



Welcome!

Welcome to the fifth issue of Scottish Invertebrate News!

After a relatively mild winter, spring invertebrates are already out and about.

It's time to dust off the moth trap and begin planning trips to find wee beasties.

Bees, wasps, Butterflies, hoverflies and oil beetles have all been seen this season.

If your chosen specialist bugs aren't active just yet, hopefully this newsletter will inspire you to get out and see what else is about.

As well as new

discoveries, this issue also includes feature articles looking at sea squirts, dragonflies, updates on Buglife projects in Scotland.

There are also plenty of events coming up as well as volunteering opportunities, as you'll see inside - so why not get in touch and volunteer to share your enthusiasm?

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Survey strikes gold (red, green and blue!) with Zircon Reed Beetle!

The Zircon reed beetle (*Donacia aquatica*) is a Red Data Book (RDB3) species of leaf beetle from the family Chrysomelidae. The under surface, legs and thorax are a shining gold, while the elytra have rainbow-like coloured bands of green, red, blue and gold running down them. Reed beetles are typically found on aquatic vegetation at the margins of open water and feed on a variety of sedge species.

Adults of this species are usually found in May and June, and occasionally into July. The eggs are laid at the base of sedges in early summer and the larvae develop with their rear ends attached to underwater roots. The pupae develop in late summer and overwinter in tough fibrous pupal cocoons before emerging as adults the following May. Occasionally there is a second brood in September and October.

An adult was collected on the 24th of July 2011 at Endrick Mouth (NS42519041) at the south of Loch Lomond. This is a new 10km record for this species and quite a distance from the nearest recent records in the Cairngorms and Inverness-shire.

The individual was collected while undertaking Site Condition Monitoring work at Endrick Mouth with Caledonian Conservation Ltd. for Scottish



Zircon reed beetle (*Donacia aquatica*) © Bjørli Lehmann

Natural Heritage (SNH).

This species has undergone a dramatic decline since the 1980s with an 81% loss from sites in Scotland, England and Wales. Threats to this species include water abstraction, draining of lakes and ponds, disturbance of marginal vegetation, eutrophication, pollution as well as habitat succession.

Suzanne Bairner, *Buglife*

Scottish Invertebrate Discoveries

Every year new invertebrate discoveries are made in Scotland. From amazing ecology, to records of species new to Scotland or science, this section highlights just a handful of these fascinating discoveries!

Conformist—A New Moth for Scotland



Conformist (*Lithophane furcifera*) © Pete Moore

The Scottish Highlands, in particular Badenoch and Strathspey, is a popular destination for moth enthusiasts who live south of the border due to the presence of several local specialities.

A regular visitor to the area is Matthew Deans from Suffolk, who tries to come up at least once a year with his colleagues to sample the local moth delights. He has been known to drive all the way from Suffolk for just one night of moth trapping in Strathspey – now that's dedication!

In early April 2011 Matthew, accompanied by Paul Bryant, made a weekend trip north to look for Rannoch brindled beauty (*Lycia lapponaria*), Rannoch sprawler (*Asteroscopus nubeculosa*) and Sword-grass (*Xylena exsoleta*). On the first evening they found Sword-grass, the next day Rannoch brindled beauty and then that evening Rannoch sprawler. Their target species were in the bag, so to speak, and the weekend was an unqualified success but things were going to get even better!

Late on the evening of April 9th, while checking

light traps at RSPB Insh Marshes National Nature Reserve (NNR), they found a *Lithophane* species which they soon realised was a Conformist (*Lithophane furcifera*) – the first record for Scotland! It was sub-species *furcifera*, a probable immigrant, which has only been recorded about fourteen times in Britain and only twice since 1946, the last in 2007 (subspecies *suffusa* was known to be resident in South Wales between 1859 and 1959 but with no further records is presumed to be extinct). News of Matthew's amazing find was disseminated to the media via an RSPB press release and several newspapers ran the story along with an interview on Radio Scotland.

Conformist subspecies *furcifera*, as caught at Insh Marshes, is thought to be an immigrant but there is a possibility of a hitherto undiscovered population at Insh Marshes! Watch this space...

Pete Moore, Warden, RSPB Insh Marshes NNR

Pink prowler update!

Another Pink prowler (*Oonops domesticus*) has been discovered! This time, in Bridge of Allan on the 1st of December by Bob Dawson. This is only the third record of this tiny pink spider (1-2 mm long) in 17 years! The previous 2 discoveries, by members of the Scottish Buglife team, (in their own homes) were reported in *Scottish Invertebrate News Volume 1, Issue 1 & Volume 2, Issue 1*).

This species tends to be found in houses and other buildings, and is only active late at night. So keep a lookout just before you turn off the lights!

Scott Shanks, Buglife



Pink prowler (*Oonops domesticus*) © Bob Dawson

Five new parasitoid wasp species for Scotland!

The findings of two recently published studies (Schwarz & Shaw (2011) *Entomologist's Gazette* 62: p175-201; Schwarz & Shaw (2010) *Entomologist's Gazette* 61: p187-206) have highlighted how little we currently know about parasitoid wasp species (Hymenoptera) in the UK.

The publications present new information on the distribution, taxonomy and life history of 153 species of the Ichneumonidae subfamily Cryptinae that were identified following analysis of almost 4,000 specimens from the National Museum of Scotland's collection. 39 of the species identified were new to Britain (many Scottish specimens) and seven of these were new to science. Five of the newly described species were recorded from Scotland (*Tropistes scoticus*, *Orthizema francescae*, *Stibeutes blandi*, *Theroscopus horsfieldi* and *Theroscopus mariae*). The 5mm long black and orange *Stibeutes blandi* is currently known from just one specimen collected by Keith Bland at 820m on the Cairnwell in Perthshire.



Newly described parasitoid wasp (*Stibeutes blandi*) © Mark Shaw

Note: These species look extremely similar to each other and cannot be identified without specialist knowledge and equipment

Scottish Invertebrate Discoveries Cont.

The majority of the species detailed in the above papers are thought to be solitary parasitoids that attack and develop as ectoparasitoids (develop outside the host body) within the cocoons of moths and other insects – including other parasitic wasps

– and the puparia of flies. However, a number of this group are

endoparasitoids (develop inside the host body). Species of parasitoid wasp are usually host-specialised.

Parasitoid wasps always kill their host, which is consumed alive by the parasitoid larva in many cases (especially by endoparasitoids) though most ectoparasitoids develop on a host paralysed by a sting from the female before she oviposits.

Solitary development (one per host) is usual in Ichneumonidae, though in some other groups gregarious development (several wasps per host) is common. So little is known about

the biology and host associations of parasitic wasps that anyone rearing them (especially from seldom reared hosts) could be onto important new discoveries. Please don't discard them!

Mark Shaw and Scott Shanks

The Mysterious Worms of the Leadhills



'Army' of Dark-winged fungus gnat larvae (*Sciara militaris*) © Louisa Maddison

A chance mention of a local phenomenon to a council employee resulted in the discovery of a mysterious occurrence in Leadhills, South Lanarkshire being reported to the local Ranger Service. It looks eerie from a distance – like a very slowly moving snake skin! Up close these long, thin columns are actually made up of hundreds of tiny grey larvae known as “army

worms”, moving together in a purposeful manner. By rearing the larvae to adults in 2010 it was confirmed that these are *Sciara militaris*, a fungus gnat. The population in Leadhills is particularly interesting as they appear regularly in a garden, early in the morning during the summer, moving along gravel paths, and have been doing so for the past 15 years.

There have been a couple of reports from elsewhere in the UK of “army worms” over the past few years, which have all been from commercial coniferous forest. There is forestry near to Leadhills, but it would take a considerably long time for the larvae to crawl their way to the garden. These larvae are reported more commonly from Europe, particularly Germany and eastern countries. It may be that they have come to the UK via forestry operations, and when conditions suit the populations expand and move, allowing them to be seen. So keep an eye out for these creepy crawly columns!

Louisa Maddison, South Lanarkshire Council Countryside Ranger Service

Scottish Invertebrate Discoveries Cont.

Grampian Spider Group tongue-twisting rediscovery!

The bend-bearing blunt-brow spider (*Silometopus incurvatus*) is found on sand dunes and amongst dune vegetation on the coasts of the northern half of Britain. This UK Biodiversity Action Plan (UKBAP) Priority Species had apparently undergone a major decline and has been recorded in less than ten 10km squares since 1992.

During 2011, the Grampian Spider Group undertook special targeted searches for the spider on the Aberdeenshire coast at Foveran links (previous record 2003) and St Fergus (previous record 1976). The spider was successfully re-found at both sites by group members Mike Davidson and Alistair Watson. Since then, Mike has also found this species at Findhorn (not recorded in this area since 1914) and Eigie Links (a new site).

British Arachnological Society recorder Mike notes that “obviously no one has been looking for this species in the last decade and it’s good to be able to say it’s still where it was before”. The Group intends to continue by looking for new sites, particularly along the big gap of coastline south of Aberdeen along with its searches for other species of note.

The Grampian Spider Group is grateful to SNH for funding the purchase of spider identification books that Group members have access to through a partnership with the Woodhead & Windyhills Community Trust, and to the University of Aberdeen School of Biological Sciences for the use of laboratory space and microscopes for its identification workshops. For more information about Grampian Spider Group email alistair.grampianspidergroup@hotmail.com

Alistair Watson, *Grampian Spider Group*



Male Blunt-brow bend-bearing spider (*Silometopus incurvatus*) have distinctive palps © Alistair Watson

Rediscovery of the Small Amber Snail in East Lothian



Small amber snail (*Succinella oblonga*)
© Adrian Sumner

The Small Amber Snail (*Succinella oblonga*) is nationally rare in Britain. Of the handful of known sites, more are in Scotland than in England. A high proportion of records of this species are from

pre-1965.

In Scotland this species tends to prefer flood plains, and would therefore be susceptible to loss through flood prevention schemes.

There was an old (1930) record (Kevan, D.K., 1931, *Scottish Naturalist*, pp. 185–186) in East Lothian, by the Peffer Burn near Whitekirk, but finding it was made more difficult by the fact that there was no OS National Grid back in 1930.

After searching the original site in vain, a good colony was eventually found down-stream nearer the coast.

Another old site, at the mouth of the River Avon opposite Grangemouth, failed to yield this species, but the site has been changed radically, with extensive land reclamation and building of sea walls. A possible site near Stirling has not yet been re-investigated, but may also have been affected by developments in recent years.

Adrian Sumner

Scottish Dragonflies Report—2011

The year started with such promise with an early emergence of dragonflies at the end of April. Unfortunately the rest of May and June were so cold and wet that few adult dragonflies were seen and even larvae were scarce. It was the wettest year on record in Scotland. This is the first year I have found Four-spotted chaser (*Libellula quadrimaculata*) and Northern emerald (*Somatochlora arctica*) dying of cold during the process of emergence, and a Golden-ringed (*Cordulegaster boltonii*) adult in a torpid state whilst egg laying. Despite this it has been a very productive and interesting year for dragonflies.

One highlight was the arrival of the Vagrant emperor (*Anax ephippiger*) in April, its sightings were far flung from Orkney to North Uist and Knowe Top Lochs in Dumfries and Galloway. A second migration in October led to sightings at Glen Rothes in Fife, and at Annan and Tynghame further south. This migrant species breeds mainly in Sub-Saharan Africa but can travel long distances with the right winds. Prior to 2010 there were only 20 records in the UK and only one of these was from Scotland.

The Emperor dragonfly (*Anax imperator*) has been found at a new site in Wigtonshire. This species was first recorded in Scotland in 2003 in Berwickshire and is now breeding and gradually spreading. The Banded demoiselle (*Calopteryx splendens*) is another species spreading into Scotland since 2002, it was found at new sites on near the River Tweed and also in Dumfriesshire.

The most significant species to spread is the Southern hawkker (*Aeshna cyanea*). It was only found in nine 10km squares in 1990 and is now known from 80, with the most northerly found this year near Lairg. It loves to colonise garden ponds.

The species that are only found in Scotland within the UK also fared well in 2011. Larvae of the

Azure hawkker (*Aeshna caerulea*) were found at several sites this year. The small shallow bog pools where they breed had plenty of water after many dried out in the past two years. However, many of the larvae seen were in their first year and they have another two years to survive before emergence. A new breeding site was found and good numbers of adults were seen in new areas in the north.



Azure hawkker (*Aeshna caerulea*) © Roger Key

The Northern emerald is a species associated with bog pools and runnels often near pine and oak woodland, but it has also been found on Rannoch Moor. This species has increased its breeding range from Argyll and Flanders Moss in Stirlingshire up to Spinningdale bog and Loch Merkland in Sutherland.

The Northern damselfly (*Coenagrion hastulatum*), our rarest species is confined to Speyside, Deeside and Perthshire. It has been found on a number of new sites but many have only small numbers of dragonflies. It breeds in areas with a continental climate and could be vulnerable with the changing climate and the spread of a similar species, the Azure damselfly (*Coenagrion puella*) further north.

Our knowledge about the changes taking place is only possible because of the work of a large number of volunteers involved with the British Dragonfly Society's Atlas Project 2008 – 2013. We would like to cover as much of Scotland as possible and it is a huge task. 2012 is the last year for field work and there are still many gaps, Caithness and Sutherland, Shetland, the Western Isles and in Angus and the south central area.

If you can help contact me at dragonflybatty@gmail.com, or visit the BDS web site www.dragonflysoc.org for a new leaflet on Scottish Dragonflies and latest information. All records will be very much appreciated.

Pat Batty, *BDS Scottish recorder*



Southern hawkker (*Aeshna cyanea*) © Wolfgang Theofel

Action for Scottish Invertebrates—Hot Off the Press: Project Updates

The last year has been an exciting and eventful time with the Action for Scottish Invertebrates project, and delivering the Strategy for Scottish Invertebrate Conservation. These pages will bring you up to date.

More information about the Strategy is available at: www.scottishinvertebrates.org.uk

Action for Scottish Invertebrates Introduction to Under-recorded Species Group Workshops



Buglife's Introduction to Under-recorded Species Group workshops have been extremely popular and are now in their third year! We've covered a wide range of topics, and over 50 people have had the opportunity to learn more about invertebrate identification and survey skills from experienced experts. All of the workshops have booked-out in less than two days, showing that there is a huge demand out there—it's fantastic so many are keen to learn more about invertebrates. Almost all invertebrates are under-recorded, and we need more people out there contributing to recording schemes so that we can better conserve these important animals.



The first year of workshops were a fantastic success, and allowed people to build on their basic invertebrate skills and begin to focus on either harvestmen and beetles.

The second year of courses tackled two extremely important, yet under-recorded groups of soil dwelling invertebrates that can be found all around us, anywhere in the country—springtails (*Collembola*) and pseudoscorpions (*Pseudoscorpiones*). Peter Shaw travelled up from Roehampton University to run the springtail workshop at the National Trust for Scotland's (NTS) Mar Lodge property, in the picturesque surroundings of the Cairngorms. Similarly, Gerald Legg came up from the Booth Museum in Brighton to teach participants at the NTS David Livingstone Centre at Blantyre how to identify pseudoscorpions—the top predators of springtails! We are extremely fortunate that these two experts were willing to travel so far to share their skills, knowledge and enthusiasm with us in Scotland.



The third year of workshops is currently underway. The first workshop was run in October, and provided an introduction to spider (*Araneae*) identification (led by Chris Cathrine, Buglife) at Stirling. However, there are still two more under-recorded group workshops to go! An introduction to true bugs (*Hemiptera*) will be led by David Pryce (Perth Museum and Art Gallery Entomology Officer) in March and in response to popular

Action for Scottish Invertebrates—Hot Off the Press: Project Updates Continued



THIS PAGE CLOCKWISE FROM TOP LEFT: Springtail identification session © Duncan Sivell; Spider identification session © Chris Cathrine; Spider identification session © Chris Cathrine; Springtail field session © Peter Shaw. OPPOSITE PAGE TOP TO BOTTOM: Pseudoscorpion field session © Chris Cathrine; Moss nipper pseudoscorpion (*Neobisium carcinoides*) © Chris Cathrine; Pseudoscorpion identification session © Chris Cathrine

demand, we will also be running a second introduction to beetles workshop in Stirling in May. Both are already fully booked, with the beetle workshop filling-up in just 25 minutes! However, do get in touch as we'd be happy to add you to the reserve lists in case of cancellations.

All of the workshops are kindly supported by

INVERTEBRATE RECORDS URGENTLY NEEDED

The popularity of the invertebrate identification workshops is fantastic, but it doesn't stop there. What's the next step? Recording!

All groups of invertebrates are under-recorded in Scotland, and any records are urgently needed. Records help us to understand the current rarity and ranges of species. They are also used to inform management plans and planning decisions, so passing on even a single record can make a

BTCV Scotland through provision of equipment.

If you are interested in finding out more about future workshops, contact scotland@buglife.org.uk

Chris Cathrine

Buglife

real difference to Scottish invertebrate conservation.

Records can be sent to local records centres, or to dedicated national recording schemes. Contact details of local records centres can be found at <http://www.briscc.org.uk/Sources.php> and details of dedicated recording schemes are available at http://www.brc.ac.uk/recording_schemes.asp

Action for Scottish Invertebrates—Hot Off the Press: Project Updates Continued

Invertebrate Experts gather at St Cyrus NNR

On 20th July 2011, invertebrate experts gathered at St Cyrus NNR and Site of Special Scientific Interest (SSSI) with two goals. First and most important was to share their enthusiasm and knowledge with the wider public, and second to improve invertebrate recording at this important site.

The day began with a morning recording session, taking in the different habitats ranging from meadows to sand dunes. We were very fortunate with the weather, which was clear and warm, although a strong breeze meant that few bees and butterflies were on the wing.

The experts included David Pryce (Hemiptera), Bob Daly (Lepidoptera), Al Watson (Araneae and Opiliones) and Andrew Francis (generalist) and Chris Cathrine (Araneae and Opiliones). The diverse range of expertise meant that everybody



Britain's heaviest spider—the Four-spot orb-weaver (*Araneus quadratus*) © Chris Cathrine

had the opportunity to learn the benefits of different collection techniques. Particularly popular was David Pryce's bugvac (modified leafblower)!

The afternoon saw a great turnout of families, who all had a great opportunity to learn from a range of invertebrate experts. We were having so much fun on the sand dunes that passers-by were drawn in to find out what was going on and get involved! Britain's heaviest spider, the Four-spot orb weaver (*Araneus quadratus*) was undoubtedly the star of the day though!

All in all, the day was a great success and Buglife will be running a repeat event this year at St Cyrus on 10th June and a similar event at Taynish NNR and SSSI on 12th May.

For more information on how you can get involved with the events this year as an expert or to learn contact scotland@buglife.org.uk

Chris Cathrine, *Buglife*

Invertebrate Survey, identification and assessment for professional ecologists workshop with IEEM

Invertebrates represent 98% of all species of plants and animals known to live in Scotland, yet they are rarely considered by professional ecologists during Ecological Impact Assessments (EclA) for Planning Applications for new developments. Where they are considered in EclA, the surveys and assessments are often inadequate. This is largely due to a lack of awareness and invertebrate skills amongst professional ecologists, and so Buglife and the Institute for Ecology and Environmental Management (IEEM—the professional body that represents and supports ecologists and environmental managers in the UK) teamed up to deliver a workshop to tackle this issue in Scotland.

The workshop was run at Glenlude in the Scottish Borders on 27th August 2011. Glenlude is a new John Muir Trust property, so running the workshop here provided the added bonus of supplying invertebrate records to help inform the new management plan. The workshop covered basic

survey design and skills, basic identification, importance of invertebrates, legislation and assessment methods. This workshop was led by David Pryce (Perth Museum and Art Gallery) and Chris Cathrine (Buglife).

Chris Cathrine, *Buglife*



David Pryce demonstrates the bugvac © Chris Cathrine

Action for Scottish Invertebrates—Hot Off the Press: Project Updates Continued

Buglife, Froglife and Clyde Amphibian & Reptile Group Joint Pond Invertebrate Identification for Amphibian Workers

There's so much wildlife to record in Scotland, and so few people to do it! So why not double-up?

That was the idea behind the Pond Invertebrate Identification Workshop run for Amphibian workers in partnership between Buglife, Froglife and Clyde Amphibian & Reptile Group (CARG).

Amphibian workers catch invertebrates in their nets and bottle-traps when undertaking newt surveys, and also detect quite different species at night using torches than pond invertebrate researchers find during the day.

For instance, newt surveyors often see Water scorpions (*Nepa cinerea*) under the water and Pirate otter-spiders (*Pirata piraticus*) hunting on the water surface while torching with powerful spotlights and during general pond surveys, yet these species are under-recorded.

While experts in some invertebrate groups, such as spiders, don't often visit ponds at all!

This workshop was run on 27th April 2011 and gave amphibian workers the opportunity to learn pond invertebrate identification skills and encouraged them to record these under-recorded groups at the same times as amphibians.

The evening was a great success, and Buglife is hoping to run further workshops in partnership with Amphibian & Reptile Groups of the UK (ARG UK) and Froglife.

Chris Cathrine, *Buglife*

If you are interested in finding out about future workshops, contact scotland@buglife.org.uk

For more information about Froglife, go to www.froglife.org

For more information about Clyde Amphibian & Reptile Group, go to <http://c-arg.webnode.com>

For more information about Amphibian & Reptiles Groups of the UK, go to www.arguk.org



TOP TO BOTTOM: Male smooth newt (*Lissotriton vulgaris*) © Chris Cathrine; Water scorpion (*Nepa cinerea*) © James Lindsey; Workshop field session © Eilidh Spence

Focus on Sea Squirts: the Invertebrate-Vertebrate missing link!



Yellow-ringed sea squirt (*Ciona intestinalis*)
© Penny Martin

Sea squirts or tunicates are a group of marine filter-feeding sac-like invertebrates with two siphons (one incurrent and one excurrent). Despite the simple appearance of the adults, they are in fact closely related to vertebrates with a free-swimming larval stage that has a tail and primitive spinal chord called a notochord. Sea squirts are members of the subphylum Tunicata within the phylum Chordata, which contains all vertebrates and as well as the Lancelet (subphylum Cephalochordata) which was mentioned in the last edition of Scottish Invertebrate News, Volume 2, Issue 2.

Adult Sea squirts are immobile and tend to be found on rocks or seaweed on the sea bed. They have a thick, gelatinous tunic with an oral siphon for ingoing water situated on the top (for most species), and the atrial siphon for outgoing water, situated on the side. The body contains an intestine for processing filtered material and a simple heart with unique blood circulation where blood is pumped one way round the body for several seconds, then the flow is reversed for an equivalent amount of time. Water containing plankton and detritus is drawn into the tunic where food particles as small as a thousandth of a millimetre are filtered out by hair-like cilia and transported to the gut. The water then exits through the atrial siphon.

Reproduction is sexual, with most squirts being hermaphrodites. Male and female gonads mature at different times to avoid self fertilisation. The larvae, which resemble tadpoles, are planktonic and have a primitive eye or ocellus. They initially swim up towards the light, then down to the seabed where they settle into their sessile adult form. Their tail and notochord are reabsorbed.

A number of species can be found in Scottish waters including: the Yellow ringed sea squirt (*Ciona intestinalis*). Although this is a solitary species, with individuals not fused together, they can be found in extremely dense aggregations of up to 5,000 squirts per square metre! They may be creamy white, yellowish, green or orange. Both siphons have a distinct yellow rim with tiny red ocelli containing photo-receptors. The siphons, which are retracted in response to light, can pump up to 3 litres of water per hour.

Another Scottish species is the Lightbulb sea squirt (*Clavelina lepadiformis*). This is a colonial species where small groups of up to 15 individuals are joined together at the base. They are rarely found below 20 m. The tunic is transparent with white stripes resembling lightbulb filaments. Sexual reproduction occurs in July / August when the larvae are released. Individual squirts then regress to leave tiny "winter buds" slightly bigger than pins heads but filled with nutrition that survive the winter and develop into new squirts in spring.

Other sea squirts that can be found in Scottish waters include the Red sea squirt (*Ascidia mentula*), Gas mantle sea squirt (*Corella parallelogramma*), Fluted sea squirt (*Ascidella aspersa*), the Gooseberry or 'Baked bean' sea squirt (*Dendrodoa grossularia*) and the beautiful Star sea squirt (*Botryllus schlosseri*).



Lightbulb sea squirt (*Neomenia carinata*)
© Penny Martin

Sea squirts have few predators as the cellulose in their tunics is hard to digest and some have a highly acidic body wall which makes them unpalatable. Squirts live on average from 12 to 24 months. Keep a look out for these species if you ever go diving in Scottish waters!

Penny Martin, *Orkney Field Club*

A new time-saving method of surveying wood ant nests

Red wood ants are ecologically important members of woodland communities due to the key role they play in regulating the abundance of other invertebrate species through predation. A number of wood ant species are also of conservation concern. Despite this, we have only limited knowledge of their population trends, distribution and habitat requirements. A recently published study of wood ant nests in Abernethy Forest (Borkin *et al.*(2011). *European Journal of Entomology* 109: p47-53), used a new method to survey wood ant nest density and habitat associations.

The time-saving technique involved walking a line transect through woodland and recording nests that could be seen from the transect line. Habitat data and the distance of the nest from the transect line was also noted. Following analysis this allowed an estimate of wood ant nest density to be calculated for the entire forest and provided information on habitat associations for different species of wood ant.

During the study 144 wood ant nests were located, comprising 89 Scottish wood ant (*Formica aquilonia*) nests at a mean density of 1.13 per hectare, and 55 Hairy wood ant (*F.*

lugubris) nests at a mean density of 0.83 per hectare. These results are similar to those from a study of wood ant nests in Finland. Analysis of the habitat preferences of the two species of wood ant revealed that Scottish wood ants were associated with old stands of trees, while Hairy wood ants were associated with younger stands of trees.

Hairy wood ant nests tend to produce a higher frequency of winged queens and males, termed alates, which allows greater dispersal and the establishment of more new nests than Scottish wood ants. Scottish wood ant queens often don't have a nuptial flight, and may return to the original nest, meaning that dispersal and new nest establishment is far

slower in this species. Hairy wood ants can therefore colonise younger forest faster than the Scottish wood ant, however, once Scottish wood ants arrive, they tend to dominate an area.

No wood ant nests were found in clear-felled areas, as the workers lack visual clues to get back to their nests and also food sources such as aphids in the trees. Dense thickets of trees with low light levels are also not suitable for wood ants. The time taken for ants to recolonise a ploughed and replanted site can be greater than 30 years!

Ron Summers, *RSPB*



Scottish wood ant (*Formica aquilonia*) nest
© Roger Key

Appeal for help surveying invertebrates at Tainish NNR, Argyll

Calling all bug experts and keen amateurs! John Halliday, SNH Reserves Manager in Argyll has been in touch asking for help updating the list of invertebrates in their Argyll reserves. Particularly Tainish NNR near Tayvallich.

John says "Although moths, butterflies and dragonflies are well recorded, with up to date lists, other invertebrate groups have been neglected in recent years. There is a wonderful opportunity here on this beautiful and diverse reserve, for a bug expert to explore, update and add to the list of invertebrates for Tainish!

There is a caravan on the reserve which would be available for anybody interested in staying for a few days or over a weekend."

There is a Buglife event planned at Tainish on Saturday 12 May (see back page). Why not come along - you will not be disappointed!

John Halliday, *SNH Reserve Manager*



Snail-killing flies (*Tetanocera* spp) have been found at Tainish © Roger Key

National Insect Week 2012 Photography Competition

As a celebration of National Insect Week (25th June – 1st July), Forestry Commission Scotland are organising an insect photographic competition. The entries will be displayed at the David Marshall Lodge Visitor Centre, Aberfoyle during National Insect Week and the winners will be announced on Saturday 30th June.

Instructions for Entry

There will be three categories:- Digital photographs of insects taken by persons aged 12 and under, aged 13-17 and over 17 years. Only one insect photograph per person is allowed and the photograph must be taken within the British Isles during 2012. The entrant must be the person who took the photograph and owns the copyright. Photographs must be submitted by e-mail to cowal.trossachs.fd@forestry.gsi.gov.uk no later than 15th June 2012, with your name, age (if under 18), address, a contact telephone number and a title or brief description.

By entering your photograph in the Competition, you grant the Competition organisers a free non-exclusive license to use the image in their corporate promotion, publicity and publications, and in any promotional material connected to this competition. However, the copyright remains with



Cinnabar moth caterpillar (*Tyria jacobaeae*)
© Roger Key

you as the photographer, and your name as the photographer will – wherever possible – be credited if the image is used.

The competition will be judged by Craig Macadam from Buglife and the Trossachs based photographer, Phil Crowder.

The two prizes for under 18's will be appropriately aged insect collecting equipment and guides. The adult prize will be 'The Royal Entomological

Society Book of British Insects' and a one year subscription to an insect related organisation up to the value of £30.00. **Note photographs submitted for the Competition should feature insects. Other invertebrates which are NOT insects include: spiders, woodlice, millipedes, centipedes, snails, crabs and lobsters.**

Scott Shanks, Buglife

Species spotlight

Blind agate snail (*Ceciliodes acicula*)

This species of snail from the family Ferussaciidae is difficult to find as it lives up to 2m underground! As its name suggests this small snail (5.5mm x 1.2mm) has no eyes.

The Blind agate snail tends to prefer un-wooded calcareous habitats and has been found among plant roots, in mole hills, ant hills, in flood debris deposited by rivers and also in the cavities of ancient buried bones!

Because of its subterranean habitat, this species is often found only as an empty shell. When the snail is alive the shell is transparent and when empty for



Blind agate snail (*Ceciliodes acicula*)
© Francisco Welter Schultesw

some time it becomes an opaque milky-white. The Blind agate snail is thought to originate from around the Mediterranean. From here it has been introduced globally to Central and North Western Europe, the Azores, Canary Islands, South Africa, Australia, New Zealand and also across the USA.

In Scotland there are two extant colonies of the Blind agate snail. One from Arthur's Seat in Edinburgh and a new colony recorded by Richard Marriot and Barry Colville during Buglife surveys at Barsalloch Fort (NX345412)

along the north coast of the Solway Firth.

Suzanne Bairner, Buglife

New Butterfly Identification leaflet for Glasgow



Butterflies and day-flying moths of Glasgow



New Butterfly and day-flying moths of Glasgow leaflet © Butterfly Conservation

The very popular 'Butterflies and day-flying moths of Glasgow' leaflet has been reprinted with a few important changes to bring it up to date.

It is now an identification guide to 20 species of butterfly (instead of 19), since the Comma has finally been recorded within the city boundary. The Ringlet, described in the original leaflet as a recent arrival in Glasgow is now a common species and on some sites in summer can be found in large numbers. We are now on the lookout for the Holly Blue which is moving north and may reach the City soon – have a look at the photo in the leaflet and let us know if you find one,

it may be a first record for Glasgow if you do.

It's amazing the difference a few years make to our picture of Lepidoptera in the city, and a reminder why it is important to keep recording and monitoring species as widely as possible!

The new leaflet was designed and partially funded by the local branch of Butterfly Conservation (Glasgow & South West Scotland). It promotes the Glasgow's buzzing project which is a partnership between the Council and Buglife to create and maintain wildflower meadows for the benefit of butterflies, moths and other invertebrates.

The leaflet can be obtained from Butterfly Conservation Tel: 01786 447753 or e-mail: Scotland@butterfly-conservation.org or from Glasgow City Council Tel: 0141 287 5665/7026 or e-mail: carol.maclean@glasgow.gov.uk



Holly blue (*Celastrina argiolas*) © Owen Figgis. A species spreading through central Scotland

Scottish Arachnologists' Meeting 2012



Crowned harvestman (*Megabunus diadema*) © Roger Key

For the first time in many years there will be a meeting of Arachnologists in Scotland, to be held at Perth Museum on Saturday 25th August 2012.

This promises to be an interesting and stimulating day. A number of speakers are already booked, including Dr. Geoff Oxford (*Tegenaria*) and Dr. Alastair Lavery (Harvestmen of the Falklands) with other talks and demonstrations planned. There will be a focus on local initiatives, such as the Grampian Spider Group, and the intriguing possibility of some hypnotherapy for any arachnophobics who dare to come!

Further details and a registration form can be found on the British Arachnological society website www.britishspiders.org.uk under events and meetings. Please register your interest as early as possible by emailing: scotland@britishspiders.org.uk.

Mike Davidson, *British Arachnological Society*

Volunteer for Invertebrates

Robroyston Park Local Nature Reserve (LNR) - Butterfly Transect Results

Robroyston Park LNR in Glasgow has a rich mosaic of habitats, mainly species-rich diverse grassland, open wetlands and woodland. The site is good for a variety of butterflies and moths, including the locally uncommon Six-spot burnet moth (*Zygaena filipendulae*).

To help monitor species diversity and abundance, a butterfly transect was set up in 2011 by one of the Council's Countryside Rangers, Jimmy Huis. Jimmy organised volunteers to help run the transect and thanks to their good work, it produced some interesting results.

Firstly it confirmed that butterflies won't fly in windy, rainy or overcast conditions! On more promising transect days a variety of common species were recorded, including Large white (*Pieris brassicae*), Small White (*Pieris rapae*), Green-veined white (*Pieris napi*), Orange-tip (*Anthocharis cardamines*), Small tortoiseshell (*Aglais urticae*), Peacock (*Inachis io*) and Meadow browns (*Maniola jurtina*). Common blue (*Polyommatus icarus*), which despite their name are not very common in the City, turned up in reasonable numbers on the species-rich grassland in the south of the site. This was very positive as the species has declined in recent years and appears to now be following a national



Common blues (*Polyommatus icarus*)
© Scott Shanks

trend of returning increased numbers in 2011. Ringlets (*Aphantopus hyperantus*) were present in large numbers, for example 87 were counted on one summer transect walk, in the diverse and marshy grasslands. Robroyston Park is also a good site for Small Heath (*Coenonympha pamphilus*) which can be present in their hundreds in the grassland.

The results of the transect have confirmed both the value of the LNR for butterflies and which species are present. We are already managing large plots of grassland as meadows by cutting regimes and wildflower planting. The transect results in future years will help to tailor the management for the best results, which will not only benefit butterflies and moths but other invertebrates too.

Glasgow currently has active butterfly transects running at Hurler Hill, Commonhead Moss and Nitshill in addition to

Robroyston. **We are really keen to get more volunteers for all sites and to set up a new transect at Hogganfield Park LNR, which has a good variety of suitable habitats and is sure to produce some fantastic results. But we need your help!** For more information contact Helen Simmons, our Community Engagement Officer (BTCV Natural Communities Trainee) on 0141 2875087, email: helen.simmons@glasgow.gov.uk.

Carol MacLean, Glasgow City Council

Grand opening of Bug Hotel in Stirling!

Buglife were honoured to be invited to the opening of the 'Wiggly Woo's Bug Hotel' made by Lifestart students at the Forth Valley College campus in Stirling. The hotel was made over the course of several weeks using material donated from the college's Construction Department with material such as wood, pine cones and leaves found around the Stirling campus. This bug hotel will provide shelter and valuable overwintering habitats for many wildlife species and will be particularly important to invertebrates.

The Lifestart students also worked towards achieving the John Muir Award at Discovery Level while making the hotel, and also sowed wild flower seeds and planted daffodil bulbs.



Buglife's Suzie and student Stewart Wilson opening the new Wiggly Woo's Bug Hotel © Stuart Hall

Suzanne Bairner, Buglife

Volunteer with Buglife!

Buglife Volunteers Needed!

There are a number of volunteering opportunities with Buglife this year including invertebrate surveys and practical conservation days.

Falkirk Stepping Stones habitat work

This project is carrying out practical habitat management, enhancement and creation at the brownfield site Roughcastle adjacent to the Falkirk Wheel with the help of volunteers from different organisations.

Volunteers from the local community groups Green Routes and Enable Scotland, the Falkirk Ranger service and the Co-operative helped plant 500 plug plants within a meadow at Roughcastle. Volunteers also helped clear invasive birch saplings from an area of bare ground which is important for Green tiger beetles (*Cicindela campestris*) and helped seed Yellow rattle (*Rhinanthus minor*) a hemi-parasite of grasses into the meadow.

This year we will be back at Roughcastle with more habitat creation and management across the site. We will be creating a bee bank, planting 3,000 plug plants and also clearing and thinning



Green tiger beetle (*Cicindela campestris*) © Roger Key

further areas of Birch.

This is an excellent opportunity for volunteers to gain experience and get involved with hands on practical conservation work. We will be working alongside BTCV on the following dates at Roughcastle: 17th and 24th of April and 8th and 15th of May.

For more information please contact:

Volunteer with Buglife at Public events

Suzanne Bairner. Tel: 01786 447504.

Email: suzanne.bairner@buglife.org.uk

Volunteers with a passion for invertebrates are needed to help on Buglife stalls at public events during 2012.

Buglife will be attending several public events across Scotland this year. This is an opportunity for volunteers to help us promote invertebrate conservation and learn about the work that



Buglife fun at the 2011 Glasgow Show © John Mc Farlane

Buglife are currently doing, whilst also improving their skills in public engagement. Tickets will be provided to volunteers that allow free access to the events on the day and there will be time for you to have a look around and enjoy the day too.

ExtInked Project at Edinburgh Royal Botanic Gardens on the 26th - 27th May

Gardening Scotland at Ingliston, Edinburgh on the 1st - 3rd June

Glasgow Show at Glasgow Green, Glasgow on the 21st - 22nd July

Wild in the city event at Botanic Gardens, Glasgow on the 25th July

Pollok Family Day at Pollok Park, Glasgow on the 4th August

**For more information on any of these events please contact Suzanne Bairner
Tel: 01786 447504**

Invertebrate Events Programme

From the beginner to the expert, there are events for everyone! This section pulls together many invertebrate events into a single calendar.

If you have an event you would like to publicise in Scottish Invertebrate News please send the details to scott.shanks@buglife.org.uk

Date	Event	Location	Cost	Further Information
02/04/12 to 07/04/12	Special Spring Moths	Kindrogan	£290	http://www.field-studies-council.org/kindrogan/
30/04/12 to 04/05/12	Identifying Freshwater Invertebrates	Kindrogan	£165	http://www.field-studies-council.org/kindrogan/
10/05/12	Introduction to Beetle Identification	Stirling	£7.50	suzanne.bairner@buglife.org.uk
12/05/12	Bug walk at Taynish NNR near Tayvallich, Argyll	Taynish NNR, Argyll	Free	scott.shanks@buglife.org.uk
10/06/2012	Bugwalk	St. Cyrus, Aberdeenshire	Free	scotland@buglife.org.uk
12/06/2012	Bugwalk	Roughcastle, Falkirk	Free	suzanne.bairner@buglife.org.uk
23/06/2012	North Scotland East Bioblitz	Haddo Country Park, Tarves	Free	scotland@buglife.org.uk
29/06/12 to 02/07/12	Spiders: An Introduction to their Identification	Kindrogan	£159	http://www.field-studies-council.org/kindrogan/
18/08/12 to 25/08/12	Highland Butterflies and Moths	Kindrogan	£475	http://www.field-studies-council.org/kindrogan/
18/08/12 to 25/08/12	Identifying Spiders	Kindrogan	£475	http://www.field-studies-council.org/kindrogan/
21/08/12 to 25/08/12	Invertebrate Surveying Techniques	Kindrogan	£205	http://www.field-studies-council.org/kindrogan/
25/08/12	Scottish Arachnologists' Meeting 2012	Perth Museum		www.britishspiders.org.uk
28/09/12 to 01/10/12	Harvestman Spider identification & Ecology	Kindrogan	£159	http://www.field-studies-council.org/kindrogan/
24/10/12	Amateur Entomologist society Scottish meeting 2012	SAC, Edinburgh		http://www.royensoc.co.uk/content/meeting-24-october-2012

Credits and Information

If you would like to write an article for *Scottish Invertebrate News*, suggest a topic to be discussed, or would like any further information, please contact:

[Scott Shanks \(Editor\)](mailto:Scott.Shanks@buglife.org.uk)

Scott.shanks@buglife.org.uk

This newsletter is produced as part of the 'Action for Scottish Invertebrates' project. This project is grant-aided by Scottish Natural Heritage and delivered on behalf of the Initiative for Scottish Invertebrates (ISI) by Buglife – The Invertebrate Conservation Trust.

www.scottishinvertebrates.org.uk

ISI
Initiative for
Scottish Invertebrates



Scottish Natural Heritage
All of nature for all of Scotland