It is to be directly understood that all views, opinions or theories, expressed in the pages of "The Newsletter" are those of the author(s) concerned. All announcements of meetings, and requests for help or information, are accepted as bona fide. Neither the Editor, nor Officers of "The Phasmid Study Group", can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.
Welcome to the June PSG Newsletter. As always, many thanks to everyone that contributed photos and articles and made this issue so special. You will notice that this edition is printed in full colour, so hopefully you will be receiving a very good quality Newsletter. I hope that, where possible, members will contribute lots of photos for the next Newsletter, whether part of an article or not. To help you take such photos, there are no less than three articles on the subject, see pages 18 to 22. Particular thanks to Chris Pull and Chris Wilson for such excellent articles, and for sharing their photographic tricks and trade secrets.

PSG Summer Meeting. We have our PSG Summer Meeting on Saturday, 4th July 2015. Judith has lined up another great meeting; there will be three talks, a Photographic Competition, and everybody’s favourite—the Livestock Exchange, also possibly a few other things. It is again in the awesome Flett Theatre. The agenda is on the next page. For first-timers please read my notes below. For easy access to the Flett Theatre use the Exhibition Road entrance (but you can reach it through the main entrance in Cromwell Road). Remember to bring your current PSG Membership Card (or you will be issued with a temporary one on the day).

Photographic Competition. Please do put an entry into the Photographic Competition, any stick insect photo, of any standard, will be welcome...and there are prizes! Details of the Photographic Competition appear on the agenda notes (opposite). Go on, have a go, take a photo of your favourite stick insect and bring it along to the meeting.

Please contribute to the next PSG Newsletter, including reviews on shows and meetings, drawings, photos, phasmid problems, answers to phasmid problems, crosswords, quizzes, puzzles, web site details, ideas or comments on the Newsletters or the PSG, etc, etc. Don’t worry if you can’t spell, have no pictures, think your contribution is not scientific enough, or your pictures are not perfect. Just send in whatever you like, this is YOUR Newsletter, and I’ll put in it everything you send in – and correct any spellings and add pictures (if needed). Also, I always copy the completed articles to the author for final approval. See the PSG Website if you want help on how to write articles. E-mail them to: newsletter@phasmid-study-group.org, or post them to Mike Smith, 13 Runnacles Street, Silver End, Witham, Essex, CM8 3QN, England, UK. The very latest date for contributions to the next PSG Newsletter in December is 22nd November 2015 (but contributions received before then will be particularly much-appreciated). Don’t forget to try and include photographs with your articles.

Regards to all, Mike Smith

PSG Summer Meeting, Saturday 4th July 2015 - in the Flett Theatre by Mike Smith

Yes, another fantastic meeting awaits all PSG members. Just take a look at the agenda opposite and see for yourself. Please note that this particular meeting will be held in the Flett Theatre and Atrium area. This is easily accessed by entering the NHM by the Earth Sciences entrance in Exhibition Road. Once inside go up the steps, turn left and go up the staircase until you reach the glassed-in Atrium area, on the left. (The museum’s main entrance is in Cromwell Road, SW7 5BD).

Entry to the meeting (and to the local Natural History, Science, and Victoria & Albert Museums) is completely free. When attending the meeting, please bring your PSG 2015 Membership Card with you (members who have lost or forgotten their membership cards will still be able to access the meeting, but checks will be made to ensure they are members, and a temporary members’ name badge will be issued). Non-members who accompany members will be given a white name badge to wear. Only members can vote and/or collect free livestock.

The queues for the museum can be quite long, but still usually take only 15-20 minutes maximum. Please note bags are searched on entry for dangerous” objects such as knives, scissors, etc should not be brought in. The nearest tube train station is South Kensington which is on the Circle, District, and Piccadilly lines. Bus routes include: 14, 49, 70, 74, 345, 360, 414, and C1. But before you travel best check with Transport For London for any planned closures (eg for engineering work). Phone 0343 222 1234 (+44 343 222 1234 from overseas), or go to the website www.tfl.gov.uk.

The PSG Committee

Chairman: Judith Marshall. The Natural History Museum, Cromwell Road, London, SW7 5BD. Tel: 0207 942 5610, E-mail: chairman@phasmid-study-group.org. or j.marshall@nhm.ac.uk.

Treasurer/Membership Secretary: Paul Brock. 2 Greenways Road, Brockenhurst, SO42 7RN. E-mail: p.brock@phasmid-study-group.org or pauldbrock@btinternet.com.

Newsletter Editor: Mike Smith. 13 Runnacles Street, Silver End, Witham, Essex, CM8 3QN. E-mail: newsletter@phasmid-study-group.org.

Webmaster: Natalie Ford (with assistance from Mike Strick, Nick Wadham, & Ed Baker). Contact via the PSG Web page, or E-mail: webmaster@phasmid-study-group.org.

Phasmid Studies Editor: Ed Baker and Judith Marshall. (For Judith’s contact details see “Chairman”, above). Ed’s details: The Natural History Museum, Cromwell Road, London, SW7 5BD. Tel: 0207 942 5975. E-mail: phasmidstudies@phasmid-study-group.org.

Exhibitions: Paul Jennings. 89 Brackendale Avenue, Derby, DE22 4AF. Tel: 01332 343477. E-mail: exhibitions@phasmid-study-group.org.

Livestock Coordinators: Mark and Ian Bushell. 43 Bradford Road, Trowbridge, Wiltshire, BA14 9AD. Tel: 01225 747047. E-mail: livestock@phasmid-study-group.org.

Merchandising: Mike Strick and Daren Moss. E-mail: merchandise@phasmid-study-group.org.

Other members: Phil Bragg and Ian Abercrombie.

PSG Mission Statement: To study and culture stick insects and leaf insects (phasmids), publish results, and foster the free exchange of species, allowing members to share livestock appropriate to their experience.
**AGENDA**

(Any item may be reviewed on the day. Please help us run on time.)

10.00am – 11.30am **ARRIVALS & INFORMAL GATHERING:**
Members are encouraged to exchange ideas & experiences, to view displays, and to take part in the Photographic Competition**.
Please have a drink, biscuit or cake from the refreshment table***.

11.30am – 12.15pm **ILLUSTRATED TALK Stick Insects of New Zealand** By Paul Brock.

12.15pm – 1.00pm **ILLUSTRATED TALK Recent Collecting Trips** By Tony James.

1.00pm – 2.00pm **LUNCH*** also viewing of displays and merchandise.

2.00pm – 2.45pm **ILLUSTRATED TALK More on His Expeditions to Vietnam** By Joachim Bresseel.

2.45pm – 3.00pm **THE PHOTOGRAPHIC COMPETITION RESULTS.**

3.00pm – 4.00pm **LIVESTOCK EXCHANGE****

4.00pm – 4.30pm **CLOSURE OF MEETING** Please collect your leftover livestock, competition entries, etc.

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**ACCESS.** For easy access, please use the Exhibition Road entrance.

**THE PHOTOGRAPHIC COMPETITION.** This could not be easier, just take one or more photos of any of your stick insects, print it off, and take it to the meeting. On arrival at the meeting put your name on a list, then take a form and insert the stick insect’s name and a few other details on it, but NOT your name. Take your photo(s) and their label(s) and put them on the Photographic Competition table. The labels will be coded, and the winning entries will be identified from the coding. ANY photos will be welcome; we are not looking for perfection, and there will be a prize for the winner.

**REFRESHMENTS.** Tea, coffee, squash, and biscuits will be available all day (from about 10.15 am), for a voluntary contribution, in the meeting room (courtesy of Judith). Food shops are available in the museum, offering good food at reasonable prices, but there may be queues. You are welcome to bring your own lunch, to eat in the meeting room or in the museum. You may also “donate” cakes, biscuits, etc, if you wish.

**THE LIVESTOCK EXCHANGE.** You are welcome to bring in your spare phasmids (you may also bring in other livestock eg mantids, cockroaches, millipedes, fruit beetles, etc) for free distribution to PSG members. You will also have the opportunity to take home livestock from the exchange table, though where numbers of livestock are limited not all members will be able to get their first choices. You are reminded to follow the rules as laid down concerning the Livestock Exchange: eg livestock should be given some foodstuff, and their container be clearly labelled with their scientific name & PSG number; the food plant they are being fed on, and your name & PSG number. Don’t forget to check before you leave that all of your livestock has been distributed and, if not, please take them back home with you. Do not overcrowd the stick insects, but also please use reasonably-sized containers (not too big), and do not spread the spare stock of common species over too many different containers. During the livestock exchange please do not crowd around the table, rather sit in the rows of seats and just raise your hand if you are interested in the livestock being offered.
LIVESTOCK REPORT by Ian Bushell

AVAILABLE LIVESTOCK – as at May 2015.

The following species are currently available from Mark and Ian (contact details below):

<table>
<thead>
<tr>
<th>Species</th>
<th>Key</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Medaura sp.</td>
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<td>0</td>
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<tr>
<td>Heteropteryx dixata</td>
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<td>N</td>
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<td>Crocylus spinosus</td>
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<td>O</td>
</tr>
<tr>
<td>Eurybrachyca calcarata</td>
<td>44</td>
<td>A</td>
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<tr>
<td>Hoplos micropterus</td>
<td>61</td>
<td>O</td>
</tr>
<tr>
<td>Phenophorus carunculiv</td>
<td>73</td>
<td>ON</td>
</tr>
<tr>
<td>Rhaphidophora sp.</td>
<td>82</td>
<td>N</td>
</tr>
<tr>
<td>Rhamphodispolisa gormani</td>
<td>90</td>
<td>ON</td>
</tr>
<tr>
<td>Trachytarsor maculicollis</td>
<td>160</td>
<td>NA</td>
</tr>
<tr>
<td>Siphylia sp.</td>
<td>163</td>
<td>ON</td>
</tr>
<tr>
<td>Paracylophora sp.</td>
<td>154</td>
<td>O</td>
</tr>
<tr>
<td>Mnesoleucus carpaeolus</td>
<td>169</td>
<td>O</td>
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<tr>
<td>Oxyades lemmellus</td>
<td>182</td>
<td>O</td>
</tr>
<tr>
<td>Sceptraphnora hispidum</td>
<td>183</td>
<td>ON</td>
</tr>
<tr>
<td>Neohoristes sp.</td>
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<td>ON</td>
</tr>
<tr>
<td>Oxytes spinipennis</td>
<td>188</td>
<td>O</td>
</tr>
<tr>
<td>Sinyaga inexpectata</td>
<td>155</td>
<td>O</td>
</tr>
<tr>
<td>Tarachoeidae biceps</td>
<td>203</td>
<td>O</td>
</tr>
</tbody>
</table>

Eggs and insects are free, but the member pays for the postal charges. Eggs will be sent by 1st Class post. Live insects will be sent, UK only, by next day/recorded/tracked delivery [currently about £7 a parcel]. Save postage and disappointment, pre-order for delivery at the Summer Meeting.

Members’ Surplus Livestock: Your surplus livestock can be sent to our address, but please get in touch before sending any insects or eggs, particularly if the parcel is too large to fit through a letter box. Please also include your name and address as well as what species have been sent: Mark & Ian Bushell, 43 Bradford Road, Trowbridge, Wiltshire, BA14 9AN, Tel: 01225 767047. E-mail: livestock@phasmid-study-group.org.

Members’ Surplus Livestock at the PSG Summer Meeting: We are looking forward to the Livestock Exchange at the Summer Meeting, but the usual pleas are made. All livestock and eggs are welcome but please ensure that: each box is labelled with the species name & PSG No if it has one. If you are unsure there are plenty of experts available to advise you. Also include data on foodplants and notes of how you have kept them – useful for both the novice and the old hand. Check before you leave that all your stock has gone, and if it has not then please take it home with you (unless previously arranged with us).

The Disappearing Stick Insects by Mike Smith

Welcome to a picture of my prized, dried stick insect collection! Sadly, I only have an “after” picture, not a “before” one. In case it is not obvious from the picture, I’ve been invaded by the museum beetle, Anthrenus verbasci, the little blighters. Looks like an attack by a miniature nuclear bomb. This lot went straight into the dustbin, stick insects, beetles, and container.

A cautionary tale to all that keep mounted insects – especially museums. I had even put a mothball in each corner to help ensure I’d be safe from such attacks, but sadly the little horrors are apparently immune to them. I keep my collections in my garage loft and only bring them out when I’m doing a show. Less than a year ago they all looked perfect.

Fortunately, I have another tray of mounted critters, though not many stick insects – I’ll have to build up my collection again, and look out for another tray to put them in. I was advised by Paul Brock that Zensect is useful for keeping such beetles at bay. I ordered some off the internet!

I wonder what museum beetles lived on before museums were invented. What did flour mites live on before flour was invented, and what did the book worm live on before books were invented? Interesting...
A Comprehensive Guide to Insects of Britain & Ireland  by Paul D. Brock

I will have a few of my books ‘A Comprehensive Guide to Insects of Britain & Ireland’ (Pisces) on sale at the Summer PSG Meeting, in case members missed out at previous meetings. This book continues to receive some excellent reviews in major journals. The initial stock of books (publication date 23 May 2014) sold out; the March 2015 reprint includes minor corrections and some improved photos. If you want to be certain of a book, e-mail me at pauldbrock@btinternet.com in advance to reserve a copy for £20 (normally £28.95), but a few should be available on the day.

Beach Huts and Stick Insects!  By Paul D. Brock

Malcolm Lee first suggested that I look for Mediterranean stick insects Bacillus rossius along South Beach, Hayling Island (SZ708988) in October 2012 when one was reported hanging from a toilet wall! I returned in the afternoon of 29 November 2014 to find several adult females which have found themselves suitable habitat on brambles growing alongside beach huts, where they can find shelter from the wind. In sunny, still conditions they rest on the beach huts and body colours were found to closely match these in each case! They return to brambles to feed. I did not see feeding damages on nearby clumps of bramble several metres away, but some insects may have spread to such areas and one would need to return at night with a torch to investigate how widespread they are.

How did they reach this location? Most probably by human hand, such as discarded culture stock, but possibly via transport from Europe. They have apparently been established at Hayling Island for several years, but the oldest surviving population of this species in Britain is on Tresco, Isles of Scilly where it has been found since 2002. Whilst the adult tachinid fly parasite has not been seen yet, abdominal bumps on two specimens at Hayling Island indicate larvae developing inside, the first record of parasitation of phasmids in Britain. Hayling Island or Tresco – perfect late season locations for the phasmid enthusiast wanting to see Bacillus in the wild!
What a fantastic meeting! Yes, I always say that, but I really mean it every time, and I’m sure all the attendees would agree with me. Like many others, I missed the Summer Meeting; I was therefore suffering serious withdrawal symptoms, so this meeting was a very welcome respite. It was amazing to see all the regulars again, Paul, Judith, Ian, Mark, Mike, Natalie, Phil, Derek, Nick, Ed, etc, etc, it was like the Who’s Who of stick insect land. Also, as always, everyone was so friendly, knowledgeable and enthusiastic. I really wanted to speak to so many people but there just were not enough hours in the day. If only the meetings could last all weekend, and be 6 times a year! If you have NOT been to a PSG Meeting before, then do your best to go along to one, you will not be disappointed.

The meeting was well attended. We had about 60 there, 45 of which were PSG members (others were their relatives and friends – ie potential new members). There was only one European member (Kristien and Rob could not make it). One member travelled down by overnight sleeper train from Scotland to attend. Given that we then had 134 PSG members, and 42 of them were abroad, this was an excellent turn out, and on such a cold, grey day too. But we still had lots of space for more members to attend, and it was good to see some of our younger PSG members in attendance. Especially it was nice to see Tony and Pat James there – Tony is the founder of the PSG. Ian Clark [above right] kindly donated his late father’s egg collection and archives to the Museum. (John Sellick, aka John Clark, was the leading specialist in egg taxonomy and author of ‘Stick and Leaf Insects’ - published by Barry Shullock in 1974).

Sadly, my usual travel friend could not make it this time, so I travelled alone. I checked with Transport For London (TFL) to see if there were any disruptions on the tube trains. I found out that the phone number I’d been advertising in the Newsletter for them was out of date, their new number being 0343 222 1234 – the previous number was free to me, this new number I have to pay for! However, I was advised that I need not queue for a tube train ticket, as they now accepted CPCs. Yes, that confused me for a time too, apparently it stands for Contactless Payment Cards ie any debit or credit card with a contactless symbol just needs to be tapped on the entry and exit gates at tube stations. A bit like the Oyster Card that Londoners use. You can then look up on the TFL website to see how much you have been charged, but you should always be given the best fare deal. Full details are on the TFL website (www.tfl.gov.uk). Not being a regular traveller, I was amazed that the tube train I got on was a “bendy” train ie there were no doors between the carriages; you could see and walk through the whole train from one end to the other – if you wanted to. The journey went smoothly, taking just over 2 hours, so I had enough time to look around the museum’s shop. Sells all sorts there – even elephant poo in a box! Nice.

The meeting began with the formal AGM. Unfortunately, no members had offered their services, so there were no new faces for the committee; generally the previous incumbents stayed on for another year. Paul Brock advised that our PSG finances were in good order and that we had enough general funds for contingencies, so there was no need to increase the membership fees, AND there was spare to cover PSG Newsletters being in FULL colour. Good news indeed. I reminded members I was always in the market for more entries for the Newsletter, and as I walked around the meeting some articles were promised. I also had an offer from a member to help me improve on the picture quality in the Newsletters. Judith said that there were not enough entries to issue a Phasmid Studies yet, but one might come out this year. Natalie said she was very busy and hoped a member or two would offer to take over all or some of the PSG Website work (contact her on webmaster@phasmid-study-group.org). Ian Bushell said the livestock role was very busy, with a batch of stick insects going out once per fortnight on average. Mike Strick said he had made some progress on PSG merchandise, and had some good PSG badges and T-shirts in the pipeline. He brought along three sample badges to show members.

Next there was an illustrated talk by Paul Brock. Initially, he introduced some topical subjects to bring us all up to date with recent happenings in the stick insect world. He kept looking at me and saying “You saw that one Mike” or “I beat you to that one Mike”, because he had used my “trick” of surfing the web to seek for any recent phasmid topics, which is the basis for many of my Newsletter articles. I also find this a very interesting way of learning about phasmid news. Paul progressed to covering some of the stick insects he had found wild in the British Isles. We
were especially fascinated at some Bacillus rossius that he had found on Hayling Island by some beach huts, as their colouring matched the colour of the beach hut they were living next to. Maybe for there is scope for experimenting if other colours were possible. Interbreeding is not really applicable, as all are females. Populations seemed tiny and possibly fragile, but Paul said that the population could be larger as no-one has visited at night to his knowledge. (For more information, see Paul’s article on page 5). Also, there was scope for investigating parasites (tachinid flies?) in this population. It was especially amazing that this culture could survive England’s cold winters. All in all, Paul’s talk was very good.

We then had a break for lunch, and the film “Sticky” was shown for anyone interested in the demise of the Lord Howe Island Stick Insect. I had just over an hour to watch the film, try the competition, eat my sandwiches, chat to members, take photos, and look at the livestock table. I would liked to have gone round the museum too, but there was not time to do everything. Very soon it was time for Ian’s talk.

After lunch, Ian Abercrombie gave an illustrated talk on his recent visit to Singapore and Sabah. It was Ian’s usual tried, tested, and successful portrayal of the trials and tribulations of looking for stick insects, with amazing photos of these and other critters, and all the time he was keeping us enthralled with lots of very interesting stories about his travels. I’m sure we all could listen to Ian all day, but all too quickly his talk was over, though he then answered lots of questions from members.

Judith had an interesting competition running, a sort of “Match the Species” in a box, to the species’ name on a list. I saw many members taking part, but not many entries were handed in, I suspect members just liked the taking part. One member got 100%.

We finally had everybody’s favourite – yes, the Livestock Exchange. Mark, Ian and Ed had a very professional set-up whereby Ed showed on the big screen a picture of the stick insects on offer, Mark gave lots of information on them, and Ian handed them out to the many members with their hands up. Very slick, very civilised, and very enjoyable. I think most if not all members had at least one species that they were looking for. Indeed, many members left with more species than they had bargained for. All in all it seemed to work out very well for all concerned.

I got home happy but quite exhausted. I put my bag of stick insects in my animal shed, then went indoors for some food and rest. The next day I firstly went out to collect some stick insect food, and secondly got some new cages ready. I then opened the bag, took out my booty, and sorted them into their new cages. I am well pleased with the meeting and my new stick insects. I’m looking forward to 4th July; the Summer PSG Meeting – see you there. Many thanks to Paul & Helen Brock for photos 1-4, 7, 9 & 11 (left to right).

The Midland Entomological Fayre by Andrew Hardy

This event takes place in Balderton in Newark, Nottinghamshire. It has been running for over ten years now and is held twice a year; usually around mid-April and early December (the April fayre usually being the busiest). Despite the small size of the venue there are many traders and a very diverse set of stands; there are plenty of arachnids and myriapods, and one or two of the stalls usually stock good numbers of mantids. Many of the regular stallholders bring huge amounts of preserved butterflies and moths with them and so the show is definitely worth a look for any aficionado of mounted insect displays.

Whether it is a worth-while show to attend strictly for a phasmid enthusiast is very much dependent on which traders are present on the day. On some occasions there have been many interesting and uncommon species available, whereas on other days, the exhibition has been distinctly lacking in phasmids, favouring the preserved insects and expensive arachnids. In general, there are always some of the archetypal species available (e.g. Sungaya inexpectata and Sipyloidea sipylus), but unusual species tend to be few and far between. One or two of the leaf insect species will invariably make an appearance and often demand a high price.

In summary, the Midland Entomological Fayre is a good event to attend for anyone interested in invertebrates, even if their interests are mainly with phasmids. The stallholders are friendly and will readily offer advice on any of their stock. However, I suspect that individuals looking specifically to buy or trade for rare live phasmid specimens would have better luck at the larger exhibitions (the AES show for example).

While I found the December 2014 show well worth attending, I thought the April 2015 show was a bit disappointing, it was mainly dead stock and accessories like terrariums. I also heard that the location of the show was going to change sometime soon. Further details about the show can be found on its website – simply search the internet for ‘Midland Entomological Fayre’.

June 2015  Website: www.phasmid-study-group.org  Facebook: www.facebook.com/PhasmidStudyGroup  Newsletter 134.7
Illustrated Notes on *Paronchestus charon* in Queensland, Australia by Noelene Tweed

Until now, *Paronchestus charon* has been little known from just a few males (body length 108-111 mm). Originally described from the Peak Downs, south-west of Mackay, males have been found attracted to lights near Alpha, Arcadia Valley, Clermont and Taroom. This species is easily distinguished from the other two described *Paronchestus* species by the presence of seven to nine bold spine-like tubercles on the male mesonotum (Brock & Hasenpusch, 2009. The complete field guide to stick and leaf insects of Australia. CSIRO).

Specimens were found by day in the Neville Hewitt Weir camping area, Baralaba, with the first – an adult male, collected early 2012. Female nymphs collected at about head height on an *Acacia* species (believed to be the foodeplant) in January 2014, subsequently died. The *Acacia*, growing next to a pine tree, also produced a large female nymph on 10 November 2014. The female nymph this time fed on broad-leaved red-stem Acacia in captivity and matured on 12 December, body length 155 mm. A male nymph was also reared, maturing in January 2015.

Careful observations in captivity reveal the following: 1) initial mating attempts may be unsuccessful, 2) successful matings were made 19 January 2015 (with 13 unfertilised eggs laid before that date), 21 January, 24 January (spermatophore produced), 26 January and for the 5th time on 2 February. The male remained attached for c.24 hours, sometimes up to 48 hours, 3) the female slowly crawled down vegetation and tested the soil; she dug pits with the sturdy beak-like ovipositor and typically laid 4 to 6 eggs in one hole per night. Ninety-one eggs were dug up on 26 January.

The egg laying technique was confirmed in the wild during a further trip to Baralaba on 6 February 2015, when two more female nymphs were found and an 11 cm male (in all since 2012, seven females have been found at this site and three males, mostly as nymphs. In addition, a female nymph was found at Banana). *Acrophylla titan* is common is this area, also *Anchiale briareus*, *Austrosipyloidea carterus*, *Didymuria violescens* and an undescribed *Candovia* species. Seven batches of 4 to 6 eggs were found at the base of the *Acacia* trunk, c.15 cm apart. The eggs (approx. length 9.5 mm, width 3 mm, height 2 mm) were laid at a depth of c.2 cm.

Live specimens on *P. charon* have been passed on to Jack Hasenpusch, including the original female, which will be deposited in the Brisbane Museum, Brisbane. Unlike the male, there are only two particularly large spines, located on the upper third of the mesonotum, although a series is needed to see how variable these are. The hindwings are black and white tessellated with yellowish veins and tinge. The pre-anal part of the hindwing has a bold black mark, so when the wings are opened in defence, this resembles large eyes.

It is hoped that further information will be obtained on the behaviour of these fascinating insects, which appears to be one of the rarest of the Australian phasmid fauna. They have readily transferred to *Acacia melanoxylon* in captivity. Thanks to Jack Hasenpusch for the photos of adults and Paul Brock for comments on the ms.
The ever-popular livestock table at PSG meetings.

Egg laying site, at base of trunk.

Egg laying holes made by females.

Eggs.

Female feeding.

Female.
In February 2015, I made my first visit to New Zealand and as well as making detailed examination of type material in Christchurch and Wellington Museum collections, also associated eggs [see Phasmida Species File On-line http://phasmida.speciesfile.org for images], I took the opportunity to look for live specimens to help resolve certain taxonomic issues.

Wellington and surrounds has long been regarded as a hotspot for phasmids. Following in SalŵoŶ͛s footsteps (author of The Stick Insects of New Zealand (Reed Books, 1991), I stayed at Belmont Hills, Lower Hutt from 12 to 18 February (from which I visited a native botanic garden and forest reserve Otari-Wilton’s Bush on 15 & 17 February) and Karori 28 February to 4 March and looked for phasmids by day and night. The following list shows species seen:

<table>
<thead>
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<th>Species</th>
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<th>Karori</th>
<th>Lower Hutt</th>
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I have been intrigued by the endemic phasmids of New Zealand ever since working on ‘British’ species originating from New Zealand back in the 1980s. This culminated in me describing an insect new to Britain in 1987 (Unarmed Stick-insect Acanthoxyla inermis). Later, a provisional checklist of New Zealand species was published in Jewell & Brock, 2003, following examination of type material outside of New Zealand.
Tectarchus huttoni, mating pair

Dog exercise area, Karori -- phasmids plentiful on bramble

1Salmon’s huttoni ‘form’ [more spiny than normal] also found at Otari-Wilton’s Bush and Karori.

2Salmon’s speciosa [usually mottled] and intermedia [mainly lacking or with few spines, except on head] ‘forms’ also found at Otari-Wilton’s Bush; speciosa also in Lower Hutt.

3Previously recorded at this site. Although Salmon informed me in April 1997 that ‘we cannot find any specimens of A. horridus but continue to search’, New Zealand’s longest species is fairly common, also found this trip in Manawatu Gorge and on South Island: Kaikoura (Mt Fyffe) and various parts of the Banks Peninsula near Christchurch during this trip. Most specimens were nymphs of various sizes.

4Including males in some areas, also Salmon’s tuberculatus, a female ‘form’ often seen on tree trunks or branches, with a varying number of tubercles on the thorax.

A paradise for phasmids? Certainly, I have fond memories of hundreds of Clitarchus hookeri including many mating pairs (and some Acanthoxyla inermis) on Kanuka Kunzea ericoides bushes growing along the roadside verge and entry road to the Wilton entrance car park of Otari-Wilton’s Bush as being non-native, it is controlled, but the phasmids have a huge choice of foodplants, although even native Rubus [rather unlike fruticosus in appearance] is not prolific in the Gardens. Acanthoxyla tend to also use Totara Podocarpus totara and Manuka Leptospermum scoparium. Argosarchus horridus were not found this trip at this locality, but elsewhere were usually observed feeding on bramble (native and introduced) or Muehlenbeckia. Zealandia is a well known wildlife tourist attraction at Karori – all Karori species were located during a daytime visit except Acanthoxyla prasina. Argosarchus horridus was such a master of camouflage that when checking my photos at night, I realised two moth larvae were resting on a large male nymph! I returned the next day and the nymph had only moved 30 cm away.

Apart from gardens, phasmids were often spotted at the edge of clearings or wide tracks, away from wooded areas. The Park Hill Reserve was particularly productive at Belmont Hills, Lower Hutt and I searched at night in the well known collecting area of Wrights Hill, Karori with plentiful Tectarchus huttoni. Argosarchus horridus was fairly common on Muehlenbeckia near the roadside; a huge mating pair of A. horridus was found along a narrow woodland path to Wrights Hill, otherwise devoid of phasmids, except for a 1st instar Tectarchus huttoni nymph. Several species were found in a small dog exercise area in Karori one of several such sites known as ‘Woof! Woof Ruff’!

Which phasmid targets did I fail to locate in the Wellington area? In theory there was a possibility of other Acanthoxyla forms rather than valid species, so in reality this leaves only one uncommon species: Spinotectarchus acornutus, which has been recorded once from Karori. The specimens in the Wellington collection is labelled: Miner’s Tunnel, Karori, September 1915, H. Hamilton, presumably the locality listed as ‘Karori Reservoir’ by Salmon (1991).

Future articles will look at phasmids on South Island and extreme variation within species, but one can sum up the phasmids of the Wellington area in one word – plentiful!

Acknowledgements: Tony Jewell, Steve Trewick & Mary Morgan-Richards provided information on likely spots/foodplants of phasmids in Otari-Wilton’s Bush. Rewi Elliot kindly provided a permit to collect at Otari-Wilton’s Bush, vital to examine eggs associated with adults.
It is clear that Salmon mainly worked on phasmids in the 1930 and 1940s, particularly the latter, when material was collected and deposited in the Wellington collection; very little material has been deposited since. After working on other natural history studies, he returned to stick insects to produce a well illustrated book *The Stick Insects of New Zealand* (Reed Books, 1991). This book lists a limited range of localities for species, based on previous publications; in reality they are much more widespread. On-going molecular research in New Zealand is assisting with knowledge of the phasmid fauna, which following this taxonomic revision, is now reduced to 17 valid species. Other material awaits formal description/further molecular analysis, including two *Micrarchus* species.

**Checklist of species:**

**Family Diapheromeridae**

**Subfamily Pachymorphinae**

*Asteliaphasma* Jewell & Brock, 2003

- *A. jucundum* (Salmon, 1991) (*Spinotectarchus jucundus*) [Kauri Forest Stick-insect]
  - = *A. naomi* (Salmon) 1991: 114 (*Spinotectarchus*) new synonym¹

*Micrarchus* Carl, 1913

- *M. hystriculeus* (Westwood, 1859) (*Pachymorpha hystriculea*) [Lesser Spiny Stick-insect]
- *M. parvulus* Carl, 1913 revised status² [Mountain Stick-insect]
- *M. sp. 1 & 3²*

*Niveaphasma* Jewell & Brock, 2003

- *N. annulatum* (Hutton, 1898) (*Pachymorpha annulata*) [Hutton's Stick-insect]
  - = *Pachymorpha bouvieri* Brunner, 1907

*Spinotectarchus* Salmon, 1991

- *S. acornutus* (Hutton, 1899) (*Pachymorpha acornuta*) [Spiny Ridge-backed Stick-insect]

*Tectarchus* Salmon, 1954

- *T. huttoni* (Brunner, 1907) (*Pachymorpha*) [Common Ridge-backed Stick-insect]
  - = *Pachymorpha finitima* Brunner, 1907
  - = *T. diversus* Salmon, 1954
- *T. salebrosus* (Hutton, 1899) (*Pachymorpha salebrosa*) [Lesser Rough-skinned Stick-insect]
  - = *T. semilobatus* Salmon, 1954: 165 new synonym³
  - = *T. tuberculatus* Salmon, 1954

**Family Phasmatidae**

**Subfamily Phasmatinae**

*Acanthoxyla* Uvarov, 1944⁴

- = *Macracantha* Kirby, 1904
  - *A. geisovii* (Kaup, 1866) (*Bacillus*) [Prickly Stick-insect]
    - = *A. fasciata* (Hutton) 1899: 58 (*Acanthoderus fasciatus*) new synonym
    - = *A. suteri* (Hutton) 1899: 56 (*Acanthoderus*) new synonym
    - = *A. huttoni* Salmon, 1955: 1155 new synonym
  - *A. inermis* Salmon, 1955 [Unarmed Stick-insect]
  - *A. prasina* (Westwood, 1859) (*Acanthoderus prasinus*) [Black-spined Stick-insect]
    - = *Bacillus atroarticulus* Colenso, 1885
    - = *Bacillus filiformis* Colenso, 1885
    - = *A. speciosa* Salmon, 1955: 1153 new synonym
  - *A. intermedia* Salmon, 1955: 1152 new synonym
  - *A. schauinslandi* Brunner, 1901

*Argosarchus* Hutton, 1898

= *Gastrotrachydea* Brunner, 1901

= *Mimarchus* Carl, 1913

- *A. horridus* (White, 1846) (*Phasma (Acanthoderus)) [Bristly Stick-insect]⁵
  - = *A. spiniger* (White, 1846) (*Phasma (Acanthoderus))
  - = *Bacillus gerhardii* Kaup, 1866
  - = *Bacillus sylvaticus* Colenso, 1882
  - = *A. schauinslandi* Brunner, 1907
  - = *Mimarchus tarsatus* Carl, 1913
**Clitarchus** Stål, 1875  
C. hookeri (White, 1846) (Phasma (Acanthoderus)) [Common Stick-insect]³  
- Bacillus laeviusculus Stål, 1875  
- Bacillus colorolus Colenso, 1885  
- Bacillus minimus Colenso, 1885  
- C. reductus Hutton, 1899  
- C. interruptelineatus Brunner, 1907  
- C. multidentatus Brunner, 1907  
- C. tuberculatus Salmon, 1991

C. rakauwhakakeneke Buckley, Myers & Bradler, 2014 [Poor Knights Stick-insect]  
C. tepaki Buckley, Myers & Bradler, 2014 [Aupouri Stick-insect]

**Pseudoclitarchus** Salmon, 1991  
P. sentus (Salmon, 1948) (Acanthoxyla senta) [Three Kings Stick-insect]

**Tepakiphasma** Buckley & Bradler, 2010  
T. ngatikuri Buckley & Bradler, 2010 [Ngatikuri Stick-insect]

²Although *A. naomi* would normally be regarded as the valid name, being published on p. 114, immediately before Spinotectarchus jucundus, it is regarded as the junior name, as it is a rarely recorded form.

³Three undescribed *Micrarchus* species were discussed, but not formally described (Dunning et al, 2014). A male of *M. parvulus* from Greymouth was designated lectotype (MHNG, Geneva) by Jewell & Brock (2003); the paralectotype from Heretaunga is the similar *hystriculus*. As the Greymouth species matches *Micrarchus* sp. 2 of Dunning et al, 2014 it has therefore been reinstated as a valid species (previously a synonym of *M. hystriculus*).

³*Teckarchus semilobatus* is clearly *T. salebrosus*, hence the expected Banks Peninsula data. It is thought that Salmon became confused by specimens he reared in culture and the associated eggs he attached alongside specimens, are those of *T. ovobessus*. It follows that *T. ovobessus* material from the Banks Peninsula might have incorrect locality data, as this species appeared to be restricted to North Island. It is, however, likely these are also *T. salebrosus* but again with *T. ovobessus* eggs pinned alongside, presumably with an erroneous data label.

⁴Salmon regarded all *Acanthoxyla* species as subspecies of *A. prasina* in *The Stick Insects of New Zealand* (1991), a move considered extreme by others, in view of differences in egg and adult morphology and the fact that many specimens are from the same localities (Jewell & Brock, 2003). In reality, as proposed here, most of the species are synonyms, with varying degree of differences in spines and/or colouration.

⁵Salmon used ‘Horrid Stick-insect’ but the more appropriate vernacular name is preferred.

⁶Known as Smooth Stick-insect in Britain.

**Acknowledgements:** Thanks to Ricardo Palma and Phil Sirvid (Museum of New Zealand Te Papa Tongawera, Wellington), Cor Vink and Matthew Shaw (Canterbury Museum, Christchurch) for arranging access to the collections and providing information. Paul D. Brock would also like to thank Steve Trewick & Mary Morgan-Richards (who showed him the first examples of his main target, *Argosarchus horridus*), Jenny Gillam and Dave & Jenny Mason. Rewi Elliot kindly provided a permit to collect at Otari-Wilton’s Bush, vital to examine eggs associated with adults.


**Key resources since 2003:**  
Websites:  
Brock, P.D. Phasmida Species File Online, Version 5.0/5.0 [detailed images of type specimens as well as some species in nature uploaded March 2015]. In particular this shows images of paratypes, which were never fully listed by Salmon].  
Stick insects (Phasmatodea) [useful notes on species and on-going research, including details of recent papers on molecular work by Buckley et al.]

For the future:
The ultimate guide once molecular work has been fully interpreted alongside morphological characters, would be an updated book, with distribution maps for each species. This is a possibility since funding has facilitated molecular work by researchers in New Zealand, who are now gaining a better understanding of the wide distribution of some species.

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**Stick Talk** is e-mailed to around 650 subscribers in over 40 countries worldwide and is a list dedicated to stick insects: queries, answers, information, etc. As a Stick Talk list member, you will receive a short e-mail every few days. The Stick Talk list is totally independent of the PSG, though many Stick Talk list members are also members of the PSG. If you want to join the list, visit the website: www.sticktalk.com and click on “Join”. It’s totally free of charge; and if you do not like it, just send an e-mail asking to be taken off the list. It is also moderated; so it’s secure, safe from bad language, and there will be no spam.

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June 2015  
Website: www.phasmid-study-group.org  
Facebook: www.facebook.com/PhasmidStudyGroup  
Newsletter 134.14
Putting together a community cage to house several different phasmid species is, of course, something that most of us phasmid enthusiasts do. It is both practical for ease of food changing, cleaning, etc. and also enables us to keep multiple species without filling our houses or bug-sheds with vast numbers of tanks and cages, saving time, space and money. Community cages are also visually interesting as it is enjoyable to be able to observe phasmid species of all manner of shapes, sizes, mannerisms and colours feeding and interacting in a single large enclosure.

However, there are a number of factors that should be considered to ensure the safety and wellbeing of your insects when planning a community cage. Undoubtedly the most important factor for the health of your sticks is to avoid overcrowding and over-population of your enclosures. Overcrowding will almost always lead to deformities due to lack of appropriate space for moulting and often to unnecessary deaths. Arguably, the second most important consideration is in the selection of suitable species based on their 'compatibility' within a community environment.

Species compatibility itself involves quite a number of different elements such as size, food plants, environmental needs, etc. Below are the six main factors that I have identified as important to consider when choosing the right insects for your community enclosure.

1. Size Try to avoid housing bulkier species with the more delicate types. Species with powerful mandibles and healthy appetites such as *Extatosoma tiaratum* or *Heteropteryx dillata* are not ideal cage companions for species with fine limbs or delicate wings such as *Sipyloidea sipylus* or *Phyllium* species as the larger species may inadvertently 'graze' on the smaller types resulting in limb loss or damage to wings and other body parts. Heavier species are also likely to disrupt the sensitive moulting process of other smaller phasmids during night time activity.

2. Temperament It may be wise to avoid placing aggressive or strongly defensive species in community cages altogether. *Eurycantha calcarata*, for example, would probably be best housed separately from other phasmids as the males especially can cause serious injury to other specimens with their powerfully armed rear legs. Certainly avoid placing particularly long- and long limbed - species such as those of the genus *Phobaeticus*, *Tirachoidea* or *Pharnacia* with the more 'highly strung' defensive types such as *Eurycantha*, *Heteropteryx* or *Haaniella*.

3. Food Plants An obvious but important consideration is to select species that eat the same food plants, wherever possible. This will help ensure that all the insects in your community cage are getting to the leaves they need and it will also make life easier for you when cleaning out and replenishing their foliage. If you have multiple community cages then this is even more beneficial as you could, for example, have one eucalyptus enclosure, one exclusively with privet and a mixed tank with bramble, hazel and ivy.

4. Environmental Needs In addition to identifying species which eat the same food plants when planning your community cage, it’s also important to identify their particular environmental needs such as heat, humidity and ventilation. For example, housing *Lonchodes philippinicus* or *Phenacephorus cornucervi* with *Anisomorpha buprestoides* or *Peruphasma schultei* may seem ideal as they all eat privet but their humidity and ventilation needs are actually quite different. It’s certainly not impossible to house them together but consideration must be given to ensure all species get what they require to a sufficient degree. Also, it’s important to ensure your community enclosure includes all species’ specific needs, such as a ground substrate for laying eggs if any of the species need soil to deposit their eggs into (such as *Aretaon asperrimus*) or a water source if they like to drink regularly (such as species of the genus *Haaniella*).

5. Related Species I would strongly advise against housing closely related species together in a community cage. There are several reasons for this, the most important being the avoidance of interbreeding. We know, for example, that species of the genus *Haaniella* may cross-breed if housed in the same enclosure, but the same is probably true of some other genera. Also, it should go without saying that we should never house similar species together, such as *Epidares nolimetangere* PSG 99 with *Santubong* stock or *Pharnacia ponderosa* PSG 284 with “Samar” stock and, of course, *Eurycantha calcarata* PSG 23 and PSG 44 although, as has been said at numerous PSG meetings, it is probably already too late for these particular cultures to be preserved. Additionally, if only for the purpose of practicality, closely related species often lay eggs that are almost identical to one another which makes the tedious egg sorting process even more taxing! For this reason I would never house any *Phaenopharas* species together or *Sipyloidea sipylus* with *S. biplagiata*.

6. Developmental Stage Finally, I’d like to stress the importance of housing nymphs and adults separately. As mentioned, bulky species such as *Eurycantha calcarata* are likely to disrupt the night time moulting process of other specimens and, of course, large adults are particularly hazardous in these situations. Also, the active and easily panicked species such as *Peruphasma schultei* are just as problematic day or night, especially the heavy egg-laden females or paired adult couples. Also I’ve witnessed particularly ‘amorous’ males attempting to mate with subadult females as they are trying to moult! This seems to be a particular problem with *Bacteria horni*, *Diapherodes gigantea* and *Rhaphiderus spinigerus* in my experience.

So, in conclusion, I hope this little list helps with planning and setting up sensible and healthy community enclosures. I’m quite sure there are other factors that should be considered which I’ve missed out but the above pointers are all good ones to get you going, in my opinion!
Phasmids in the News by Mike Smith

New species *Phryganistria heusii yentuensis*, almost two feet long, is discovered in Vietnam by biologists Dr Jerome Constant and Dr Joachim Bresseel (Joachim is a PSG member). It was described on the internet by many publications, I quote below from two, The Mail and Sci-News.

By Corey Charlton for MailOnline, Published: 5 December 2014

Newly discovered stick insect is named as the planet's second largest. It was found in a Vietnamese nature reserve 150km northeast of Hanoi. This giant creature measures 54cm long when its front legs are outstretched. Entomologists working for the Royal Belgian Institute of Natural Sciences have announced the discovery of two new species and one subspecies of Phasmatodea - the scientific name for stick insects - found during their expeditions in the country's remote forests. The giant insect has also entered the record books - it is officially the second-largest stick insect ever found. The subspecies, named *Phryganistria heusii yentuensis* (pictured right), measures 32cm in length or 54cm with its legs spread, *Phryganistria heusii yentuensis* is closer in appearance to a small branch than a stick. It is second in size only to a stick insect found in Borneo which measures more than 56cm with its legs outstretched. The record breaking insect was found in the Tay Yen Tu Nature Reserve. Researchers found it during an expedition launched after they realised stick insects in Vietnam remain vastly understudied in scientific records. Their method in capturing the insects was also remarkably basic - they beat trees with a pole until the insects fell to the ground. Stick insects are mostly active at night and are adept at mimicking the form of sticks and leaves - even performing a rocking motion similar to that of a stick blowing in the wind.

The discovery is considered a giant step towards documenting the various types located in Vietnam, where only 70 species have so far been recorded. Scientists responsible for the latest discovery alone collected hundreds during their recent expeditions, which need to be named and categorised - giving an indication as to the vast numbers yet to be discovered. Southeast Asia is believed to have the greatest diversity of stick insects on the planet. They are herbivores that feed on leaves, but are subject to predation themselves which they combat using a number of different defence mechanisms. These include changing colours to suit their background like that of a chameleon, mimicking a branch in the wind by slowly swaying back and forth, or simply playing dead. Stick insects are also known for remarkably long periods of copulation - some species have been known to remain paired for several months. Reference: http://www.dailymail.co.uk/sciencetech/article-2862807/The-stick-insect-big-looks-like-branch-Species-two-FEET-long-discovered-Vietnam.html#ixzz3UHhhgLvT


The fascinating creature, a stick-insect, can reach up to 32 cm in body length and 52 cm with forelimbs stretched out. It has reportedly been found in northeast Vietnam. In the jungles of Vietnam, biologists Dr Joachim Bresseel and Dr Jerome Constant from Royal Belgian Institute of Natural Sciences have discovered two new species and one new subspecies of Phasmatodea an order of insects whose members are known as stick insects. The latter, named *Phryganistria heusii yentuensis*, is the second-longest insect known to date. The current record-holder is another stick-insect...
Called *Phobaeticus chani*. It is found on the Indonesian island of Borneo and measures a huge 36 cm in length [see below].

According to the team, *Phryganistria heusii yentuensis* is currently recorded from Tay Yen Tu Nature Reserve located in Luc Nam and Son Dong Districts, Bac Giang Province, about 150 km ENE of Hanoi. Another specimen is also reported from northeast Vietnam: Mount Mauson, 30 km E of Lang Son city. The other two newfound species are *Phobaeticus trui* and *Phryganistria tamdaoensis*.


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### Phobaeticus chani or Chan’s Megastick by Mike Smith

One specimen held in the Natural History Museum in London measures 567 mm (22.3 in). This measurement is, however, with the front legs fully extended. The body alone still measures an impressive 357 mm (14.1 in). Named after amateur Malaysian naturalist Datuk Chan Chew Lun, six specimens are known all originating from the state of Sabah, in Borneo. Very little is known about its biology, but speculation in the popular press is that it may live in the canopy of the rainforest making it especially hard to find.


### PSG160 Trachythorax maculicollis by Ingrid Hayette

Here are a few pictures of PSG160 *Trachythorax maculicollis* (Westwood, 1848). Many thanks Ingrid for sharing your photos with us. The first picture shows Oleander leaves, presumably that is what you feed them on. The 4th picture shows that the male is a smaller version of the female. This phasmid obviously sticks her eggs around the cage; interesting to see some eggs have been laid in clusters, and I like the bright yellow colour. Ingrid subsequently advised me that: “We don’t like feeding them with Pyracantha. They do not like the Dutch Pyracantha as originally the PSG160s came from Germany and the German Pyracantha is somewhat different to the Dutch Pyracantha. So we have given them a mix of Oleander and Salal (*Gaultheria shallon*).”

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June 2015   Website: www.phasmid-study-group.org   Facebook: www.facebook.com/PhasmidStudyGroup   Newsletter 134.17
The Stick Insect “Tip Exchange”  by Mike Smith

Now that the Newsletter is printed in full colour, it would be brilliant if members could send in their pictures of stick insects. I’m sure everyone has their own idea of what constitutes a good photo, and obviously it helps to have a decent camera and lens, personally I think my picture on the left is acceptable.

If you use an i-phone or compact camera to take a photo, use the macro (or “close-up”) setting (if any), and always take lots of photos with and without flash, and using different distances, lighting, apertures, and angles. Sadly, this can be a bit hit or miss, but among all the pictures should be some nice ones that you can use, and you can easily delete the rest.

Generally, getting a DSLR camera, or at least a bridge camera, will make taking close-up pictures a bit more predictable. In both cases, a supplementary macro lens can make a lot of difference, but is often not essential. Some people still use 35mm film cameras, and you can get good 35mm bargains of superb SLR camera hardware from second-hand shops and car boot sales. Though film has its drawbacks, not least the expense of developing and printing, and old cameras don’t have mod cons. Lighting makes a big difference to the picture, especially at night! If you use a flash, consider trying to bounce it off a wall or ceiling (eg try deflecting it with silver paper), or cover it with a handkerchief, or tissue paper, so the light is more diffused.

Experiment. There are also lots of useful, free training videos on the internet for all sorts of photography, including flash and close-up.

Pictures of stick insects in situ are often unclear because they have been taken through glass and/or with the stick insect “lost” among leaves. I like to take pictures of stick insects on white paper, so the image is lovely and clear (like the top photo above). The downside is that when you place a stick insect on a piece of white paper the blighter never keeps still! Alternatively, I put them on a twig of wood with white paper in the background. The picture above right of the *Eusphallium* was taken with my compact camera – and it won a PSG photographic competition!

For the uninitiated, I’ll give a brief summary of some cameras you might consider using to take pictures of your stick insects - generally the choice is between compact, bridge, and DSLR. The top camera is a compact camera. Basically these are “compact” (ie small), cheap, point-and-shoot cameras, usually with a zoom lens, macro facility, integrated flash, and automatic focusing and exposure settings. They are excellent all-rounders, and fit easily into a pocket or handbag, but bridge cameras are always considered better for picture quality.

The middle camera is a bridge camera. These cameras “bridge” the gap between the compact camera and the DSLR. Usually they are a bit smaller, lighter, and cheaper than DSLRs (though much bigger and heavier than a compact camera) and their lenses are usually not interchangeable. A top range bridge camera can in many ways be better than the less expensive DSLRs, but DSLRs are often thought to be the best choice as they are more versatile.

The bottom camera is a DSLR, or a Digital Single Lens Reflex camera. A DSLR typically uses a mirror and prism system (hence “reflex”, from the mirror’s reflection) that permits the photographer to view actually through the lens and see exactly what will be captured. This system also ensures excellent picture quality, and the cameras usually have interchangeable lenses. However, they can be very large, heavy, complex, and the camera and lenses are very expensive. Incidentally, bridge cameras and DSLRs may look complicated to use, but generally they have an automatic setting which virtually turns them into superb point-and-shoot cameras. You can then gradually learn the various overrides as you feel necessary. You also do get used to hauling them around over your shoulder or round your neck.

Personally, I recently bought a Lumix bridge camera (Panasonic DMC-FZ200), which is a very good all-rounder. Paul Brock uses a DSLR Nikon D5100 with a 105mm macro lens and macro flash, Nick Wadham often just uses his Galaxy S4 i-phone (as a camera), but also has an old DSLR Canon 500D with an 18-55mm zoom lens. Before buying a camera please do your homework. Decide what you want on your camera (eg zoom lens, wide aperture, electronic view finder, macro facility, long battery life, etc). Look up camera reviews on the internet to find the camera that best fits your spec and pocket - and for the best prices, I got my camera off the internet for £65 less than what high street stores wanted for it. There are also lots of second-hand camera bargains worth looking at in shops and on Ebay.

Finally, if you do take photos of your stick insects, and I hope you will, then please, please, do send them in for publication. If you want to add a few words too, that will be a bonus. They don’t have to be perfect, just give it your best shot. Whatever camera you use, they are ALL capable of taking a reasonable picture of a stick insect; just that some cameras might need a bit more perseverance. In all cases you will need patience and a bit of luck too. So good luck to you all with your photography, and please do send in those photos.

If you have any tips to pass on to our members on photography or on anything else, please do send them in.
**My Five Tips And Tricks For Improving Your Macro Photography** by Chris Pull

**Introduction** Keeping insects is one of the most rewarding hobbies around. Raising an insect from egg to adult and witnessing the dramatic changes in colour, shape and size as they develop, can provide endless fascination for the amateur entomologist. Encouraging others to appreciate the charm and beauty of insects, by sharing what you see, is where macro photography really comes in, and can add an extra dynamic to insect keeping. I have bred insects on and off for about ten years, but photographing them has always been almost as important as keeping the insects themselves. About six months ago, I acquired a DSLR (see Mike’s article, page 18) with a macro lens (having previously used the bridge camera since 2005). Since then, I have gone through a pretty big learning curve, but I am constantly looking for ways to improve my images, and I’m not an expert yet. However, I still want to share with you what I have learnt so far. I don’t want to go too technical, and so I will cover the top five tips and tricks that I think greatly improved my macro photography. Hopefully this article will be of interest to those already photographing their insects, whilst encouraging others to give it a go. Unfortunately, I have not kept phasmids for a while, and most of my photography is currently praying mantis-based. Therefore, I hope the readership won’t mind a short departure from stick insects so that I can provide examples to the text. If it helps, mantids are very closely related to stick insects, they’re just carnivorous rather than herbivorous!

![Figure 1](image1.jpg)

**Figure 1:** Macro photography is a good way to show off your insect collection. Here is a young *Acromantis* nymph in all its tiny detail.

1. **Take control of your camera** When I had my bridge camera, I always used it in automatic mode with the macro button turned on. I had little idea what I was doing technically; I was just pointing and shooting. Luckily for me, the camera was pretty good at deciding what was best, but since acquiring my DSLR, I have had to invest some time understanding how to use the camera to get what I want. First of all, you need to switch your camera to the aperture mode (usually signified with an ‘A’), and choose an F-number that is relatively high (I usually shoot around F 18-22). The aperture is the hole in your lens that lets light reach the camera’s sensor. A smaller aperture, or higher F-number, lets in less light, and a larger aperture, or smaller F-number, lets in more light (yes, that is the right way round). Besides regulating light, the aperture also controls depth of field (DOF), i.e. how much of the photo is in focus.

With macro photography, you generally want to use a higher F-number, as this will ensure more of your subject is in focus. Secondly, you need to change the ISO in your camera and set it to the lowest number possible (usually this is 100). ISO is a term from the days of film, where different films had different sensitivities to light. The lower the number, the less sensitive the film is. That sounds bad right? Well actually, for reasons I won’t go into, increasing light sensitivity (so you can take photos in lower light conditions) increases the amount of noise in your photo, and thus degrades the finer details of the image. Macro photography is all about capturing the details, so using low ISO number with little noise is a must.

Lastly, set the camera to take as large images as possible, with more pixels, so you can crop them down and not lose detail.

2. **Use a flash** You will have noticed that so far that I’ve recommended using a high F-number, which reduces light, and an ISO number with a low sensitivity to light. Such a combination, without proper lighting, will create dark, probably blurry images, as your shutter speed tries to compensate by being open for longer. Consequently, for macro photography, and especially the kind insect hobbyists usually take (i.e. indoors with poor lighting), a flash is highly recommended. You could also light your scene with a desk lamp, but generally this affects the colour balance of your photo, and you might end up with orange images. Most cameras come with a built-in, pop-up flash, but because you have to get so close to your subjects, generally this light flies over them, or is not strong enough to fully light the scene. Therefore, I use an external flash, usually mounted on a tripod and pointing at the subject from the side, meaning my camera doesn’t block the light. My second lighting tip is to diffuse your light source. Often the flash, or lamplight, is too strong, and creates images with very bright highlights and very dark shadows, i.e. too much contrast, with not enough mid tones in between. What you want is a nice soft light, which reveals the best detail and colour. I use a very cheap diffuser (about £10, bought online), but you can also make your own with kitchen paper or opaque plastic (like an old plastic milk bottle; look online for tutorials on how to do this).

3. **Make a scene** So I’ve talked about the camera and lighting, now let’s move on to discuss what you’re actually going to take a photo of. If you want your photos to look natural, avoid taking photos of insects inside their cage (with the glass or plastic, or any other man made object visible) or on your person. Try to use a neutral or natural looking background instead. When I was younger, I always wanted to be able to take images of insects against a white background, to reveal their detail in all its glory. This is all well and good, but I realised quite quickly just how difficult it is to get a pure white background at the kind of scale we’re talking. I get quite good results taking photos inside a large polystyrene box, coated with white paper. However, I have to edit these photos quite heavily to get the colours right, and the background still isn’t all that white. Therefore, more recently I’ve been experimenting with making natural looking scenes, using stuff I collected in my local forest. Such scenes, comprised of dead leaves...
bark and moss, can really show off your insect’s camouflage and add more interest to the photo. You can also spray the scene with water, to make it look more interesting. Having said that, make sure you keep an eye on your DOF, as you generally don’t want your background to be in too much focus, or it will distract from your subject. Lastly, I sometimes use backgrounds I printed off the Internet, and place the insect on a twig in front of it. These can isolate your subject very well, showing off all its beauty and charm, without being distracting or time consuming to set up.

4. The insect itself The subject is of course the most important part of your image, but there’s actually not a lot you can do with them to improve your images. I try as much as possible to ensure they’re in an interesting position, whilst showing off some unique characteristic about them (such as a threat display or a comical head tilt). However, getting your subject to stay still can be extremely difficult. I think phasmids are generally easier, but trying to get the shot I want from fast moving mantids often leaves me frustrated and tired! However, it can be done, you just need patience and to take a lot of photos. In general, (and I think this is true of most photographers), I take about 10-50 shots per subject, and may get a few usable ones that I then edit. Try not to stress the insect out by moving it around too much, but rather allow it to come to rest in a position itself. Importantly, always ensure the insect’s eyes are in focus. As humans, we naturally look for the eyes in most photos, and if these are blurry, our brains will not be able to cope and the image will look bad. Lastly, try spraying some water on your insect to add an extra element of interest.

5. Editing I also wanted to talk a bit about editing your photos. Generally, I edit all of my photos to get the best from them. On the face of it, editing may seem like cheating, but it has always been so. In the days of film, all manner of tricks were used in the dark room to make images stand out, and you shouldn’t feel bad editing your photos, as often what you see in real life just doesn’t get picked up by the camera. There is a plethora of image processing software out there, but I use Adobe Lightroom, and occasionally Photoshop. These are fairly expensive, but I wouldn’t be without them. Often you are also given software with the camera, and these can be very good. One thing I would say, if you are going to edit your photos, it might be a good idea to shoot in RAW format, as this will give you more control, but look this up for further information.

There’s a lot I could say about editing, but I want to keep this a brief as possible, so I’ll just cover what I think is important. In general, macro photography doesn’t lend itself well to the heavy editing used in landscape or portrait photography, as the colours and shapes need to remain natural. Therefore, I’m generally only editing the colour balance of my images to make them warmer or cooler, increasing the brightness of the shadows and maybe increasing the overall exposure if the image seems a bit dark. I also alter the contrast slightly, along with increasing the sharpness. ‘Catch light’ is the light that you see reflecting off the eyes, and by using a brush in Lightroom or Photoshop, you can selectively increase the brightness of these patches further, to really make them pop. Lastly, one really cool way to make your images stand out is to creatively ‘complexify the light’. Lightroom, for example, has brushes and radial filters, which you can set so they are brighter than the rest of the image, whilst also changing their colour. This can allow you to add patches or rays of light to the background of the photo, making it look like there’s sunlight coming down from a tree canopy, when in reality you’re taking the photo in your living room. I sometimes also use them on the insect, but this can look a bit fake if you’re not careful.

**Conclusion** I hope that this article has given you some useful information that you can apply to your own photographs. As parting advice, I will say you should always try new ways to take a photo, read online for tips, and look at other people’s works for ideas; don’t be afraid to experiment!

Finally, I wanted to share two links:

- This guy is a literal pixel wizard: [https://www.youtube.com/watch?v=gGHf1rTo-4s](https://www.youtube.com/watch?v=gGHf1rTo-4s). He publishes many ‘how to’ videos on editing photos (mostly landscapes and cities), and has one on macro. I learnt most of my editing from his videos, even if they’re not about macro photography.

- This is the link to my Flickr page: [https://flic.kr/ps/2YKxRt](https://flic.kr/ps/2YKxRt). I post most of my images there (for better or worse). In general, I use Flickr to follow other macro photographers, and to get new ideas. It’s also a great way to share your work and ask advice. Perhaps we can make a PSG group on there, where members can post their shots for everyone to see, and for Mike to use in the Newsletter?
Macro Photography by Chris Wilson

I have been taking pictures with my DSLR camera (a Canon D600) for a few years and have really wanted to get into macro photography, recently I finally decided to have a go and I purchased the Canon 100mm f/2.8L Macro lens with image stabilisation. I decided on this lens after some online research, I was also looking at 50mm and 180mm macro lenses, however I felt the 100mm offered me the best option as it would allow me to take photos of small insects e.g. flies, without being too close, yet also allow me to take pictures of bigger things e.g. stick insects, without having to be too far away from the subject to fit it all in the picture. Using the macro lens I have been able to take some very close-up pictures showing some of the finer detail such as the hairs on antennae and the veins of the wings, and the pictures look pretty impressive when viewed full screen on a computer.

So far I have encountered a couple of obstacles, the first was the narrow depth-of-field when using the macro lens close up, to help with this I used the live view on the camera screen this then allows you to zoom in on a particular area (I usually choose the eyes) and adjust the focus rather than trying to use the use the eyepiece. The narrow depth-of-field can also be overcome by taking several pictures with different points in focus and stacking them using software on the computer, this is something I am looking into for the future when I have more time. The second is lighting, I have a very basic flash (free from a friend) which I have been using and has been producing acceptable results, however it is difficult to work with as it is not fully compatible with my camera. A cord is available so the flash can be used off the camera and positioned where desired around the subject, this allows for more versatile lighting and stops the lens getting in the way of the light. Specialist flash rings that fit around the end of the macro lens are available and produce very nice results, however these are generally quite expensive and I don't currently use my camera enough to justify the price. I would also recommend learning how to use the camera in manual mode, something I am currently doing. Although using the camera on automatic can produce some good pictures, I often find they end up grainy due to some of the compromises the camera has decided to make especially in lower light conditions. I would also say using a tripod is essential most of the time. With phasmids it is easier for me to position the camera and then move the subject in front of it to the desired position once it has settled on a leaf or twig (a pot of leaves can easily be moved and turned to get the best angle).

The camera set-up does not need to be too complicated, I took a great picture of a tiny crab spider I brought home on some leaves by just sitting the camera on a small tripod, on the floor, with the flash next to it as shown in the picture, this only took a couple of minutes to set up and I got a great picture out of it.

I edit all of my pictures on the computer, I use an apple iMac and use the included iPhoto software, this only gives fairly basic editing features (cropping, sharpness, colour etc) but it easy to use and produces nice results. I am starting to use more advanced software and take pictures in .RAW format but this is more advanced and does take up a lot more time so I tend to stick with the basic editor.

The lenses included with the camera can also take some great pictures and are often easier to use when taking full body pictures of larger phasmids, the two pictures of Phyllium ericoriai were taking using the standard lens that came with the
To celebrate St George’s Day, the 1st Heybridge Scouts (including Cubs and Beavers, boys and girls), laid on an event at Prances (their campsite in Wickham Bishops, Essex). I was honoured that they again invited their Insect Man to bring along some of my critters and to have a stand at their show. The date was Sunday 26 April (3 days after St George’s Day).

It had rained most of the night, and was still wet, cold, and rainy in the morning. Sadly, this did keep the numbers down a bit, but as the weather improved, so we still had a reasonable number of visitors. Anyway, I had my stall set up in my usual spot in the hall, out of the weather and next to the refreshment stall. I had no complaints! I also had a very steady flow of visitors to my stall, some remembering me from before and saying they were glad I came again. Most seemed very interested in the critters, I was asked stacks of questions, and people wanted to hold all my critters in almost equal amounts, I of course had stick insects, but also millipedes, cockroaches, a centipede, fruit beetles, locusts, tarantulas, and of course Sid the corn snake. I kept some containers sealed, eg the tarantulas, Eurycantha, Peruphasma, and the centipede. But the other containers I left open, and I also put some stick insects on a plant I took along. There were vintage cars, tombola, a coconut shy, model painting, a book stall, and lots more going on, and everyone seemed to have a great day out. I laid on an insect quiz which was very popular, the winner getting 7 out of a possible 9. I also handed out lots of PSG membership forms to anyone showing an interest in the stick insects.

There is a huge amount of information online about macro photography to use as a starting point, but I have found the best way is through experience: finding out what works and what to take into consideration when taking a picture, as a good lens does not automatically mean good photographs. [See also Chris’ photos on the front page.]

**Book Nearly Out of Stock**  by Paul D. Brock

I was informed by CSIRO in April that they have nearly sold out of the paperback edition of *The Complete Field Guide to Stick and Leaf Insects of Australia* (Brock & Hasenpusch, 2009) with only a few copies left in stock, see [http://www.publish.csiro.au/pid/6012.htm](http://www.publish.csiro.au/pid/6012.htm). (Costs around £25).

Although sales have been good, CSIRO will not be reprinting it in paperback. However, an electronic edition (eBook) remains available for customers through a range of retailers. If you still want a paperback, it is suggested you obtain one from Pemberley Books [http://www.pemberleybooks.com/](http://www.pemberleybooks.com/) or elsewhere whilst they still have stock.

**Insect Man at Prances 26.4.15**  by Mike Smith

To celebrate St George’s Day, the 1st Heybridge Scouts (including Cubs and Beavers, boys and girls), laid on an event at Prances (their campsite in Wickham Bishops, Essex). I was honoured that they again invited their “Insect Man” to bring along some of my critters and to have a stand at their show. The date was Sunday 26 April (3 days after St George’s Day).

(All pictures of the children are shown with permission; the names are withheld at the request of the Scout Leader).

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*Phyllium giganteum.*

*Phyllium bioculatum male.*
Spring is in the air and this gives its own specific difficulties for locating food for the phasmids. I personally find this season the most difficult of periods. I don’t like feeding bramble, the old leaves are not nice to see, while the young ones are very small or absent. Phasmids don’t object to rose, however, and since the wild rose sprouts earlier than bramble I feed my phasmids mostly with rose then. But I also use early varieties of hawthorn and raspberry. The main problem is that the leaves are very small and tender. They keep for a maximum of only 1 week (compared to 2 weeks for winter bramble). This means more work, but I like the fresh green in my terraria!

Besides the rose, hawthorn, and raspberry I use a Cotoneaster species (Rosaceae) with broad, oval leaves. Most phasmids liked the plant, but I never kept track of what phasmid species ate it. Also, Geum seems good; this 2-yearly plant has, in the first year, a large leaf rosette. The leaves on the stems of the second year can also be used. PSG Species Nos 1, 4, 5, 9, 23, 69, 99,100,103,104,112,141 and 143 all ate Geum.

I also frequently use hornbeam (from the birch and hazel family) in spring, because of the early leaves. Beech leaves (of the oak family) are usually eaten by phasmids. You may think that finding food in spring is difficult, but you can manage - only the food looks somewhat different.

Nature has corrected me after I wrote the above. It started freezing for another 2 weeks: young rose buds died and old bramble and Firethorn had a bad time. So I had to use the old classic winter food: like Ivy, Rhododendron and Viburnum rhytidophyllum. I found some new things, but a lot of phasmids died. Now that spring has started, will finding food no longer be a problem?

I would also like to discuss the subject: “food without thorns”. Phasmids seem to favour food with thorns (bramble, rose, maythorn, etc). I prefer collecting and handling plants without thorns! And it is easier to put more of them in the jars.

We know some thorn-less food: eg oak is a good one for most of our phasmids, and is even necessary for Phyllium. In the same family you find beech and sweet chestnut, which are useful as phasmid food. Another family is the Birch family: birch, alder, hawthorn and hazelnut trees are attractive food plants.

The rose family is well-known amid phasmid breeders; and some plants have no thorns. I already mentioned Cotoneaster, a big genus, but mostly not green in winter. Other rose-like plants to be tried are mountain-ash and snowy Mesplius (Amelanchier). I experimented with both, and the latter is like Bramble without thorns, and is eaten by my phasmids in the same way as the thorned bramble. Not so easy to find though, since it is a cultured variant.

Some species are less well documented, I believe because no one has tried them on a larger scale. Polygonum is mentioned for the larger phasmids, this genus has a big Japanese species (round leaves) and Bridal veil Spiraea. Acer is also an edible food, but I do not recommend this plant - it has an awful smell! Elm was eaten, but not with enthusiasm. Lastly, I would like to mention ‘Fluweelboom’ Rhus typhina, stag’s horn sumach, some Eurycantha species seem to like (Dirk van der Lindt). This plant is related to Pistaschia and Mango. I believe it must be good food.

As you see: it is perfectly possible to feed your phasmids without having scratches on your hands.
Diapherodes gigantea Female Moulting by Mark Jackson