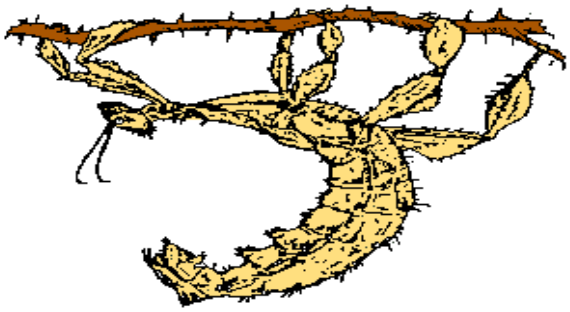
The Phasmid Study Group



MARCH 2012
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Agamemnon cornutus (Burmeister, 1838) PSG No 266.

An original painting by Mike Strick.

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PSG Membership Card
is on Page 5.

THE COLOUR PAGE!

Heteropteryx dilatata by John Mitchell; read how he rears this often difficult species so successfully: Page 26

Achrioptera fallax* (Madagascar) *by Paul Brock
See Stephen's article on Page 16.

Necroscia annulipes ***by Chris Pull*** *See Page 22.*

Heteropteryx dilatata by John Mitchell *See Page 26.*

Editorial

Welcome to the March PSG Newsletter.

New Editor. Ed Baker is busy with other duties so I've taken back the editorship of the Newsletter. Though Ed is still very much around and working hard for the PSG. I know phasmids are a very serious subject, but I think they can be great fun too (don't you?); so don't be too surprised to see some light-heartedness sneaking into the Newsletter (and, in case you have not noticed, subtlety is not my strongpoint). However, there are some awesome, serious articles here, there's also a poem (indeed, lament), puzzle, meeting reports, photos, competition, advice, information - indeed there must surely be *something* here for absolutely *everyone* - or I'll eat my hat!

Articles and Pictures. I am as always very much indebted to all the wonderful contributors to this Newsletter. Many, many thanks to you all. Without your sterling help there would be no Newsletter, and we all had to work to close deadlines for this March edition. I'm sure all readers will much appreciate your time and effort involved. Special thanks to Mike Strick for the picture he especially painted for our front cover.

Special Request for Articles. Please, please, keep sending in your articles, including any reviews on shows and meetings, drawings, photos, phasmid problems, answers to 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, or think your article is not scientific enough.* 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). Send them to Mike Smith, 13 Runnacles Street, Silver End, Witham, Essex, CM8 3QN, E-mail: newsletter@phasmid-study-group.org., or mikelsmith@tinyworld.co.uk.

COMPETITION!!! There is a nice easy competition, and you could win a coveted PSG cuddly Teddy Bear. *The teddy has to pay a forfeit if he is not won… so please do have a go.* See Page 10 for full details.

Phasmid Studies. This will now be available on the PSG website. Exceptionally, if you have no access to the website, alternative arrangements might be possible, contact Judith Marshall for information.

Questionnaire Results. Our membership numbers plummeted last year, possibly because some committee members were unable to give the PSG their full attention due to other commitments. As the questionnaire results on page 9 show, 79% of members did not find the PSG website helpful and user-friendly, and there were issues with our promotions, meetings, Newsletters, etc. But, the PSG have listened AND responded. The team upgrading our website includes professional experts. I've had over 5 years past experience with PSG Newsletters – are 28 pages enough for you? Also, see (and download) it in glorious colour throughout on the PSG website, soon. Paul has a spanking new and very inviting membership form. Payments can now be made with PayPal. We now have membership cards. Your new PSG Committee are very enthusiastic and brimming over with new ideas. So please, stick with us, and you will not be disappointed.

Membership. There is no better time to join, or rejoin, the PSG. This Newsletter has gone out to all the 2011 members who did not rejoin in 2012. *We hope you will reconsider and rejoin us.* Your committee will be making greater efforts to seek new members this year; eg at shows and in publications. Please help spread the word – if you know of any potential members, please encourage them to join.

Regards to all, Mike Smith

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 or mikelsmith@tinyworld.co.uk.

Webmaster: Natalie Ford (with assistance from 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 Brackensdale 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: Gavin Ridley and Mike Strick. E-mail: merchandise@phasmid-study-group.org.

Other members: Phil Bragg and Ian Abercrombie.

Renovation Plans for the PSG Website! *By Natalie Ford*

We recognise that the existing website needs a little updating....ok, a lot! But we have a brand new team on board to tackle this: so with assistance from Nick Wadham, Mike Strick, Ed Baker, Chris Pull and Derek TP, I will be redesigning the PSG website to make it more inviting, fun and user-friendly, whilst maintaining the excellent information, species reports, and photos on the current site.

The framework upon which the existing website is built is excellent for knowledge-sharing and scientific (taxonomic) elements, however, it is unsuitable for some of the plans we have in mind to modernise the site. So, we need to build a new front-end – and this will take some time! However, here is a short outline of the plans we have to whet your appetite...

•Ensure the PSG website and PSG Facebook page have links to each other (done), both to display the PSG's "mission statement" (done) and list our brand new PayPal details (done)
•Choose a web-host, database and web-development system for the shiny new website front-end and start designing it! (in progress)
•Online PSG membership sign-up form that links to PayPal and, on completion of payment, automatically enables access to the PSG members' area of the website
•PSG members' list that auto-updates when people join online or are added by Paul Brock
•A "Featured Members" area that lists a photo and short bio on each of our expert entomologists plus a rotation of featured regular members who wish to enjoy a little lime-light!
• Website forum to link to PSG Facebook page. The Facebook page: ***(www.facebook.com/PhasmidStudyGroup)*** *has nearly 200 members and is an ideal place to ask questions, post photos and interact with other enthusiasts*
•Allow subscription to a PSG email list used for notifying events and last-minute news as well as automatic membership renewal reminders (with PayPal link)
•Printable/downloadable versions of PSG membership form and PSG Culture List
•Kids/fun area with games and puzzles
•Publicise all phasmid-related work by PSG members.

So, you can see we have an awful lot to do! We've made a start, but it will take a few months before you see significant benefits – please bear with us! Things are happening "under the hood" and we'll include a brief progress update in each newsletter. We really hope you'll like what's in store!!

Introducing *PayPal* for the PSG! *By Natalie Ford & Paul Brock*

We are very excited to announce that *PayPal* is now available as a payment for the PSG membership fees. Yes, we have finally joined the 21st century! In addition, the web team are working on building this into the PSG website, so you will eventually be able to sign up as a member online and pay by *PayPal* there and then, but for now if you wish to pay your membership fees electronically, please follow the instructions below…

HOW TO PAY BY *PayPal*

•Log into your *PayPal* account (or set one up at **www.paypal.com**)
•Click the "Send Money" tab
•In the "To" field, enter: **pauldbrock@btinternet.com** (or **p.brock@phasmid-study-group.com**)
•In the "Amount" field enter the correct amount for whether you are in the UK or overseas
•Please ensure the currency select is "GBP – British Pounds"
•Then select the option that says "I'm paying for goods or services" and click "Continue"
•The next page will show a summary of the details – please scroll down to the bottom of the page where it says "Email to Recipient"...
•Change the Subject field to ""PSG Member Fees"
•In the "Message" box, please put your full name, address and PSG membership number (if you have one already)
•Finally, click "Send Money" to complete the transaction.
If you could then drop a quick email to Paul Brock: **pauldbrock@btinternet.com** (or **p.brock@phasmid-study-group.com**) just to let him know you've paid, he can check everything has gone through OK and confirm your membership.

So, for anyone who has not yet paid their membership for 2012, please take advantage of this and send in your fees as soon as possible! *Thank you* :-)

2012 PSG MEMBERSHIP SUBS DUE NOW

If you have paid your 2012 PSG membership subs, many thanks, *please take your card from below*, if not please read more!

This PSG March Newsletter is being sent to all 2011, as well as 2012, PSG Members. BUT, after this, members from 2011 who do not renew their PSG membership in 2012 will receive no more PSG Newsletters, will no longer have access to the members' area of the PSG Website, and will not have access to PSG Meetings and talks or to free stick insects.

On the plus side, for a very modest membership fee (what a bargain!), PSG members WILL receive PSG Newsletters (look in this Newsletter to see the sort of articles you would miss), also you will have access to all areas of the PSG Website (look at how the website is progressing, and it is going to be even better), will be able to go to the ever popular PSG Meetings and talks, and can get *free* stick insects (including many species not available in shops or the internet). **Do not delay - renew today!!!**

To take up your 2012 PSG membership, please see below.
Please encourage others to join too, we could really do with many more members.

This is the cover of the new PSG Membership Form. What a great design! If you want any copies eg for handing out at shows, demonstrations, museums, zoos, pet shops, etc. please contact Paul Brock. However, these forms are not without a cost, so please use with care, and send back any you do not use. Many thanks.

If your membership card is here, **please remove it and keep it safe, it will be needed for access to PSG meetings and to obtain free stock from PSG stands at shows and exhibitions.**

If there is no card, ***you are not a member*, please treat this as a reminder to pay your subscription promptly, please see below.**

HERE SHOULD BE YOUR 2012, PSG MEMBERSHIP CARD!

If you, or someone you know, wants to join the Phasmid Study Group

Go to the PSG Website to join: www.phasmid-study-group.org. Payment can be by Paypal, or just send a cheque (sterling cheque drawn on a UK Bank), payable to: "*The Phasmid Study Group*" to:

Paul Brock, 2 Greenways Road, Brockenhurst, SO42 7RN.

***Only* £12 UK, £14 Europe, or £15 Overseas.**

Any problems contact Paul by E-mail:
pauldbrock@btinternet.com, or p.brock@phasmid-study-group.com.

Stick Insects, Studbooks and *Pan-Galactic Gargleblasters *by Mark Bushell*

The main thrust of my talk at the January PSG Meeting was to stress the importance for each PSG member to complete the annual census of species – usually about the time of our Summer Meeting. These returns are then collated, together with a cross referencing from the records of the livestock exchanges, and the combined results are published by both the PSG in the Newsletter and by Phasma**.

The information is needed, particularly by the Livestock Co-ordinators of both groups, to know which species require more care, perhaps where there is only one or very few members with a culture, in an effort to ensure that cultures remain available to members. This very much reflects the studbook system used within zoos to maintain healthy stocks of various species of endangered animals; I highlighted the *Partula* snail in the talk, a critically endangered group of snails which now only numbers 24 species (11 of which are extinct in the wild) out of the original 75 described.

I showed examples of some of the more popular and well-cultured species *Heteropteryx dilatata, Eurycantha calcarata* and *Peruphasma schultei,* together with some of the more 'endangered' species such as *Anchiale briareus, Medaura jobrensis* and *Brasidas samarensis* which could easily go out of culture within the societies. Prizes of "Mars bars" were awarded to those who could identify the species together with describer and date – not quite the BAFTAs but we are getting there.

We now have some 321 species listed; this is constantly being revised upwards. However, many of these have been lost in captive breeding, and a worrying unknown is that perhaps for some there is a danger that they may well have been lost in the wild. Phasma initiated an "adopt a species" to ensure that some of the less spectacular species are cultured by more than one person in an attempt to reduce the possibility of species lost to members, but this is getting more difficult as the species available for culture increases. A group effort will be needed to help preserve these species in captivity, with everyone working towards the same common goal – another point highlighted in the talk was the fact that many of the species are quite easy to keep, but don't have the "charisma" of some of the larger species so are inevitably overlooked.

A full article is in press related to this "project" - stay tuned for more information!

*[*Editor's note: "The Pan Galactic Gargle Blaster" was invented by Zaphod Beeblebrox, a major character in Douglas Adams' novel The Hitchhiker's Guide to the Galaxy. The effect of a Pan Galactic Gargle Blaster is like having your brains smashed out by a slice of lemon, wrapped around a large gold brick. What has this to do with phasmids – don't ask…]*

*[**Editor's note: "Phasma" is a sister group to the PSG, which operates locally in Belgium and The Netherlands. Their newsletter is also called "Phasma" and it is published in Dutch and Flemish.]*

PSG MERCHANDISE

Use the PSG Website link www.phasmid-study-group.org, and click on "PSG Shop", or go direct to www.cafepress.co.uk/stickinsect. Alternatively, contact Judith 0207 942 5610.

See what PSG goodies are available. Eg golf shirt £14, standard T-shirt £12.50, a cuddly teddy bear £11, sweatshirt £23.50, cap £12.50, gym bag £11.50, water bottle £20, coaster £5, apron £14, wall clock £9.50, mouse pad £9.50, journal £8.50, pet bowl £14, etc.

If you have any other ideas for PSG merchandise, please let us know.

"BugFest" – Yeovil, 18th February 2012 *by Mark Bushell*

The PSG had a stall at this years "BugFest" event, run by Ian & Mark Bushell, with help from Cat Baker and Alan Goldsmith. A lot of interest was generated by the stall, with 5 new members being signed up to the group, one of which was a returning member. This just goes to show that by getting out at such events helps to increase the profile of the group and should be encouraged, plus it's a lot of fun as well!

National Insect Week, 25th June – 1st July, is designed to show you more about the insect world in all its fascinating diversity – the theme this year is: "Great British Insects". If you look on the website (www.nationalinsectweek.co.uk), you will find all the information about this event you will need, along with a list of partners and activities that are planned. Why not get involved in the project? Even if you don't want to run a full solo event, I'm sure that someone nearby will be running one and would be grateful for the help and support.

Stick Talk is e-mailed to around 640 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.

Special Message for AES Visitors, October 2011 *by Allan Harman*

At the AES meeting in October I distributed eggs of *Pharnacia tirachus*. This was a mis-identification, they were in fact ***Trachoidea biceps***. Apologies for the misinformation.

Livestock Report *by Mark & Ian Bushell*

Photo: Mike Smith

We had another very good Livestock Exchange at the Winter Meeting, with some 43 species available. It was pleasantly surprising that there were several boxes of *Heteropteryx dilatata* and *Eurycantha calcarata*, both adults and nymphs, plus boxes of *Haaniella muelleri* nymphs on the table – certainly more than have been at recent meetings.

Now the usual pleas. All livestock for the Livestock Exchange at PSG meetings is welcome, but please ensure that:

- each box is labelled with the species name and PSG Number if it has one. If you are unsure there are plenty of experts available to advise you;
- also include data on food plants and notes how you have kept it – useful for both the novice and the old hand;
- check before you leave that all your stock has gone, and if it hasn't then please take it back home with you (unless previously arranged with us).

The following species are currently available: Eggs: PSG 23, 55, 144, 195, 208, 210, 215, 260, 282, 292, 301, 308, 315 & 320. Live Insects: We do have a number of species of live insects that are surplus, but we are reluctant to send them in the post during this cold spell, however, as it warms up get in touch with us to see what is available.

Surplus livestock can be sent to our address, but please get in touch before sending if live insects are being posted or the parcel is too large to fit through a letterbox. Please also include your name and address, as well as what species has been sent.

Mark & Ian Bushell. Address: 43 Bradford Road, Trowbridge, Wiltshire, BA14 9AN.
E-mail: livestock@phasmid-study-group.org. Tel: 01225 767047.

PSG AGM Saturday 21st January 2012 *by Judith Marshall*

As Chairman I welcomed members to the meeting, and started by apologising to all members for the PSG's many short-comings during the previous year. I assured members present that everyone was aware of problems which needed addressing, that several members had recently volunteered their services, and that there would be changes to the committee structure for the coming year. It is hoped that the proposed new arrangements will revitalise the PSG.

In recent years the committee have tried to hold meetings 'online', sharing information by email, instead of holding more formal meetings before the AGM and Summer meetings. This has largely worked, except when officers have had internet access problems – requiring the use of snailmail and/or telephone. Email communication will be continued as far as possible so that everyone is available to meet members on their arrival at the Dorothea Bate Room, but if necessary brief (hopefully!) 'real' meetings may be held.

I announced that apologies had been received from Kristien and Rob – they had received a much better offer! - to a reception and dinner with the Belgian President of the European Council, Hermann Van Rompuy. Yvonne Golding also regretted having a BSP meeting in Manchester.

Paul Brock, Treasurer and Membership Secretary, gave a report on the PSG finances, emphasising the cost of Newsletters - both printing and postage – and that a different method of printing was being planned. He showed a trial version of the new membership application form, with coloured photographs, which has been developed with the assistance of Nick Wadham and Mike Smith, and which will soon be available for use at other meetings around the country. Paul reminded everyone that he was ready to receive cash for membership renewal at any time during the meeting, with the assistance of Helen and me if needed. He is in the process of sorting out the PayPal account, and will announce when this is set up and running. [It is up and running now, see details on Page 4 – Editor.]

Ian Bushell explained that as Secretary he had very little to do when formal meetings are not held, that it had been agreed the post was not needed and that I would be co-ordinating online and real meetings in future. Ian will be concentrating on assisting Mark with the Livestock Exchange, though he will be on stand-by if needed for secretarial duties – with or without the legs for it!

We are all grateful to Mike Smith who has volunteered to edit the Newsletter for 2012, and also to Mike Strick and Chris Pull who will be assisting him. They have many ideas and offers of items already, and will welcome further suggestions!

Natalie Ford has volunteered to act as Webmaster, and will be assisted by Ed Baker and Nick Wadham on this. The Website was set up by Ed using Scratchpads, (http://scratchpads.eu) which is shortly to go into a new version – so with Scratchpad training assistance Natalie and Nick will be planning to enliven the home page and other areas, with Facebook linked in too. There is a huge amount of information available on the PSG Website already, and there is more to follow. The PSG Culture List is on the Website, it has been kept up to date by me with 321 species listed currently, and others expected soon as specimens are received for the Natural History Museum collection. However as Phil pointed out, images of the species are essential and will be added – Natalie, Nick and Mark are working on this!

Ed and I will be working on producing *Phasmid Studies* online, with only the essential few printed copies, early this year.

David Robinson, Librarian, explained that in the past he had dealt with many requests for assistance in locating and providing reprints for members. However in this age of online access to almost anything, his post has become redundant and he is stepping down from the committee.

Paul Jennings continues his valuable post of Exhibition Officer, liaising with other members for displays around the country – contact him with dates or questions about other meetings.

Mark Bushell continues his sterling work as Livestock Coordinator, as ever with Ian Bushell's invaluable assistance and support. Mark reminded everyone that he welcomes both specimens and eggs for redistribution but needs to know when material is being sent – so make sure you contact him before posting.

Gavin Ridley with the assistance of Mike Strick is looking to provide additional Merchandise with the group logo. Recently our only available Merchandise is from Cafepress via the Website or for purchase from me, as we found a large order of T-shirts was a non-profit making enterprise in the long run. To demonstrate the goods available from Cafepress, as also shown in the last Newsletter, I was wearing the 'Golf' shirt, and raffled several items including coasters, mouse-mat and shopping bag. [For further details please see Page 6 – Editor.]

Finally the committee members were duly elected for 2012, and there were some changes from the previous year. [For full details of the PSG Committee for 2012, please see Page 3 – Editor.]

PSG QUESTIONNAIRE RESULTS *By Paul Brock & Mike Smith*

PHASMID STUDIES. Currently on-line as an irregular publication, and a hefty 77% of those responding to the questionnaire would like it left that way, while only 23% would like it to have fixed publication dates. Also, only 8% said they read Phasmid Studies every time, 59% sometimes, and 33% never. ***The number of 'never' is of concern: is there still demand for PS, or are results influenced by not issuing PS on a regular basis?***

46% want to keep Phasmid Studies as an all-colour on-line publication, accessed by members and other enthusiasts, and an almost equal 54% wanted it on-line with an option of separate payment for a black & white photocopy on demand only. None wanted it printed for all members. ***Result is a split decision but could Treasurer consider setting up a system for members to pay a fee if exceptionally paper copy of PS required?*** 64% wanted Phasmid Studies to remain as A4, and 36% wanted it to have another format. ***Not very decisive.*** Also, a massive 86% wanted it to remain a separate publication, and only 14% wanted it to be included in the PSG Newsletter.

PSG NEWSLETTER. Even with a full-colour copy available on line, a massive 71% would still like a printed copy sent to them, and only 29% said it was not necessary. 100% said they read the PSG Newsletter every time! 47% would like them printed by professional printers, and 53% would like them printed in-house to keep prices lower. ***So not very conclusive.*** And 7% (of all taking part in the questionnaire) wanted it in full colour, even with a significant increase in membership fees. 100% wanted the Newsletter to continue in its present format. 29% wanted it to continue being printed quarterly, 71% wanted it printed only twice per year to save money. ***Currently we are trying a new outside printers, using the current A4 format, with 4 colour pages, and we are printing it June and December with this special additional March issue this year. And remember, a full-colour pdf version of the Newsletter can be viewed and printed-off from the PSG Website.***

PSG MEETINGS. 43% of all taking part in the questionnaire would like the PSG Meetings to stay on Saturdays, only 14% would like the meetings to have a different format, 64% would accept half the meetings on Sundays, and 7% were willing to have occasional meetings on Sundays. (These results are percentages of all taking part in the questionnaire, as they could opt for more than one option). ***Might need to consider having some meetings on a Sunday!***

MERGER. 43% would like an evaluation on a merger with other groups dealing with orthopteroid insects, 7% would like an evaluation on becoming a study group of larger entomological organisations, including charities, 50% want the PSG to remain independent. ***Might need to consider evaluating other groups.***

MEMBERSHIP RENEWALS. 71% would like membership renewals dealt with by post or at meetings, 36% would like to pay on-line, 7% would like "other". (These results are percentages of all taking part in the questionnaire, as they could opt for more than one option). ***The good news is that renewals are now available by post, at meetings, AND on-line using Paypal.***

SPECIES REPORTS. 50% would produce rearing notes for publication if given assistance, 21% say they are unable to produce notes, and 64% would like to see the Group translate notes published elsewhere e.g. in *Phasma*. (These results are percentages of all taking part in the questionnaire, as they could opt for more than one option). ***Guidance notes might be written for potential authors of rearing notes. Translations could be sought.***

WEBSITE http@//phasmid-study-group.org. 18% look at the site often, and 82% occasionally. Of all taking part in the questionnaire, only 21% found the site helpful and user-friendly. ***Look again folks, the site is having a makeover!***

SELECTED COMMENTS RECEIVED:

MEETINGS

"Encourage people to talk about the rearing of species relevant at the time"
"Too much spare time in morning squeezing most of the interesting stuff in afternoon"
"I find London a bit intimidating to travel through…expensive"
"Tighten up on timings, fill more 'quiet' periods, more items such as competitions, a bring and buy stall, and a raffle"

MERGER

"…merging with another "small group" would simply lose us focus. However, coming under the umbrella of a larger organisation could have cost and other benefits and should be looked at"
"Merger = loss of members = death"

PROMOTION

"Promote the PSG at shows (e.g. Banstead Countryside Day), with photos, leaflets, forms etc. or as part of the AES"
"….eye-catching flyer should be available on-line for promotion"
"Would help at e.g. Newark entomological fair if given advance warning & advice"
"Appoint a Publicity Officer"
"Stands at shows and museums"
"Offer banners for people to link to / from their sites / journals etc.
"Advertising in other organisation's newsletters, perhaps on a reciprocal basis"
"Stall at all shows / or posters and leaflets to members with stalls at shows"

NEWSLETTERS

"Why not co-opt a "stick talk" or other person to summarise discussions / threads for the Newsletter and ask for images"
"Let's translate from others (I can do French!)"
"Perhaps include a synopsis of Phasmid Studies articles"
"I would write but….I couldn't match [existing articles]" **[Any article would be welcomed, I'll tidy it if needed. Editor]**
"Encourage more general articles, such as 'my favourite stick insect species' or 'how I got into stickies' etc."
"Supplement two Newsletters pa with e-mail circulars"
"Current questions in the survey [relating to Newsletter]…a bit academic, as the current publication is so haphazard"

WEBSITE

"Cannot access members' area of PSG website….e-mailed for help but never solved the problem"
"Would like to see a cleaner, easier to navigate, website with more regular updates and a 'news' page. Maybe use wordpress / twitter etc."
"Perhaps a gallery could be added where phasmid photos could be added, also PSG meeting photos"

GENERAL

"The PSG is becoming a bit cliquey and stuffy….[needs to] become more user-friendly or membership numbers will fall further"
"Possible change in Committee, publications not produced on time, too fussy with articles. Consider an Assistant Editor?"
"Review problems experienced [with publications] and Committee to propose a workable strategy. New blood i.e. more committed individual(s) needed, otherwise nothing changes?!"

THANK YOU VERY MUCH TO EVERYONE THAT TOOK PART, YOUR COMMENTS WILL BE CONSIDERED IN DETAIL BY THE COMMITTEE AS WE LOOK AT HOW THE PSG SHOULD CHANGE IN FUTURE. HOPEFULLY YOU WOULD ALREADY HAVE NOTICED SOME BIG CHANGES AND IMPROVEMENTS. (However, further comments on any aspect of the PSG are always welcome, please send them to Judith, or any other committee member).

Competition Time

Want to win a cuddly, PSG Teddy Bear?

EASY – in this Newsletter is a photo of a PSG committee member with about 13 words written on the back of their T-shirt. Who is that person? Send your entries by post or e-mail to me, Mike Smith (my details are on Page 3). Correct entrants will have their names put in my hat (if I have not eaten it) and the first name drawn gets the cuddly teddy! If there are no entries, the teddy will be donated to science: dismembered, dissected, and put in jars on dusty shelves in the NHM archives. So come on folks, have a go; send in your entry by 30th April. Results will be in the June Newsletter.

Order Phasmida *by Brock and Marshall*

As we announced at the AGM, Paul has produced a (one-page) chapter entitled “Order Phasmida Leach. 1815” in Zhang, Z.-Q. (Ed.) *Animal biodiversity*: *An outline of higher-level classification and survey of taxonomic richness.*

The order Phasmida currently includes 13 families, 454 genera and 3029 species, not including the few fossil phasmids which are also excluded from the Phasmida Species File. This data was taken from Brock, P.D. Phasmida Species File Online. Version 2.1/4.0, on 22 April 2011, http://Phasmida.SpeciesFile.org.

Also included is a note by Judith on the name of the order - **Phasmida or Phasmatodea?** The Code of the International Commission of Zoological Nomenclature has no rules for the construction of names of Orders, only for the names of family-groups, and genus- and species-level names. The names currently in use for the order of stick and leaf insects, or walking sticks, include Phasmida, Phasmatodea, Phasmatoptera and Cheleutoptera. Phasmida is the oldest and simplest name, first used by Leach in 1815 in ‘Brewster’s Edinburgh Encyclopaedia’ volume 9, p.119, and widely used in major entomological textbooks, dictionaries and many scientific papers and books on phasmids. As there is no compulsion to select the ‘grammatically correct’ name [which some argue is Phasmatodea Jacobson & Bianchi, 1902], selection of a long established (and simple) name is reasonable.

Link to the whole book: http://mapress.com/zootaxa/list/2011/3148.html.

For members who are not aware of it, the **Phasmida Species File** has been operational since 2005 and is a taxonomic database of the world's Phasmida (3030 valid species).

BROCK & MARSHALL: ORDER PHASMIDA 198 · *Zootaxa* 3148 © 2011

Wordsearch By Mike Smith

L L H B A P I E M N S O E E S B C
E A A G S T S L A U N U L N A A A
A A O P A E A L L G R A E F F E A
A D H M A A T L A U A E R A U S L
S I E U A H I E C M Y S A S M O A
R A E M H C N U O O P L L U M A C
C P I U A C M E M H S O I G B N M
O H S B A A H M O M P L N C U A L
L E E R N T A D R H L O A I A M A
P R R I I O Y G P Y I N E N U O D
N O A T E R A Y H C A R T R U S L
R D D A L A G P A C T U A E O O Y
C E I S L Y N I H R A M I S C R U
O S P E A S U U I I U A A Y E B E
H D E C A A S X Y L I C A M S A D
L L N P A P A O U M C N N L N D A
E O A C O X L S U L N L L I E E L

Abrosoma
Bacillus
Canachus
Diapherodes
Epidares
Graeffea
Haaniella
Lamponius
Malacomorpha
Neohirasea
Oreophoetes
Phyllium
Ramulus
Sungaya
Trachyaretaon
Urucumania
Xylica

Have a go at this!
Answers on Page 25.

Please send in crosswords, quizzes, wordsearches, etc, for future Newsletters

THE DEVELOPMENT OF THE PHASMID SPECIES LIST
Part Two: PSG No.51 – PSG No.100

by A.J.E.Harman (PSG.189)

After the formation of the Group in 1980 species were added regularly as members either went abroad collecting or imported eggs from overseas insect dealers. There were additions to stocks of species that had previously been collected. Some species thrived, usually the more spectacular ones like *Heteropteryx dilatata*. Others died out possibly for dietary reasons, that is, unsuitable food plants.

PSG No.51 Libethra sp.
Country of origin: Peru. Collected by me at Tingo Maria, Huanuco Province in 1982. Culture now lost.

PSG No.52 *Valid name*: **Alienobostra brocki** (Hausleithner, 1987).
Country of origin: Costa Rica. The culture was reared from specimens collected by Alan Gange in the early 1980s. Originally **Calynda**, transferred to new genus **Alienobostra** Zompro, 2001(b).

PSG No.53 *Valid name*: **Phasmotaenia inermis** (Redtenbacher, 1908).
Country of origin: Fiji, Viti Levu. I have been unable to establish the origin of this culture. Culture now lost. Originally **Hermarchus**, transferred to P**hasmotaenia** by Hennemann & Con.

PSG No.54 Xylica sp.
Country of origin: Tanzania. Collected by Charles Woolman on the slopes of Mt Kilimanjaro at altitudes between 2500 and 8000 ft. (750-2500m.), since lost.

PSG No.55 *Valid name*: **Ramulus nematodes** (de Haan, 1842).
Country of origin: West Malaysia. The culture was reared originally by Paul Brock from eggs imported from Michael Yeh in Ipoh in July, 1982. Some subsequent importations of eggs have occurred. Originally Phasma; transferred to **Lonchodes** by Westwood, 1859, to **Baculum** by Kirby, 1904(b), to **Cuniculina** by Brunner, 1907, back to **Baculum** by Klante, 1969 and to **Ramulus** by Brock, 2003.

PSG No.56 *Valid name*: **Bacillus rossius** (Rossi, 1790).
Same as **PSG No.3.**

PSG No.57 *Valid name*: **Hermarchus insignis** (Kaup, 1871).
Country of origin: Australia, possibly Queensland. Culture imported by Ulrich Ziegler in the 1980s, since lost. Originally **Cladoxerus**, transferred to **Lysicles** by Kirby, 1904(b) and to **Hermarchus** by Zompro, 2001(c).

PSG No.58 *Valid name*: **Tirachoidea cantori** (Westwood, 1859).
Country of origin: West Malaysia. Culture established from eggs imported from insect dealers in Malaysia since the 1980s. Originally **Phibalosoma**, transferred to **Tirachoidea** by Brunner, 1893, and to **Pharnacia** by Redtenbacher, 1908; treated as **Tirachoidea** or **Pharnacia** by many authors until final placement by Hennemann & Conle, 2008. Previously identified as **Pharnacia sumatrana**, and identification corrected to **Tirachoidea cantori** by Hennemann & Conle, 2008.

PSG No.59 *Valid name*: **Phyllium bioculatum** Gray, 1832.
Country of origin: Sri Lanka. Same as **PSG No.10.**

PSG No.60 *Valid name*: **Phyllium bioculatum** Gray, 1832.
Country of origin: West Malaysia. Same as **PSG No. 10**.

PSG No.61 *Valid name*: **Haplopus micropterus** (St Fargeau & Serville, 1827).
Country of origin: Dominican Republic. Brought into culture by Miguel Adams in the late 1980s. Originally **Cyphocrana**, transferred to **Aplopus** Gray, 1835, **Haplopus** (correct form of name) by Westwood, 1859.

PSG No.62 Unidentified.
Country of origin: Kenya. Culture lost.

PSG No.63 Unidentified.
Country of origin: Kenya. Culture lost.

PSG No.64 *Valid name*: **Lopaphus perakensis** (Redtenbacher, 1908).
Country of origin: West Malaysia. Same as **PSG No.37**.

PSG No.65 Sipyloidea sp?
Country of origin: East Malaysia, Sabah. Culture now lost. I have been unable to find out anything about this species.

PSG No.66 *Valid name*: **Carausius sanguineoligatus** (Brunner, 1907).
Country of origin: East Malaysia, Sabah. Original culture collected by me in 1983 at Kinabalu National Park at an altitude of about 5000 ft. (1500m.), now lost. Originally **Dixippus**, transferred to **Phasgania** by Hausleithner in 1986, referred to as **Carausius** sp. by Jennings, 1990 and **Carausius sanguineoligatus** by Seow-Choen, 1997.

PSG No.67 *Valid name*: **Lonchodes everetti** (Kirby, 1896).
Country of origin: East Malaysia, Sabah. Original culture collected by Jonathan Cocking at Sepilok in

July 1984. A further culture was collected by Frank Hennemann in August 1993. Originally **Phasgania**, transferred to **Dixippus** by Brunner, 1907, and to **Lonchodes** by Schulten, 1995.

PSG No.68 Lonchodes sp.
Country of origin: East Malaysia, Sabah. Original culture collected by Jonathan Cocking at Sepilok in July 1984, now lost. Not identified to species.

PSG No.69 *Valid name*: **Dares verrucosus** Redtenbacher, 1906.
Country of origin: East Malaysia, Sabah. Original culture collected by Jonathan Cocking at Sepilok in July 1984.

PSG No.70 *Valid name*: **Haaniella scabra** (Redtenbacher, 1906).
Country of origin: East Malaysia, Sabah. Originally collected by Jonathan Cocking in Kinabalu National Park at altitude 5000 ft. (1500m.) in July 1984. Another culture was established from stock collected by Kim d'Hulster in May 1996. Further stock was collected by Frank Hennemann and Oskar Conle in August 1996. Originally **Heteropteryx**, transferred to **Haaniella** as a subspecies of **Haaniella grayi** by Günther, 1932, restored to full species by Rehn & Hebard, 1938.

PSG No.71 *Valid name*: **Bacillus atticus cyprius** Uvarov, 1936.
Country of origin: Cyprus. The culture was established from stock collected by Paul Brock at Governor's Beach in June 1985, now lost.

PSG No.72 *Valid name*: **Phyllium giganteum** Hausleithner, 1984.
Country of origin: West Malaysia. The culture was established from eggs imported from various insect dealers in West Malaysia. Specimens originally from the Cameron Highlands of Pahang State.

PSG No.73 *Valid name*: **Phenacephorus cornucervi** Brunner, 1907.
Country of origin: East Malaysia, Sabah. This culture originates from stock collected by me at Kinabalu National Park at altitude 5000 ft.(1500m.) between September and November 1983.

PSG No.74 Anchiale briareus.
Country of origin: Australia. This culture was established from eggs collected by me from a female collected in the Botanical Gardens at Cairns, Queensland in early 1981, since lost. Same as **PSG No 15.**

PSG No.75 *Valid name*: **Phobaeticus serratipes** (Gray, 1835).
Same as **PSG No.25**.

PSG No.76 *Valid name*: **Phyllium siccifolium** (Linnaeus, 1758).
Country of origin: West Malaysia. Cultures established from eggs imported from insect dealers in West Malaysia since lost. Ian Abercrombie has a tentative culture from specimens collected in Java in 2010.

PSG No.77 *Valid name*: **Phyllium bioculatum** Gray, 1832.
Country of origin: West Malaysia. Culture established from eggs imported by Friedhelm Kirsten from local dealers in Pahang, West Malaysia. Same as **PSG No.60**.

PSG No.78 *Valid name*: **Pharnacia sumatrana** (Brunner, 1907).
Same as **PSG No.30**. Originally **Phobaeticus sumatranus** transferred to **Pharnacia sumatrana** by Brock, 1996. Previously identified as **Tirachoidea cantori** (Westwood, 1859) and identification corrected to **Pharnacia sumatrana** by Hennemann & Conle, 2008.
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PSG No.79 *Valid name***: Bacteria aetolus** (Westwood, 1859).
Country of origin: Mexico. The culture was established by Paul Brock from eggs sent to him by Steve Prchal, a former PSG member, in 1984. The eggs were from adults collected some 3 miles (5 km.) south of Alamos in Sonora State. The nymphs were reared on Robinia pseudoacacia Linn. – false acacia Leguminosae. Nymphs were subsequently transferred to Pyracantha but all died with the exception of one female whose eggs failed to hatch. Originally **Bacteria,** placed in **Phibalosoma** by Saussure, **Phanocles** by Stål, 1875, and back to **Bacteria** by Shelford, 1909, **Bostra** by Hebard, 1923 and finally back to **Bacteria** by Otte & Brock, 2005.

PSG No.80 *Valid name*: **Acanthoxyla geisovii** (Kaup, 1866).
Country of origin: New Zealand. Cultures of this species have been obtained from the introduced and established colonies in the south west of the UK. Originally **Bacillus**, transferred to **Clitarchus** by Stål, 1875, back to **Bacillus** then **Clitarchus** then **Acanthoderus** by Hutton, 1881, 1898 and 1899; to **Macracantha** by Kirby, 1904(a), to **Acanthoderus** by Brunner, 1907, and **Acanthoxyla** by Salmon, 1955.

PSG No.81 *Valid name*: **Acanthoxyla inermis** Salmon, 1955.
Country of origin: New Zealand. Cultures of this species have been obtained from the introduced and established colonies in the south west of the UK.

PSG No.82 *Valid name*: **Rhaphiderus spinigerus** (Lucas, 1862).
Country of origin: La Réunion. Cultures of this species were established from specimens collected

by Jean-Claud Anderes from Bel Air, Plaine des Grèges between 800 and 1600 ft. (250-500m.) altitude. When introduced was originally believed to be **Rhaphiderus scabrosus** (Percheron, 1829) an allied species from Mauritius.

PSG No.83 *Valid name*: **Rhaphiderus scabrosus** (Percheron, 1829).
Country of origin: Mauritius. Cultures of this species were established from specimens collected by M.Cooper in December 1984. A further culture was collected by Nicholas Cliquennois. Originally **Bacteria,** transferred to **Acanthoderus** by Gray, 1835, and to **Rhaphiderus** by Serville, 1838.

PSG No.84 *Valid name*: **Oreophoetes peruana peruana** (Saussure, 1868).
Country of origin: Peru. Originally established by Didier Mottaz from specimens collected in the region of Tarapoto in the valley of the Rio Shilcayo in September 1984. Originally **Bacteria**, transferred to the **Oreophoetes** by Kirby, 1904(a), to **Allophylus** by Brunner, 1907, and back to **Oreophoetes** by Giglio-Tos,1910.

PSG No.85 *Valid name*: **Pseudophasma rufipes** (Redtenbacher, 1906).
Country of origin: Peru. The culture was originally established by Didier Mottaz from specimens collected from the region of Tarapoto in the valley of the Rio Shilcayo in September 1984. Originally **Phasma**, referred to as **Paraphasma rufipes** (det. Hausleitner) by Jennings, 1991, transferred to **Pseudophasma** by Schulten 1995.

PSG No. 86 *Valid name*: **Dyme rarospinosa** Brunner, 1907.
Country of origin: Peru. The culture was established by Didier Mottaz from specimens collected from the region of Tarapoto in the valley of the Rio Shilcayo in September 1984. Originally **Dyme**, transferred to **Bacteria** by Brock, 1998, and back to **Dyme** by Zompro, 2001.

PSG No.87 *Valid name*: **Parocnophila latirostrata** Zompro, 2001.
Country of origin: Ecuador. I have been unable to find any details of the origin of this culture, now lost.

PSG No.88 Necroscia sp.
Country of origin: Sulawesi. Believed to have been collected by Eric van Gorkom. Culture lost.

PSG No.89 *Valid name*: **Sosibia parvipennis** (Stål, 1877).
Country of origin: Philippines, Mindoro Island. This culture was established from specimens collected by Eric and Johan van Gorkom in the Puerto Galera area of Mindoro Island. Originally N**ecroscia,** transferred to **Sosibia** by Redtenbacher, 1908.

PSG No.90 *Valid name*: **Rhamphosipyloidea gorkomi** (Hausleithner, 1990).
Country of origin: Philippines, Mindoro Island. This culture was established from specimens collected by Eric and Johan van Gorkom in the Puerto Galera area of Mindoro Island. Originally **Parahyrtacus**, transferred to **Rhamphosipyloidea** by Zompro in 1999(b).

PSG No.91 *Valid name*: **Clonopsis gallica** (Charpentier, 1825).
Same as **PSG No.45**.

PSG No.92 *Valid name*: **Menexenus exiguus alienigena** Gunther, 1939.
Country of origin: Sulawesi. This culture was established from specimens collected by Jonathan Cocking in Dumoga Bone National Park whilst he was a member of the Royal Entomological Society Expedition under the title “Project Wallace”, culture now lost.

PSG No.93 Lonchodes sp.
Country of origin: India. The original specimens were collected by Prem and Purnendu Roy in September 1986. These specimens were not positively identified and are lost to culture.

PSG No.94 *Valid name*: **Cuniculina insignis** (Wood-Mason, 1873).
Country of origin: India. The original culture was collected by Prem and Purnendu Roy from Kohima, Assam State in September 1986. Originally **Bacillus (Baculum)**, transferred to **Cuniculina** by Brunner, 1907, cited as **Baculum** by Brock, 1987, and back to **Cuniculina** by Brock, 2003.

PSG No.95 *Valid name*: **Ramulus frustrans** (Brunner, 1907).
Country of origin: India. The original culture was established from specimens collected by Prem and Purnendu Roy in North East India in September 1986. Culture now lost. Originally **Cuniculina**, cited as **Baculum** by Brock in 1987, 1998(a), and transferred to **Ramulus** by Otte & Brock, 2005.

PSG No.96 *Valid name*: **Menexenus nudiusculus** Hausleithner, 1992.
Country of origin: India. The original culture was established from specimens collected by Prem and Purnendu Roy in the Western Kameng District, Arunachal Pradash at 1000m. altitude (3000 ft.) in September 1986. Culture now lost.

PSG No.97 *Valid name*: **Diapheromera arizonensis** Caudell, 1903.
Country of origin: U.S.A., Arizona, Sonara Desert. Brought into culture by Paul Brock. Culture lost.

PSG No.98 *Valid name*: **Parabacillus hesperus** Hebard, 1934.
Country of origin: U.S.A., Arizona, Sonara Desert. Brought into culture by Paul Brock. Culture lost.

PSG No.99 *Valid name*: **Epidares nolimetangere** (de Haan, 1842).
Country of origin: Sarawak. The original culture was established by stock collected by Phil Bragg at Mount Serapi in January 1988. A second culture was established from stock collected by Patrick van der Stigchel at Mount Matang in 1989. A third culture was established from stock collected by Frank Hennemann and Oskar Conle at Mount Serapi in July 1996. Originally **Phasma (Acanthoderus)**, transferred to **Acanthoderus** by Westwood, 1859, to **Tisamenus** by Kirby, 1904(a), to **Dares (Epidares)** by Redtenbacher, 1906, and upgraded to genus by Bradley & Galil, 1977.

PSG No.100 *Valid name*: **Lonchodes amaurops** Westwood, 1859.
Country of origin: Sarawak. The original culture was established by Phil Bragg from stock collected at Bako National Park in 1987. A second culture was established by Frank Hennemann and Oskar Conle from stock collected at Mount Serapi at an altitude of 670m. (2000 ft.).

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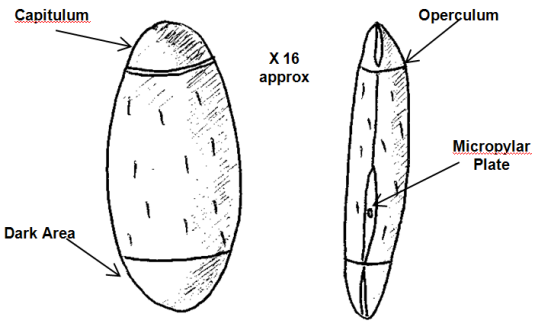
Achrioptera fallax (Madagascar) *by Stephen Lee Thomas*

During the July PSG meeting of 2011, Tacy Kneale kindly gave me some ova of the above species. This is what can be seen with the naked eye:-
On the egg's surface, there are dark areas at either end, making it a little difficult to tell which end is the capitulum. Otherwise the colour is a sort of olive green to grey, and the surface quite smooth.



I put the ova in a small, bottom-heated, propagators containing coir fibre and vermiculite, and sprayed each one different amounts of water to see what would happen. Most of the eggs hatched after 2-3 months without going mouldy, some became too dry, presumably, and did not hatch.

I placed the hatchlings in a plastic sweet jar, with a jam-jar lid glued underneath – holes in this allow bramble, etc, to be pushed through into water in the jam jar There is a small amount of humidity for small nymphs.


Photo: Mike Smith

They are about 15mm (0.6 inches) long when they hatch, and are brown in colour. As they begin feeding, they gradually lighten in colour, which gives some idea of how well they are. Later instars remain this grey-brown colour, and begin to show small spines on the thorax, also they grow wing buds, and some small outgrowths on the legs.

Wing covers are white. The legs are fairly spiny. Both sexes flash their wings when agitated, and walk about with them outstretched. Adult females are about 20cm (8 inches) long, males about 14cm (5.5 inches). Both sexes took about 2-3 months to reach maturity but, as this is the first time I had reared this species, times may vary. At the first moult, both sexes have two pairs of stunted wings which gradually turn red, the first pair of wings completely cover the second pair. Females turn a light-brown with orange-tipped spines on the thorax, and with purple between the segments of the abdomen. Males begin a similar colour but, over the course of a week or so, turn a beautiful blue colour, that looks glazed (see colour photo on page 2).


Photo: Paul Brock

I managed to rear two pairs of adults, but unfortunately both females and one male died – for no apparent reason. Maybe the conditions were not quite suitable in the taller cage into which I placed them, or perhaps the bramble I fed them was contaminated in some way. Also, perhaps higher humidity is important at all stages even adults.

Apart from the losses in the adult stages, this species does not have high mortality rates, so with less than 100 ova it should be possible to easily rear this species. I am trying to rear more nymphs at the moment, thanks again to Tacy Kneale, who was able to supply me with some precious eggs.

Diary Dates

IMPORTANT INFORMATION ON DIARY DATES: You should check with the organisers that the event is still on, and at the times shown, before setting out. If you attend these or other shows, please send in a review for the Newsletter. If you are aware of any additional shows, exhibitions, fairs, etc, however big or small, wherever they are, if stick insects and/or other creeply crawlies are likely to be present, wherever the show may be, please pass the details on to the Editor.

Newark / Midlands Spring Entomology Fayre: 11.00 am to 4pm, 1st April 2012, The Grove Leisure Centre, London Road, New Balderton, Newark, NG24 3AL .

***Phasma Meeting*:** Sunday, 22nd April 2012, in Veurne, Belgium. For more details go to www.phasma.eu.

BTS Show: Sunday, 20th May 2006, 11am, The Coseley School, Henne Drive, Ivyhouse Lane, Coseley, West Midlands, WV14 9JW.

PSG Summer Meeting: **Saturday, 7th July 2012– 11.30 am, Dorothea Bate Room, Natural History Museum, Cromwell Road, London. (More details, and agenda, in the June PSG Newsletter).**

THE WORLD LIKES PHASMIDS…… by Paul D. Brock

For members who are not aware of it, the **Phasmida Species File:** http://phasmida.speciesfile.org has been operational since 2005 and is a taxonomic database of the world's Phasmida (3030 valid species). It already has images of type specimens of two-thirds of the world's fauna, with the remainder ready to be uploaded when time permits*. It is effectively an on-line, never ending, unpublished monograph. A look at the home page gives various statistics but the website is mainly for the taxonomist, giving access to downloads of the major literature, many available free. However, unlike the Species Files dealing with other orthopteroid orders, I have also provided details of articles on rearing species. It is hoped to link these with the PSG Website Species List in the near future, but as an example of what is available go to SEARCH – TAXON, key TIARATUM and select EXTATOSOMA. Most of the Species Files, including PSF, is the data provider of names for the Species 2000 and ITIS 'Catalogue of Life' Dynamic and Annual Checklists (http://www.sp2000.org/ The Catalogue of Life in turn supplies the names to a wide range of organisations including GBIF (http://gbif.org/) and EoL (http://eol.org/).

All serious phasmid taxonomists make use of PSF. I use Google Analytics to occasionally monitor usage and members might like to know that out of the many thousands of visitors each year, top users for 2011 are: 1 USA, 2 Germany, 3 France, 4 UK, 5 Mexico. The average time on the website is 6.31 minutes (14 pages), with 47% new visitors. It is good to see: 9 Brazil, 21 India and 22 China, as these countries have scientists who might find it difficult to examine type material, or have access to literature. The analysis includes the facility to break down usage in towns or by user. It is interesting that the UK is well down the user order, considering that I input a lot onto the website alone! It was easily in No. 3 spot in previous years. This is a reflection of the increasing importance of work being undertaken by entomologists in Germany and France. Indeed, Oskar Conle and Frank Hennemann (Germany) have just provided thousands of images of type material for PSF and I also have images of thought to be long-lost type material in Calcutta (a past curator reported that it was lost!) to upload from Tushar Mukherjee (India). The individuals mentioned here and several others are listed as contact points for geographical areas on the PSF home page. The facility is well utilised by parties interested in phasmids from these areas; occasionally these enquiries translate into a source of articles for the PSG Newsletter. If members have any comments on the usefulness (or otherwise) of PSF, please do not hesitate to contact me.

**Please e-mail me (Paul Brock) if you are interested in voluntary work on the database. Alas there is no funding available, as phasmids are considered a minor order, but if you have an interest in taxonomy and have spare time to periodically upload images and associated text, or learn about taxonomy, this might be of interest. Otherwise taxonomists will have to wait to see remaining images until I squeeze some time from an increasing number of projects. My contact details are on page 3.*

FOODPLANTS *by Stephen Lee Thomas*

I am rearing different species of *Heteropteryginae* and noticed in an index of food plants compiled by Ed Baker and Paul Baronourski that *H. dilatata* is partial to Ivy (Hedera).

Having found Ivy to be successful in rearing nymphs and adults of this species, I began to think of a different genus within *Araliaceae* that might be suitable. I chose *Fatsia japonica*, because it has a fleshy, evergreen palmate leaf, and is readily available as a garden shrub. It is hardy in the south, but may need protection elsewhere. It keeps well in or out of water and, because each leaf is large (up to 30cm or 1 foot across), can satisfy their large appetites.

Fatsia japonica

I have not tried the variegated form in case the insects find it unpalatable. If the shrub is new, it might still have traces of pesticide on the leaves, so check first or leave it at least 6 weeks before using it.

PHASMID EGGS EATEN BY BIRDS *by David Robinson*

There is a paper in the latest issue of the Journal of Orthoptera Research about the ability of phasmid eggs to survive digestion by quail and chicken. Eggs resemble seeds and it might be that if the eggs survive passage through the gut, then birds represent a way in which phasmid eggs are dispersed.

Quail and chicken were selected for experiments to see if the eggs were palatable and whether they survived digestion in the gut. The author fed birds with phasmid eggs sprinkled onto their normal grain diet. The eggs given to the quail were *Ramulus nematodes* and *R. artemis*, which had been reared in the labs at the Entomology museum at the University of California. The chicken were given eggs of *R. nematodes* and *Extatosoma tiaratum*, also from a lab culture. The quail did not get *Extatosoma* eggs in case they choked on them. The results of the experiments proved very interesting. Earlier work had shown that chicken would eat phasmid eggs, but it was not known whether the eggs would pass through the gut undamaged, particularly if the birds had any grit in their diet. The birds in this experiment had never been given grit, so a possible variable in the experiment was eliminated.

The birds appeared to prefer phasmid eggs to the grain, as they selected out the eggs and consumed most of them within a few hours. The five chickens took all but two of the 480 *E. tiaratum* eggs and the quail all but 25 of the 210 *Ramulus* eggs. All that could be recovered from the chicken manure was a single undamaged egg of *E. tiaratum* and three damaged eggs, one of *E. tiaratum* and two of *R. nematodes*. From the quail manure five shells/part shells of *R. artemis* and three whole, but crushed eggs of *R. nematodes* were recovered. So, in summary, of 935 eggs, 884 were eaten and one passed whole through the gut to remain viable.

In the conclusion to the paper, the author points out that although the lab results showed that only a tiny proportion of eggs consumed passed through the gut undamaged, it could be that there is a greater survival rate in the digestive system of other species of bird. Egg dispersal by ants, found for example in *E. tiaratum*, may serve to protect eggs from birds, but these results suggest that eggs can be an attractive food for birds and that very few indeed would be dispersed by birds successfully.

Ref: Shelomi, M. (2011). Phasmid eggs do not survive digestion by quails and chickens. Journal of Orthoptera Research, 20(2): 159-162.

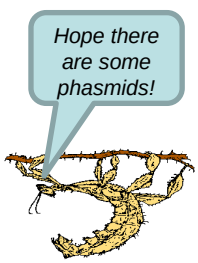
National Insect Week *by Mike Smith*

National Insect Week first took place in 2004 with a high-profile launch at the Natural History Museum in London.

The launch included interviews with young entomologists by Steve Backshall from the BBC TV programme The Really Wild Show. National Insect Week 2012 will take place Monday 25th June to Sunday 1st July 2012. The Web site for National Insect Week is: http://www.nationalinsectweek.co.uk. National Insect Week is designed to show you more about the insect world in all its fascinating diversity.

Something we perhaps often forget here in the UK is that diversity isn't just about wildlife in exotic locations. Get involved in National Insect Week and you'll discover that insect diversity is just as relevant and fascinating to explore in your garden or local countryside as it is in the savannahs, deserts, wetlands and rainforests of the tropics. National Insect Week is organised by the Royal Entomological Society and is supported by a large number of partner organisations concerned with many aspects of insect science, natural history and biodiversity.

Events include:



TITLE	PLACE	DATE	CONTACT
Africa Alive	Kessingland	30.6.12/1.7.12	education@africa-alive.co.uk
educaBugs & Beasties	Buckfastleigh	25.6.12/1.7.12	info@pennywellfarm.co.uk
Butterfly Walk	Isle of Wight	30.6.12, 11am to 12.30am	enquiries@ptes.org
Marvel at Moths	Lancashire	1.7.12, 9am-10am	leighton.moss@rspb.org.uk
Marvelous Minibeasts	Leeds	26.6.12/28.6.12	sarah.barton@leeds.org.uk
Things With Wings	Exminster Marshes	1.7.12, noon to 2pm	gemma.dunn@rspb.org.uk
Bugging Out	Geltsdale	26.6.12, 6pm to 8pm	julie.willenbruch@rspb.org.uk
Mysterious Moths	Mersehead	23.6.12, 9.30pm to 11.45pm	alison.robertson@rspb.org.uk
Insect Afternoon	Rainham Marshes	16.6.12, 1pm to 4pm	howard.vaghan@rspb.org.uk
Conservation Afternoon	Stillingfleet	16.6.12, 1pm to 5pm	vanessa.cook@stillingfleetlodgenurseries.co.uk

PSG Winter Meeting, 21st Jan 2012 *by Mike Smith*

The museum's entrance hall.

It was great to be able to go to a PSG Meeting again (now I've given up my Saturday job at the library!), and what a fantastic meeting it was too. Well done to the organisers (Judith and Ed). There were around 60 members in attendance (many of them youngsters) – which represented over half our membership, so what a marvellous turnout.

Members at the meeting.

The Creepy Crawlies hall.

I arrived at the museum, after over 2 hours of travel, to find a very long queue at the main entrance (in Cromwell Road); took me over 15 minutes to get into the museum (I understand the queue at the side entrance in Exhibition Road was slightly shorter). Anyway, all in a good cause, the delay was while they searched our bags for bombs, machine guns, and eyebrow tweezers. Fair enough, we don't want any nasty incidents, but I guess the security staff could have been somewhat surprised to see so many insects in the PSG members' bags.

Entrance to our room.

What a fantastic museum it is. Just its outside architecture is awesome, but when you go inside and see the grandeur of the building, the amazing exhibits are just the icing on the cake. And even the entrance to the PSG Meeting Room is quite impressive.

The shop's books on insects.

The raffle.

They have great shops, including lots of books on many natural history subjects, including insects. And there is a hall devoted to insects and creepy crawlies called "Creepy Crawlies". One exhibit asks how can you tell if it's a centipede or a millipede? Easy, drop it in a bowl of water - if it survives it's a centipede, if it drowns it's a (deceased) millipede. Nice!

Achrioptera fallax.

The meeting included a welcome raffle, which had some PSG merchandise as prizes. Good fun, and doubtless many had a soft spot for the cuddly teddy bear (I know I did). Only 50p per ticket, but did I win anything? (Two guesses). I also saw a beautiful male *Achrioptera fallax* which Stephen Thomas brought in to show us. What a beautiful, colourful stick it was too, look at his article on it. The AGM was quite interesting (no, really), as there were a number of changes to the committee. But please see Judith's article on the subject. After the AGM, we had an excellent talk from Chris Pull on "What is an insect?" Again, please see Chris's article to find out more. You think you know all about insects, then Chris comes along and makes you realise there is far more to learn about them than you ever realised.

"Catch 22"?

We then had a lunch break. Many members disappeared, presumably to look round the museum, or to go to a restaurant. Many others, like me, ate their sandwiches in the room. It was also a great time to catch up with old friends, and have a chat about stick species, newsletters, and "things".

Pan-galactic whatsits!

What is an insect?

The remainder of the meeting started with Mark Bushell's very interesting talk on "Stick insects, studbooks, and pan-galactic gargle blasters". Again, we have a separate item on this elsewhere in this Newsletter. OK "Stick insects" we know, and "Studbooks" are where you keep a record of the stick's parenthood; but I'm afraid I was a bit uncertain where the "pan-galactic gargle blasters" came in, though doubtless I was not concentrating. Anyway, as I said, the talk was very interesting.

The Livestock Table

There was a bit of a grey area of where questions on Mark's talk finished, and where open discussion and question-time started, but there was certainly a subsequent lively discussion on various stick subjects.

We then had the raffle results, and many members walked away with a winner's grin on their face (obviously I did not, as sadly I did not win anything). Finally, we had our "Livestock Exchange", where members can bring in their surplus stock for distribution, and others can seek the sticks of their dreams (incidentally, you do not have to bring in something in order to take something away, "exchange" is just a title).

There was a great deal of stock for willing homes to take on board. I personally took home quite a few more species than I bargained for (as usual). Mark and Ian said, if there is a particular species you seek, let them know before the meeting, and they will try to locate some for you and bring it to the meeting. The meeting then sadly came to an end. (SOME members then went round the pub…But I had to collect my wife from the airport, so had to go straight home).

PSG Meeting Report *By Derek and Doreen Pattenson*

The January 2012 PSG meeting opened at noon with around 50-60 members present, in the Dorothea Bate room as usual. Judith kicked off with apologies from Kristien and Rob, who very unusually were not at the meeting, choosing instead to spend some time with the President of the European Council. After acknowledging some shortcomings in PSG organisation running up to the meeting, there was a mixed bag of news for members. Judith had spent much time bringing the PSG culture list on the website fully up to date, although photographs are still missing for a significant number of species. Membership numbers have fallen further to just 97 in 2011, however the group still recorded a surplus of income over expenditure of almost £300. The falling numbers spelt trouble ahead; with short print runs, printing the newsletter may no longer be viable with the current printer, but alternative suppliers were being sought.

Nick Wadham of Bugfest fame had put together a prototype publicity leaflet for the PSG – a fanfold sheet for use at meetings. This was well received although distribution may need to be controlled to manage costs. Phil Bragg reported that no Phasmid Studies had been published since 2009, partly because of his confusion over whether it was to be published as a printed document and if there was funding for it. [Phasmid Studies will be available on-line via the PSG Website, exceptionally members with no access to the internet can contact Judith for a printed copy. Editor.]

David Robinson, group Librarian, reported that for the first time he had received no requests for help finding papers and articles, and that with the rise of the internet and search engines, the Librarian role was no longer necessary. He emphasised, though, that both he and other committee members would remain available to assist in tracking down scientific papers if requested.

Mark Bushell highlighted the fact that 2012 is of course a very important year, being one of those years in which National Insect Week is held. We were encouraged to look out for, support and run events as part of NIW. Paul Brock reported that some progress had been made with taking membership payments online via PayPal – this isn't the easiest thing to setup, but things were looking promising and hopefully 2012 will see payments being accepted online, making becoming a PSG member easier particularly for those outside the UK.

It was acknowledged that Ed in particular was stretched in terms of time, and that both the Newsletter and Website had suffered somewhat due to his other commitments. A number of members had volunteered to assist in various roles, and after informal agreement from the floor Natalie Ford and Mike Strick were welcomed as committee members to assist with the website, with Mike Smith returning to the committee to edit the PSG Newsletter.

With David having relinquished the formal role of Librarian, and Ian Bushell the role of group Secretary, there were some discrepancies in the committee makeup compared to the constitution, but there was a generally positive feeling that with an enlarged committee the future was promising, especially if the decline in membership numbers can be reversed.

The next formal part of the meeting was Chris Pull's talk on "What is an Insect". Although I took notes on this, I believe he's writing his own summary so won't repeat that here. If you want more detail, I'm sure Chris would consider forwarding the slides!

Lunchbreak saw the usual milling about, socialising, inspection of the livestock table, etc, and also people buying raffle tickets to win various items of PSG merchandise. Stephen Thomas was circulating with a stunning *Achrioptera fallax* male specimen– the last survivor of his culture of this species. These are amazing insects and it's to be hoped that the secret of keeping them in culture is unlocked soon. Also over lunch a small group gathered to brainstorm a little about the website and related matters. The committee rarely if ever meet up formally, conducting business by email; however face-to-face meetings can be helpful too so the opportunity was taken, albeit meaning that some missed Mark Bushell's excellent talk.

"Stick insects, stud books and pan galactic gargle blasters" was a nice title to Mark's afternoon lecture, on how we can make a difference to the world of phasmids, and the need for and use of the phasmid census system. This was delivered with the incentive of prizes for interaction with the speaker. This created a healthy conversation and lively discussion rewarded with a Mars Bar if the correct answer was delivered.

Why a census? Because it's important to understand which species are held in captivity and the number of species members kept. On a quick hand count members kept between 3 and 25 species each. Mark asked the audience some questions about "well known" species; for instance, *Eurycantha calcarata*: what year was this found and who described it? Although well known, it was down to the experts to answer such questions (1869, Lucas, in this instance). Currently the census shows that only 16 people keep it in captivity… The "black beauty" (*Peruphasma schultei*) was found in 2005, and according to the census only 14 people are keeping this in culture. The design of the census is to establish which species is kept, by whom, and how many. This will encourage a raised awareness of the species and will help the group concentrate on the those that are rare and may become extinct. The "stud book" will record the captive population. The most important information is the PSG number because the name can sometimes be misspelt (and can change if the species is re-classified). Everyone can help whether you keep them for fun or scientific or technical research. How you can help: Keep threatened species; Adopt a species; and Keep one extra species. So the appeal is "help our phasmids" - some may have been overlooked.

We all love phasmids and we are best equipped as a group to do this work; we have years of experience between us. Mark will be asking members to complete the next census in the summer. The meeting was still, perhaps unusually, running almost bang-on schedule and the Livestock Exchange was managed, as is normal now, by Mark and Ian Bushell. As per last summer, the exchange was accompanied by clear photos of each species on the projector. Whilst Mark's knowledge of species by PSG number is both encyclopaedic and awe-inspiring (he seems to know the size, origin, culture requirements, character and life history of any species given its number), a picture still speaks a thousand words and is a great help in making sure you're "bidding" for the right insect! During the exchange, the following species were distributed: 1, 4, 18, 23, 38, 84, 90, 99, 112, 118, 144, 145, 161, 173, 215, 225, 248, 255, 260, 264, 266, 270, 281, 283, 285, 290, 295, 296, 297, 299, 301, 303, 308, 309, 310, 313, 314, 315 and 317, plus *Mearnsiana bullosa* and two other un-numbered species. Clearly something for everyone, but the emphasis on the high-numbered species highlights Mark's point that some of the more "common" species are being ignored and underlines that some – many, perhaps – have already been lost to culture.

Finally, the meeting closed with Allan Harman drawing the winners in the raffle – these being Ian Bushell (T-shirt), Patricia Ash (mousemat), Janet Mulready (canvas bag) and Sue Fox (coasters). None of the winners chose the PSG teddy so he/she/it will return for another day! (Which may well be Saturday 7th July, the date of the summer meeting).

My Favourite Stick Insect is...*Extatosoma tiaratum* by Becky Webber

What is your favourite stick insect? Mine is the Giant Prickly. Why? I hear you ask – well, there are many reasons. This was the first "unusual" species that I ever owned and the first stick insect that I ever hatched myself. I think I was about 12 years old and we were on holiday in Gloucestershire. We were visiting a Butterfly Farm in Newent and they had *Extat* eggs for sale. My mum said I could buy some with any pocket money I had. They eggs cost 1p each and I had 7p left from my holiday spendings. The man at the Butterfly farm gave me 10 eggs for my 7p and I felt like I had won the lottery.

The next reason that I like *Extats* is their eggs. As we drove home from the Butterfly Farm, I cradled these 10 eggs in my palm and I thought how beautiful they were – large and shiny, mottled with black, brown and white. Nature in its simplest and yet most beautiful form. I was fascinated by them.

Extatosoma tiaratum

I must have cared for them correctly because 7 of the 10 eggs hatched. This takes me onto the next reason that I am so fond of this species of stick insect – mimicry. I had seven little, angry "ants" to care for! Hatchling *Extats* don't walk, they march. They march with great purpose and determination!

I remember when the first nymph underwent her final moult and emerged as an adult. There was this amazing, beige creature hanging upside down from the lid. She was swaying gently to and fro, in that characteristic rocking movement they have. I was captivated and have been ever since

These stick insects are as wonderful to me as the ceiling of the Sistine Chapel is to a lover of Renaissance paintings - and I could admire them for just a long (and not get a stiff neck!). There has rarely been a time since then when I haven't owned a stick insect of one species or another. I am very fond of many species (I currently have an adult *Eurycantha calcarata* female who has a very endearing personality), but if I had to choose a favourite species it would always be *Extatosoma tiaratum.* What would YOURS be? Write in and tell us what and why!

What is an Insect? *By Chris Pull*

Insects are marvellous creatures that make up the dominant biomass in most terrestrial ecosystems, and they play roles of paramount importance. They have implications as pests and carriers of diseases and they provide crucial ecosystem services, such as pollination and the breakdown of dead organisms and waste. The insects as a group are incredibly old, and thus contain a lot of evolutionary history. Of course, there is also their aesthetic appeal, with many insects sporting brilliant colours or impressive camouflage. Therefore, it seems very important to me that these creatures are well studied and truly understood, and this article aims to answer the question: why are insects are so successful? It will be a trimmed down version of the talk I gave at the January PSG meeting, as it is too long to fully reproduce in print!

[Unfortunately, there are copyright issues with many of the photos Chris used in his talk, so they are not reproduced here. However, I have used photos that he took of a Necroscia annulipes *hatchling under a microscope. Editor.]*

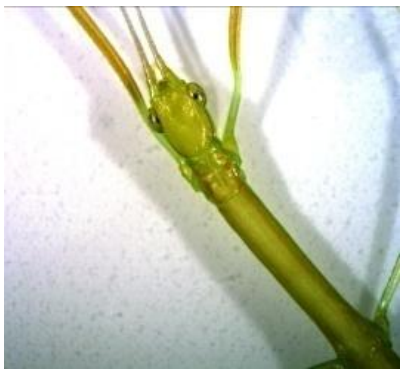
Insects are part of a much larger Phylum called the Arthropoda. This group is comprised of about one million, one hundred known species, which includes the extinct Trilobites, the Crustaceans, the Cheliceriformes, the Myriapoda and of course the Hexapoda, which is where the insects sit. The subphylum Hexapoda contains two Classes, with four distinct groups. Three are the spring tails and their relatives. These are all minute and the main difference between them and the insects is that the base of their mouthparts is hidden within the head, whereas the insects have theirs exposed. The insects are the fourth group, and in comparison, they are hyper diverse, containing around one million named species, making up 94.5% of all life on Earth.

True estimates of their numbers range between 1.4-10 million. They are incredibly abundant, with about 200 million insects per human. But why are they so species rich, and indeed so common? There are several theories as to why this might be so.

Firstly, could their success be down to timing. The oldest known insect fossil is *Rhyniognagtha hirsti*, which dates back 400 million years ago (MYA). The insects are thought to have evolved on land, from aquatic Arthropods. This is because the most primitive, non-flying insects are terrestrial and secondly, the way in which insects breathe, via the diffusion of gasses through a network of tubes, would not function in water. When the insects were evolving on land, roughly 390 MYA, the Earth was fairly warm and humid, and the process of 'greening' was well underway, as plants invaded the land. Vegetation was largely moss-like initially, but by the mid-Devonian there were shrub-like forests of ferns and horsetails. So, there were plenty of habitats and food for the insects and thus the timing of their evolution would appear to have played a key role in their speciation. However, they were not the first animals to colonise the land. Already present were the cheliceriformes, which includes the horseshoe crabs, ancestors of the spiders, scorpions and the mites, as well the myriapoda, i.e. the millipedes and centipedes. These animals are thought to have colonised the land in the late Silurian, about 419 MYA. There are approximately 11,460 species of the Myriapoda and 70,000 Cheliceriformes, which is nowhere near our 1 million named insect species. Therefore, we cannot say that the timing has had a significant impact on hyper diversification of the insects group, as there were animals evolving on the land long before the insects. Incidentally, the phasmids appear in the fossil record during the Triassic, about 230 MYA.

Next we can consider the exoskeleton, which was seemingly pre-adapted for a terrestrial lifestyle, protecting and supporting their bodies out of water, the same as it did in water. Importantly, the exoskeleton can be extremely water tight allowing the conservation of water in very arid environments, a trait that is crucial when living in a terrestrial environment. Many exoskeletons have a lipid layer, which prevents the escape of water and allows species like *Cataglyphis bicolour*, an ant from the Sahara desert, to keep foraging in temperatures greater than 60°C (this is a world. record).

However, the exoskeleton is common to all Arthropods and yet the insects are still the most species rich group within the phylum. Additionally, all insects have an exoskeleton, but not all insects are equally common. Exactly the same argument is used to explain why their small size is not the key reason for the success of the insects either. Being small allows insects to take advantage of ecological niches which are not available to other animals, such as living under tree bark or between the layers of tissues in a leaf, or even in or on other animals as parasites. The smaller an animal is, the more that can fit into one environment and the more that can share the same resources. Small animals generally have quite a high reproductive turnover, which accelerates population growth and may also speed up evolution, as mutations will occur more frequently in a shorter space of time. But again, being small is not unique to the insects. The smallest known spider is the male *Patu digua* which measures 0.37mm, less than a millimetre and less than half the size of your average grain of salt. The smallest insect is parasitic wasp, called *Dicopomorpha echmepterygis*, measuring is 0.139mm, roughly three times smaller than the smallest spider. However, the smallest arthropod, *Stygotantulus stocki*, is a crustacean measuring less than 0.1mm, and is another parasite.



The evolution of flight opened up an entirely unexploited environment and lifestyle that insects were able to take advantage of. The evolution of the insect wing is not clearly understood due to a lack of fossil evidence, but is thought to have occurred about 350 MYA, in the Carboniferous period. Flight bears many advantages, allowing an insect to find mates, new food resources, improve their dispersal and migration, and importantly allows them to avoid predation. This is likely why spiders began using silken webs, to capture flying insect prey. Of all the insects, about 0.1% cannot fly. This provides evidence that flight is a major factor contributing to the insects' success. It should be noted, the flying insects, called Pterygota may include some lineages that have subsequently lost their wings in their evolution - a good example are our stick insects, of which there are both winged and non-winged species. Within the flying insects are two groups, the Palaeoptera and Neoptera, the former making up about 7000 species, and including the Mayflies, Dragonflies and Damselflies. These are the most primitive extant flying insects, and dragon/damselflies fly more like a bird than an insect. The Neoptera however include most of the insects, with well over 800,000 species. What is it about this group that has made it much more successful than the relatively species poor Palaeoptera? The answer to that question is the fact the Neoptera have hinged wings. The forewings can be hardened into elytra and the hind wings folded up underneath, as in the beetles and many other insects, or all wings simply folded up or back against the body, as in butterflies or wasps. This protects the wings and allows a terrestrial and aerial lifestyle; something with the Palaeoptera cannot do and hence spend the majority of their life on the wing. Being able to take advantage of two ecosystems, or simply being able to live a terrestrial lifestyle, with the benefit of flying to evade predation is paramount to the insects' success.

Finally, the last possible explanation for the success of the insects lies in the food that they eat. An estimated half of all insects feed on plants, yet only nine of the thirty orders are primarily herbivorous. It is supposed that when a barrier preventing insects from feeding on a plant was breached, such as a plants chemical defence, a speciation event occurred. For example, the Lepidoptera are almost exclusively herbivorous and comprise of 120,000 species, yet their close relatives the Trichoptera (Caddisflies) are generally non-herbivorous and surmount to about 7000 species. Herbivorous Lepidoptera and Diptera (the leaf miners), ants and beetles are the most species rich animals on the planet and this is significantly correlated to their herbivorous diet. The mouthparts of the insect are extremely diverse, with examples adapted to every lifestyle imaginable. However, the majority of these are adapted to accessing nutrient from different parts of a plant. Insects are therefore extreme pests of crops. The largest ever locust swarm contained an estimated 10 billion insects, each of which can consume 2g of vegetation daily, meaning the swarm had the mouths to consume 20,000 tonnes of food a day. Leaf cutting ants of the Americas cause up to 50% of all crop damage in North and South America, adding up to $1 billion worth of damage each year.

So, in conclusion the insects are ecologically dominant in all terrestrial ecosystems, being the most species-rich group on the planet. They were the first animals to evolve flight and this is one of the major reasons for their success, in addition to later evolving hinged wings. Herbivory and the adaptation of mouthparts to exploit all areas of nutrients from plants is the second key reason for their success.

References:

Brusca, C. & Brusca, G. (2003) *The Invertebrates*. USA: Sinauer Associates
Gullen, J. & Cranston, P. (2010) *The Insects: An Outline of Entomology.* UK: Wiley-Blackwell
Moore, J. (2006) *An Introduction to the Invertebrates*. UK: Cambridge University Press.

The Stick Insect's Lament *A cautionary evolutionary tale*

With thanks to Ed Baker for passing this on. **Explanatory notes:** *Acanthoxyla* is a genus of prickly New Zealand stick insects (or phasmids) in which males are unknown, and females breed by parthenogenesis (virgin birth). Clever people often wonder how this sort of thing evolved. The Giant Moa (*Dinornis giganteus*) was a huge flightless bird that once roamed New Zealand forests, but became extinct a few hundred years ago. Clever people often wonder how this sort of thing happened. The following New Zealand trees and shrubs are mentioned: kahikatea (more or less rhymes with 'there'), karamu, *Pittosporum*, ramarama, rimu, and wild Irishman. The weta is a big flightless cricket (family Anostostomatidae) with spiny hindlegs. Shelly Beach and Shenandoah are places in New Zealand. Got all that? Jolly good.

Liv Tyler

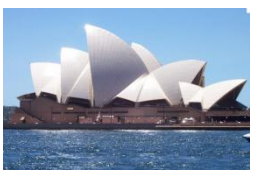
"O luscious lithe ***Acanthoxyla***,
to me you're cuter than **Liv Tyler**,
and though you lack her pouty lips,
the way your slender tarsus grips
that lucky branch of *Pittosporum*
undoes my normal cool decorum.
And yet ('tis bitter to relate)
they tell me that you have no mate!
How can it be? You look so fair
swaying in that **kahikatea;**
and when you move like silk pyjama
through karamu and ramarama,
flexing those long segmental links,
as phasmids go, you're quite the minx.
Masculine hormones should be surgin':
why is it that you're still a virgin?"
"O Robert dear, it pains me deep
and if these compound eyes could weep,
they'd shed a thimbleful of tears
to tell of those ecstatic years
when men were men and sticks were sticks
and life had more than food for kicks,
when phasmid fortunes still were rising
and eggs still needed fertilizing.
They say that in those distant days
our species came in golds and greys
and pinks and browns and creams and greens
with various lustres, shines and sheens,
and then, for camouflage, some flecks
or streaks and stripes or spots and specks
or marks like Arabic or Latin-
but all of us were smooth as satin.
It was an age of joy and ease
until there came amongst our trees
from Shelly Beach to Shenandoah
that fearsome beast, the **Giant Moa**.
"Its beak was large, its grip was tight,
it had a monstrous appetite,
and worse than this, the shrubs it browsed
were almost always those that housed
large numbers of *Acanthoxylae*:
the outlook clearly wasn't smiley.
No phasmid could emerge intact
from such a vast digestive tract;
but those that climbed to upper boughs
beyond the reach of moa browse
high in the windy canopy

Kahikatea

Giant Moa
(Dinornis giganteus)

caught chills about their tibiae.
" 'Twas then my ancestors conferred
on how to beat this blasted bird
and (with the aid of rimu wine)
came up with this idea: the Spine.
'Henceforth,' they cried, 'no insect stick'll
travel without protective prickle,
and as they say amongst the weta
"one prickle good, six hundred better,"
so thus from lofty Shenandoah
to Shelly Beach, we'll get that moa!'
"By conjuring the mystic force
that gives wild Irishman and gorse
their coat of spines, those sticks of old
encased themselves in points so bold
they'd pierce a hole in any maw
no dumb ***Dinornis*** could ignore.
And forth they went, with fortitude,
no more defenceless, smooth and nude,
no more a tasty big-bird-snack,
but with such armour on their back
that for a while their thorny fame
put **Sydney Opera House** to shame.
And moas everywhere despaired
of finding bushes unimpaired
with nasty prickly bits that stuck
in mouth and throat and tasted yuk,
until they all began to pine,
and huddled up and formed a line,
and thus, with feathers interlinked,
they quietly became extinct.
"They thought themselves so smart and wily,
those spiny new *Acanthoxylae*,
they thought they'd played a clever game...
until the mating season came.
'What's this?' exclaimed the frisky males,
climbing aboard the **bed of nails**
offered by each prospective bride;
'How can I mate with this?' they cried.
'What's with the nasty thorny joints?
You may be proud of all your points
But here's a point you may have missed:
I'm not a sado-masochist!'
And then they all dropped off the trees
and marched away in twos and threes.
"Since then, dear Rob, no-one has seen
Acanthoxyla masculeen-
though far and wide we daily search,
it seems they've left us in the lurch-
and so our lives have come to this:
dull old parthenogenesis."

Acanthoxyla



Sydney Opera House

Bed of Nails!

Dr R.J.B. Hoare

Ref: http://www.mapress.com/books/Poetry/9781869772574.html.

Some foodplants for *Onchestus rentzi* Brock & Hasenpusch, 2006 *by Allan Harman*

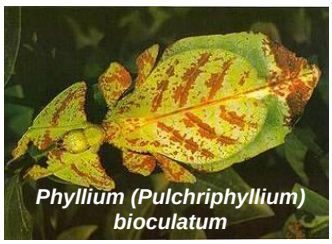
This striking species has recently been brought into culture. Recorded foodplants for the species in Australia are *Macaranga subdentata*, Euphorbiacea, *Calliandra timorensis*, Mimosaceae, *Psidium guajava*, *Rhodamnoa sessiliflora*, Myrtaceae, according to Brock & Hazenpusch, 2009. I was given a culture and they fed well on *Eucalyptus gunnii*, Mytraceae. Alternative foodplants were offered, and the following were readily eaten:

Oaks: *Quercus* spp., Fagaceae;
Hazels: *Corylus avellana*, Corylaceae;
Lime: natural hybrid of *Tilia cordata* x *T. platyphyllos*,Tiliaceae;
Sweet or Spanish Chestnut: *Castanea sativa*, Fagaceae;
Field Maple: *Acer campestre*, Aceraceae.
Reference:-

BROCK, P.D. & HASENPUSCH, J. 2009. *The Complete Field Guide to Stick and Leaf Insects of Australia*. CSIRO Publishing, Australia.

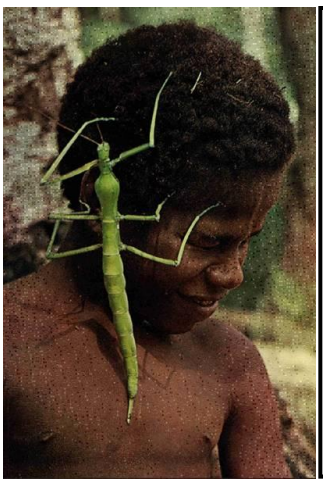
Some Experiences with Leaf Insects *by Allan Harman*

Over the years I have reared various species of leaf insects. Mostly I managed to rear one generation and thereafter had poor rearing success.



I have tried the following species:-
Phyllium (Pulchriphyllium) bioculatum Gray, 1832
PSG No. 10, *P. (Pul.) bioculatum* Gray, 1832
PSG No. 59, *P. (Pul.) bioculatum* Gray, 1832
PSG No. 60, *P. (Pul.) giganteum* Hausleithner, 1984
PSG No. 72, *P. (Phyllium) siccifolium* (Linnaeus, 1758)
PSG No. 76, *P.(Ph.) westwoodii* Wood-Mason, 1775
PSG No. 128, This species was identified as *P.(Ph.) celebicum* de Haan, 1842, for many years, corrected by Hennemann et.al., 2009.
P.(Ph.) philippinicum Hennemann et al., 2009
PSG No. 278, The three numbered cultures of *P. (Pul.) bioculatum* are almost certainly not identical and represent more than one species.
P. (Pul.) giganteum. I found this species rather difficult and only managed one generation despite several batches of eggs.
P. (Ph.) siccifolium - was a complete failure.
P.(Ph.) westwoodii. This species was relatively easy to rear and I managed several generations.
P.(Ph.) philippinicum is the easiest species to rear, readily feeding on Bramble, Hawthorn and Rose.
Reference:-

HENNEMANN, F.H., CONLE, O.V., GOTTARDO, M. & BRESSEEL, J. 2009. On certain species of the genus *Phyllium* Illiger, 1798, with proposals for an extra-generic systematization and the descriptions of five new species from the Philippines and Palawan (Phasmatodea: Phylliidae: Phylliinae: Phylliini). *Zootaxa* **2322**: 1-83.



"Land Diving With The Pentecost Islanders" "National Geographic" December 1970 pp796-817

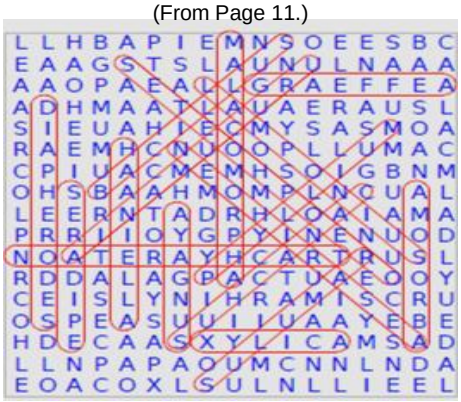
Female *Hermarchus pythonius* (Westwood, 1859).

"**Walking stick's last stroll** amuses its young captor, who will shortly roast and eat it. Islanders relish the insects – along with such other delicacies as wildcats and crickets – as supplements to their starchy staples: yams and taro. Cooked crickets taste not unlike caviar on burned toast, says the author."

Supplied by Paul Brock

Wordsearch answer

(From Page 11.)



Tips for Rearing *Heteropteryx dilatata* by John Mitchell (1199)

***Heteropteryx dilatata*, or the Malaysian Jungle Nymph,** is a firm favourite with phasmid enthusiasts – because of their large size, spectacular appearance and, perhaps less so, exaggerated defensive behaviour, this can be a rewarding species to culture. However, patience is required for successful breeding, as their life cycle is long compared to most species – I've had specimens live for 3 years and eggs can take as long as 18 months to hatch. At the winter PSG meeting, I was fortunate enough to distribute over 40 insects to other members of the group so hope the following tips will be useful.

Eggs

I incubate eggs in a substrate made from coconut husk fibre (sold by Exo Terra), which helps to maintain humidity. The eggs are buried with their opercula at surface level and lightly sprayed with water twice weekly. For extra warmth, egg boxes can be placed in the airing cupboard, although if you have an 'insect room' which is kept at 20°C+, this should be sufficient for hatching. However, avoid too much moisture, as this may encourage mould to form – affected eggs should be discarded. Unfortunately, I haven't recorded my hatch rates but will endeavour to do so in the future; I would guess at 60%+, which yields more than enough nymphs, considering females lay approximately 200 eggs each.

Nymphs

I rear nymphs in conditions of high humidity (80%+) and temperatures of 20 – 21°C, and have used either Exo Terra terrariums (with the mesh lid half covered to maintain humidity) or cages from Small Life Supplies (with ventilation panels covered) lined with paper towel or vermiculite. I feed the nymphs mostly with bramble (though they will also accept oak, ivy and rose), and spray the foodplant daily with water. Spraying the insects themselves does not appear to adversely affect them. The nymphs moult once approximately every 2 months and females undergo seven moults while males undergo six. Sexing is easy as females can be identified by their developing ovipositors.

As nymphs reach the later instars, they definitely require a large cage. During moults, this species hangs on by just its hind legs – a cage of 60 cm in height is sufficient to accommodate the final moult. It is also important to ensure that there is not too much foodplant or too many other insects in the cage (I keep 5 to 6 individuals in a cage with dimensions 67 x 47 x 37 cm) so that sufficient space for moulting is available and that insects are not tempted to moult too close to the bottom of the cage by removing lower stalks from stems of bramble. I've had insects stop eating for up to 2 weeks before the final moult and I remove adult males from the cage at the time females are approaching their final moult to avoid any interference.

Adults

Once adult, mating occurs and egg-laying starts after two months or so. My females have been content to lay eggs in containers of either sand or coconut husk fibre. Eggs are easily separated from sand by sieving; it's certainly more time consuming to search through the latter. Particles of substrate stuck to ovipositors and abdomens usually means egg-laying has commenced. Otherwise, adults are cared for in the same way as nymphs, with daily spraying as they do appreciate the occasional drink. Perhaps one of the greatest challenges is handling these insects. Adults and large nymphs in particular can demonstrate very aggressive behaviour, lashing out with their hind legs, and adult females are able to generate a hissing noise. This can make cleaning out a traumatic experience; however, with time and patience, these insects can habituate to the human palm. On the right are some photos of my captive bred specimens and also *H. dilatata* nymphs that were found in the wild (Cameron Highlands, Malaysia). Top: adult female, just completed final moult; middle: sub-adult male in wild; bottom: female nymph in wild.

Kentromorphic Phases In Phasmids *by Paul D. Brock*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I had little expectation of seeing occasionally reported plague numbers of phasmids during a trip from south-east to central Queensland in November to early December 2011. Although the number of species seen was good, generally they were found in modest numbers, as either nymphs and / or adults. However, on 30 November, the last day of searching before depositing numerous specimens in Brisbane Museum as part of a DNA bar-coding exercise, I observed huge numbers of insects and an opportunity to see a fascinating adaptation in phasmids. Ken Key (1957) introduced the term "kentromorphic phases in phasmids", defined as "population-density induced morphological and pigmentation differences in pest species of phasmids" and linked with three pest species he found in parts of New South Wales: *Podacanthus wilkinsoni* (Macleay), *Didymuria violescens* (Leach) and *Ctenomorphodes tessulata* (Gray), the latter since renamed *Anchiale austrotessulata* by Brock & Hasenpusch in 2007. Key's work explored new theories and has been followed up by various authors, see Phasmida Species File **http://phasmida.speciesfile.org** references under these species.


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It is not difficult to find usually common Australian phasmids on their foodplants in the daytime and the fauna has recently been extensively covered in a popular field guide by Brock & Hasenpusch (2009). The Tessellated Stick-insect *Anchiale austrotessulata* was found feeding usually on *Acacia* or eucalyptus in each of several localities in south-east Queensland, easily the commonest phasmid during the trip, although rather local in some areas; in the Brisbane suburbs they preferred pines. At the Maddock Wetlands, Beerwah, southeast Queensland (Fig. 1) on 30 November 2011, in places they were on virtually all established trees and saplings and occasionally on tree trunks, initially noticed within seconds of leaving the vehicle during a morning survey. Normally, nymphs of the Tessellated Stick-insect are green (Fig. 2) but can be brown (Fig. 3). Adults are fairly uniform green or brown, males nearly always brown (Figs. 4-7). The 'high-density phase' noted by Key during breeding experiments as well as in the field, is conspicuously patterned with


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black, yellow and white. A typical female nymph (Figs. 8-9) and adult female (Figs. 10-12) of the high-density phase are illustrated, the latter readily employing a startle defence; note the stunning underside colour. All adults (c. 10) were fresh, otherwise the numerous nymphs ranged from newly hatched (1st instar) upwards, mainly though with only one or two moults remaining and I estimate that egg-laying would not start for about two weeks in this area. About half of the presumed thousands of specimens were sporting the high-density phase colouration. Why employ different colour forms? Key suggested that the high-density phase (which is not common in this species of phasmid, never illustrated in the species before and possibly not reported since the 1970s) is the classical pattern of aposematic animals of all groups,


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an adaptation to large congregations i.e. on the basis that the "warning" colouration has a greater impact on a potential predator, as the leaves are stripped bare by the hordes of hungry insects. Whilst examining photographs, I noticed that a small *Acacia* sapling growing by a stream (Fig. 13) hosts a Macleay Spectre *Extatosoma tiaratum* nymph***** as well as several Tessellated Stick-insect nymphs!

*****Only one adult was found elsewhere, but nymphs observed in several locations in central Queensland greatly increase the known distribution of this species, marked by a '?' on the map (p. 126) in Brock & Hasenpusch's book.

Acknowledgement. Thanks to Noelene Tweed for helping search for phasmids.


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Notes. i) Permits are essential for insect collecting in Australia and these are available to bona fide researchers for a fee, but do not normally permit the export of livestock.
ii) A forthcoming paper on DNA bar-coding in Australian phasmids is planned in 2012, which should solve mysteries, including whether *Extatosoma tiaratum* from south-east Queensland is the same species as populations in northern Queensland whose eggs and newly-hatched nymphs differ in appearance.


13

Main References: Brock, P.D. & Hasenpusch, J.W. 2009. *The Complete Field Guide to Stick and Leaf Insects of Australia*. CSIRO Publishing, Collingwood. Key, K. *1957.* Kentromorphic phases in three species of Phasmatodea. *Australian Journal of Zoology*. 5(3):247-284.