasm and self-motivation required to carry out survey work throughout Scotland.

Aquatic invertebrates, mammals, lichens and butterflies have been the focus of the 2-day workshops with many more planned for the coming year. The workshops have been very well received, proving very popular with the Wildlife Counts

participants. The workshops further emphasise the vital role that BRISC plays in its continued support of biological recorders and can be seen as a natural progression for many of the Wildlife Counts participants, who have always expressed an interest in participating in more advanced workshops.

It is hoped that these advanced workshops will continue to expand and fine-tune the skills of the keen, motivated and enthusiastic volunteers, who are vitally important to the success of biological recording schemes.

John has now taken on a new role within BTCV as their 'Environmental Project Officer' and will now focus on helping to deliver the environmental outcomes of BTCV's new 'Space to Grow' initiative. After fifteen months as BRISC Wildlife Counts Project Officer, John is looking forward to new and exciting challenges and continuing to build on the momentum created by the project. He is also looking forward to strengthening current partnerships as well as developing new ones as his role evolves within BTCV.

BTCV, in close partnership with BRISC and other NGOs in the conservation sector, have the capacity and the skills to enlighten communities throughout Scotland about the importance of biological recording and how it can be used in conjunction with practical conservation to protect, enhance and sustain our wonderful wildlife.

John McFarlane
c/o BTCV, Balallan House, Alan Park,
Stirling FK8 2QG

BOOK REVIEWS

Cox, M.L. (2007). *Atlas of the seed and leaf beetles of Britain and Ireland (Coleoptera: Bruchidae, Chrysomelidae, Megalopodidae and Orsodacnidae)*, 336 pp. Pisces Publications, for Centre for Ecology and Hydrology. Pbk, ISBN 1-874357-35-8. £24.95.

The atlases already published by or for the Biological Records Centre cover a wide spectrum of format and style, from no-frills provisional atlases with minimal text to commercially published books with substantial text, colour photographs and a high standard of production. In most respects this one is at the 'glossy' end of the spectrum, with 32 pages of introduction, 47 colour photographs and about 270 10km maps, one to a page, each accompanied by a phenogram and substantial text.

The atlas is the result of a recording scheme that has been operating since 1980. Clearly a huge effort has gone into the scheme – about 250 contributors are acknowledged, along with 20 museums and other sources of collections, generating about 130,000 records over 27 years. The bibliography includes almost a thousand items. It seems extraordinary that all this has been done without producing an up-to-date key to identification. The subject of identification is dealt with in only a few column inches in the introduction, itemising 14 publications that supplement Joy's *Practical Handbook of British Beetles*, which is the base-line for identifying British beetles. But that was published in 1932; the supplementary items listed date from 1950 to 2001, but cover only 12 of the 56 genera involved. It is inevitable therefore that the distributions

shown are at the provisional end of the spectrum compared with what might have been achieved following a provisional atlas and an up-to-date key.

So how has Scotland fared? In spite of the 20 museums and other sources listed, not one is in Scotland so that, for example the huge collection in the National Museums of Scotland appears not to have been utilised. Another missed opportunity is that there is no mention of Local Record Centres having been used, as is all too common with national recording schemes. This probably applies equally outside Scotland, but I noted that records held by the Fife record centre, with details such as the keys used for identification, name of identifier, whether a voucher specimen was kept, whether genitalia were examined, have not appeared on the maps. It is unrealistic to expect individual naturalists who are not specialists to send records to each of the huge number of national recording schemes rather than to their local record centre. Communication between local record centres and national recording schemes is a subject that needs urgent attention.

There has been enough coverage of Scotland to give some interesting indications of pattern, but clearly much more could be added. For example the distinctive green tortoise beetle *Cassida rubiginosa* (on thistles, knapweed, etc.) appears widespread in the lowlands (as in England and Wales) but very sparse and eastern further north; in contrast *Cassida nobilis* (on *Atriplex* and other widespread Chenopodiaceae) is recorded only on the west coast. The verbal summaries of distribution are sometimes at odds with the maps: for example *Prasocuris junci*, found on buttercups, water-cress etc, is described as 'locally common throughout Britain and Ireland' in spite of only two Scottish squares, one a 19th century record, the other on the Solway. In spite of the vast bibliography no use appears to have been made of Scottish publications. The Scottish Naturalist for example would have added one later record for the flea beetle *Longitarsus exoletus* (Kincaig Cliffs, Fife – Scot.Nat.1956: 82) to supplement the only two records shown for Scotland, both 19th century.

There are frequent references to 'supplementary material'. However the only clue to locating this is in the introduction to the bibliography, where we are referred to an 'Introduction to electronic appendices', but no further information is given on how to access these appendices.

The leaf beetles are colourful and often conspicuous insects. This volume provides a valuable reference dealing with collecting methods, a full check-list of species, habitat, economic importance, host-plants, life cycle, parasites and predators as well as distribution. What a pity that accurate identification has been kept such a closely guarded secret in spite of the expertise available.

Gordon B Corbet

Burgis, M.J. & Morris, P. (2007). *The World of Lakes: Lakes of the World*. Ambleside, The Freshwater Biological Association. Soft Cover. ISBN 978-0-900386-76-3. Price: £25.00.

This book is an extended revision of a volume which was first published twenty years ago as *The Natural History of Lakes*. As the authors explain in their Preface 'The basic principles

have not changed but some of the lakes, particularly those in hot dry places, have undergone considerable changes. Where possible we have briefly updated the information given.' This edition of the book is published by The Freshwater Biological Association as No. 15 in its Special Publication series.

There are eleven chapters. The first four of these deal with general aspects of lakes and their ecology – lakes in the landscape, lake water, lake communities, lakes and the seasons. The following five chapters each deal with a different type of lake – polar and mountain lakes, the deepest lakes, shallow lakes, saline and soda lakes, man-made lakes. The last two chapters are concerned with lake management – The use and abuse of lakes, the conservation of lakes. Finally, there are suggestions for further reading, some relevant web sites and a useful index.

The book is well produced and illustrated throughout with numerous excellent figures and line drawings by Guy Troughton. There are many colour photographs throughout the text. A valuable feature of the book are coloured 'boxes', each usually with a figure and text, used to explain and emphasize particular topics (e.g. lake sediments, acid rain, photosynthesis, etc.). There is even a box on 'The Loch Ness Monster'(!) - but the authors prefer an explanation of otters rather than plesiosaurs.

This is a very useful book for students and all those interested in freshwater biology. The early chapters provide a broad background to the chemical and physical properties of water and how these determine the nature of the individual biological communities of each lake. The lakes of the world have different origins, but all of them are important in terms of landscape and the ecology of the catchments in which they occur. The chapters on lake types focus frequently on case studies of individual lakes, many of which the authors have personal experience of.

As with most books, there are small errors here and there, and as a fish ecologist the reviewer could not help but notice a few. *Oncorhynchus* is wrongly spelled (*Onchorhyncus*) in several places. The arctic charr is said to '... mostly spawn in running water' but in fact most lake populations spawn in lakes. A characteristic of arctic charr is that it has only light or coloured spots whereas that figured on p.117 has numerous black spots. The brook charr is noted as '...native to western North America' instead of eastern North America.

These are minor blemishes on an otherwise excellent volume and the authors are to be congratulated on providing a clear and well illustrated account of lake ecosystems, how they work and how important they are to the ecology and well-being of the rest of the planet.

Peter S Maitland

The Glasgow Naturalist, volume 24, parts 1-4 (2002 – 2006). Glasgow Natural History Society.

The *Glasgow Naturalist* has a long history of reporting on the natural history of the west of Scotland, in fact since around 1890 but preceded by other *Proceedings* and *Transactions* of the Glasgow Natural History Society and its predecessors. It took on a more important role in covering a wider spectrum of

Scottish natural history when the *Scottish Naturalist* ceased publication about 1965. The *Scottish Naturalist* was produced by a commercial publisher rather than a society and had become so predominantly ornithological that it was left bereft when items on birds moved to *Scottish Birds*, begun in 1958 by the Scottish Ornithological Society and still going strong.

These four separate parts comprising volume 24 are in the glossy A4 format started in 1996. Part 1 (2002) with 120 pages includes 11 papers, all but two dealing with local matters (i.e. Clyde and west coast). They cover a wide variety of topics from wild plants in Glasgow Botanical Garden to Loch Lomond as seen by early naturalists. It includes an annual compilation of Scottish insect records for 2001, a series that had been going for several years but has not been continued. A further paper formally describing and naming a new species of parasitic marine crustacean seems out of place in a local journal, not because of the subject matter but because it is more easily overlooked by specialists elsewhere.

Part 2 (2004, 170 pages) has a similarly wide coverage of topics but is dominated by a two-part research paper on the conservation biology of the Irish lady's-tresses orchid, comprising 34 pages including many pages of statistical tables and each part with a long list of references, many duplicated in the two parts. This also seemed out of place in a journal of this kind, except perhaps in summary form.

Part 3 (2005, 75 pages), is exceptional in that two-thirds are devoted to the proceedings of a conference on *The natural history of Loch Lomond and the Trossachs*, held by the society in 2004. The 12 papers cover a wide range, including native woodland, moths, otters, other aquatic fauna and feral goats.

Part 4, with 168 pages, is dated 2006 on the cover but actually appeared in March 2007. About twenty pages are devoted to the subject of climate change and are followed by a wide range of papers and short notes. These include the results of a week-long survey of insects and other terrestrial invertebrates undertaken on Rum in 2000 by a group of mainly Scottish entomologists, repeating surveys done at about 10-year intervals since Rum's designation as a National Nature Reserve and the re-establishment of native woodland. The other papers have a predominantly maritime flavour: salt-marsh vegetation, history of fishing in the Clyde Estuary and intertidal sediments.

All four parts have a substantial batch of short notes, predominantly of local interest, and an extensive section of book reviews. However, the latter include very few that are of particular Scottish interest. There are many examples of what appear to me to be excessive detail. For example in Part 1 a note reports the receipt by Millport Marine Biological Station of a set of microscope slides of radiolarians (Protozoa) prepared by the illustrious German zoologist Ernst Haeckel. These are from plankton and deep-sea sediments around the world. Very interesting, but this also includes full details of all 34 slides – surely it would have been sufficient to report the existence of the collection, so that any interested specialist can get in touch with Millport for such details. Likewise, Part 4 starts with a five-page editorial, which mostly summarises the contents of the following papers and acknowledges the authors and other contributors, all of which is duplicated in the individual papers. This may not matter provided the extra

expense does not lead to the exclusion of material of more interest to the membership and other Scottish naturalists, nor to an unnecessary increase in price. As befits such a large centre of population, the Glasgow society is clearly thriving and is well placed to cover a great variety of habitats within easy reach of the city: highland and lowland, inland, estuary, coast and marine. It is good to see coverage of all these and of many of the lesser-known groups of both animals and plants. There is something here to interest anyone with an interest in Scottish natural history.

The journal is of course issued free to members of the GNHS, but individual parts can be purchased for £4.25 + pp from GNHS, c/o Zoology Museum, Graham Kerr Building, University of Glasgow, G12 8QQ (info@gnhs.org.uk).

Gordon Corbet

Bircham, Peter (2007). *A History of Ornithology*. Collins, 482 pp. ISBN 978-0-00-719970-9. pbk £25

There are many books recounting biographies of naturalists, but this is the first I have read, which puts those biographies into context. The author has produced a masterpiece of research, which must have entailed an inordinate amount of time amongst ancient volumes. Despite the problem of identifying species in terms of today's knowledge, he has nevertheless researched his subject very comprehensively, and I was pleasantly surprised at how fascinating the story is.

The book should really be entitled 'The History of *British* Ornithology' as it only considers foreign ornithologists who worked or published in Britain, such as Audubon, Hartert and, latterly, Tinbergen, or whose effect on global ornithology was profound, such as Linnaeus. The twenty chapters cover subjects in chronological order, starting with the period up to the 16th century and ending with a description of modern research. Within these pages is a narrative of the beginnings of modern ornithology. Chapters on the first bird books and lists are followed by those describing the first ecologists, early migration studies, dictionaries and artists. Even in the 18th century observant individuals were questioning the old theories and the author tells of little known observers whose new and revolutionary ideas would not be out of place today. It was difficult then to convince many of the scientists of the day, but eventually their beliefs prevailed. Early classification studies and the earliest scientific enquiries bring the book up to the 19th century. About this time, systematics became important, with the early scientists grappling with the relationship between species. The in-fighting within the ornithological establishment in the first half of the 20th century over nomenclature, both with scientific and vernacular names, still rumbles on today. Most of the national organisations and journals that are household names today began in these decades, while the emergence of field biologists in mid-century began an explosion in research into all manner of subjects. Bird protection and conservation spawned both government and non-government organisations, while research underpinning these became the remit of the British Trust for Ornithology and its huge number of volunteers.

Each chapter gives accounts of the main ornithologists of the period, in effect a potted biography of each, describing their work and associates. Some names have become well-known,

such as MacGillivray, Yarrell and Harvie-Brown; others are more obscure and hardly known at all by present-day birders yet nevertheless played an important part in the development of British ornithology. However, only a few were competent field ornithologists and a hiatus in the early 19th century was brought to a close by the emergence of visionaries such as Newton and Darwin. The new order in the 20th century includes Lack, Thorpe, Williamson and Matthews amongst many others, leading the way in behavioural studies in which the development of marking birds has contributed so much.

Naturally, opinions differ on the relative importance of the early ornithologists' contributions, and the author has made it clear that many of those put forward are his own. With stories of ornithologists both fanciful and fraudulent, we are fortunate nowadays to have a well structured and regulated ornithological scene.

The book contains 230 figures, mostly in colour, depicting a huge range of subjects. These range from early sketches and coloured paintings to modern photographs and examples of diagrams and figures illustrating both early and present-day aspects of ornithology. The choice of which images to include must have been difficult, but overall there is a representative compilation, albeit somewhat haphazard in places. I was disappointed to see Scottish ornithology relegated to four paragraphs but, for those seeking a succinct account of how British birding has developed over the past several centuries, I can recommend this book as a relatively inexpensive and absorbing read.

Norman Elkins

DATES FOR THE DIARY (April – July 2008)

- **Friday 11 April 9.15 – 17.15 Aberdeen Ecology Research Day** The Zoology Lecture Theatre. Contact Sarah Woodin (s.woodin@abdn.ac.uk, 01224 272688) or Jane Reid (jane.reid@abdn.ac.uk, 01224 274224)
- **Wednesday 16 April 14.00 - BRISC members' visit to the natural history collection at the McManus Galleries & Museum, Dundee.** Contact David Lampard david.lampard@dundeecity.gov.uk
- **30 May to 1 June - Gardening Scotland (Gardening for Llife). The Royal Highland Centre, Edinburgh.** Visit www.gardeningscotland.com for more details
- **Saturday 7 June – National Moth Night (and Day)** for details see www.nationalmothnight.info
- **23 to 29 June – National Insect Week.** Contact Craig at Craig.MacAdam@buglife.org.uk with any relevant events taking place during this week for Buglife to publicise
- **21 June to 6 July – Garden Moth Count** (see p12)

Grab A Grant with CSV Action Earth 2008

Community Service Volunteers' Action Earth campaign will run from 1 March – 31 July 2008, supported by SNH and Morrisons. Two different grants are available: 50 SNH Biodiversity Awards worth up to £250 for practical environmental projects, and 200 smaller grants of up to £50 supported by Morrisons. Application forms available at [Hwww.actionearth.org.uk](http://www.actionearth.org.uk) and to discuss project ideas contact Robert Henderson on 0131 6227766