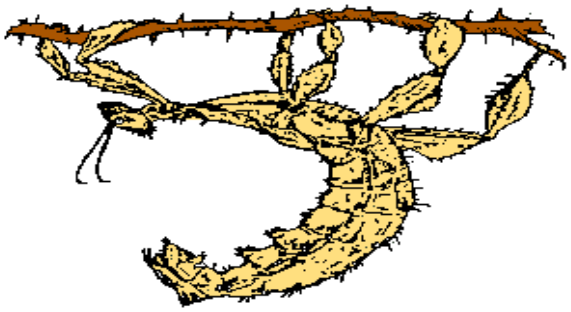
The Phasmid Study Group



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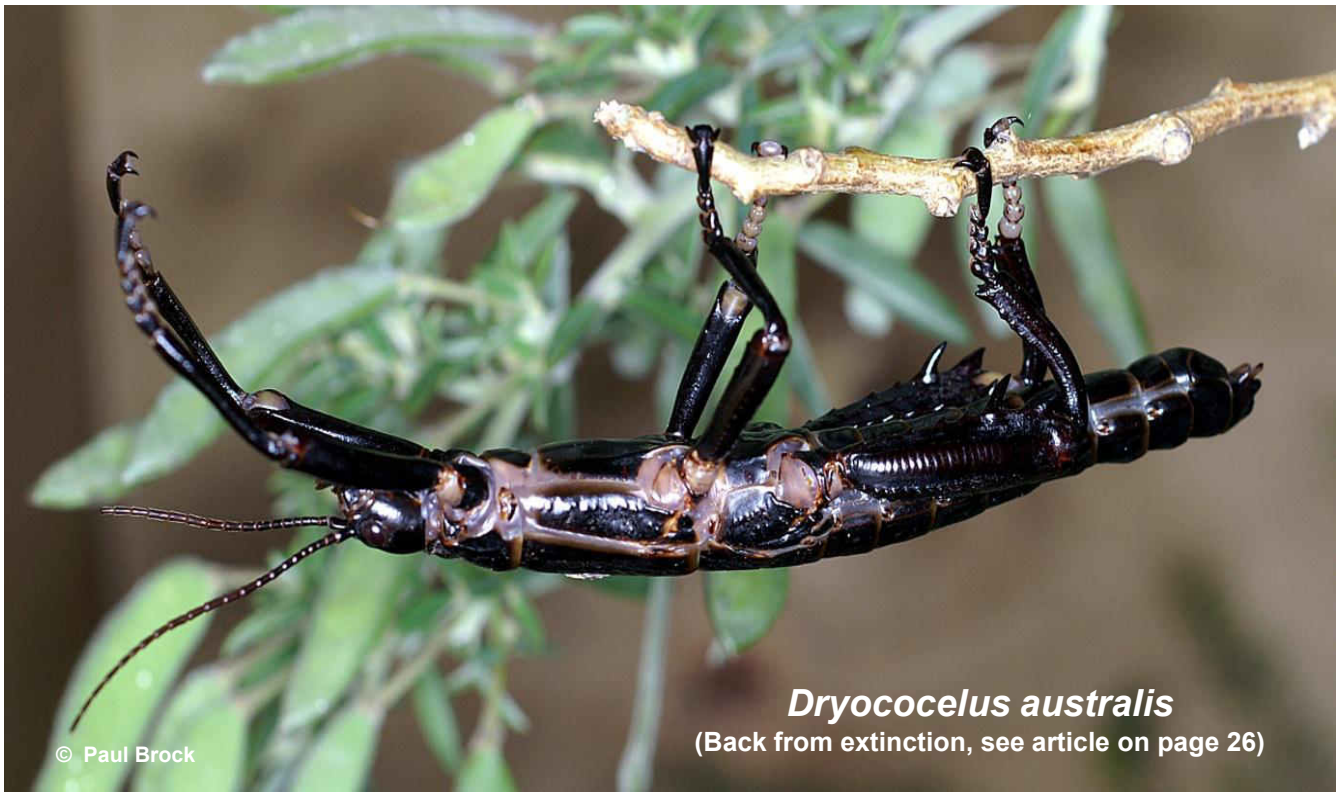

Dryococelus australis
(Back from extinction, see article on page 26)

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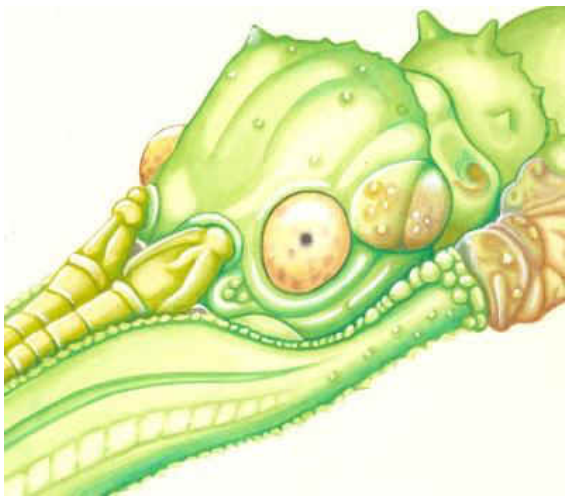
It is to be directly understood that all views, opinions or theories, expressed in the pages of "The Newsletter" are those of the author(s) concerned. All announcements of meetings, and requests for help or information, are accepted as bona fide. Neither the Editor, nor Officers of "The Phasmid Study Group", can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

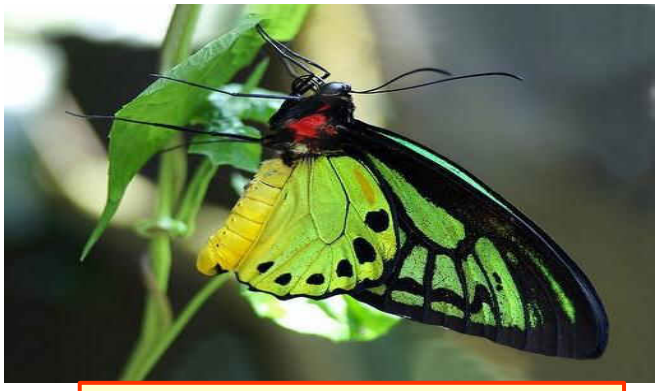
THE COLOUR PAGE!

Diapherodes gigantea (Female).
Spiracle, drawn by Andrew Selwwood.



Diapherodes gigantea (Male)
3rd instar's head, drawn by Andrew Selwwood.

Ugly *Eurycantha?* See page 6.



Largest Butterfly in the World See page 7.

Orestes mouhotii See page 17.

Phyllium bioculatum See page 23.

Flying Lizard See page 24.

Bug Day See page 24.

Editorial

Welcome to the June PSG Newsletter. (See it in full colour on the PSG website).

Membership Nos. Thanks to the sterling efforts of the PSG committee and our fantastic PSG members, the PSG membership numbers have rallied back to over the 100 mark; well done! We need to continue seeking more members, and just maybe we will return to the heady days when we had many hundreds of members… It is fantastic that we have members not only from all over the British Isles, but from all over the world, including Switzerland, Australia, France, Belgium, Germany, The Netherlands, Poland, Japan, and Singapore; and our membership includes many top authors, scientists, and world authorities on the subject of phasmids. What better organisation to belong to if you are interested in phasmids – and we were established in 1980, so have 32 years of experience. If you are aware of anyone interested in phasmids, refer them to the page overleaf, and/or the PSG website www.phasmid-study-group.org, and encourage them to join. Or bring them along to the Summer PSG Meeting so they can meet us first. If you do any shows, take some membership forms along with you – please print them from the PSG website, or contact Paul Brock. If we get enough members it may become viable again to have 4 Newsletters a year (at present we plan two a year in June and December).

Contributions to the Newsletter. 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. I hope, as usual, that there is something here for everyone. ***Please*, would *all members* send in a contribution**, 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 contribution 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). E-mail them to: newsletter@phasmid-study-group.org, or mikelsmith@tinyworld.co.uk, or post them to Mike Smith, 13 Runnacles Street, Silver End, Witham, Essex, CM8 3QN, England, UK. Closing date for contributions to the next PSG Newsletter in December is 22nd November 2012 (but contributions received before then are particularly well-appreciated).

PSG Summer Meeting. Thanks to the excellent work of Judith and Ed, we have another fantastic PSG Summer Meeting lined up for Saturday, 7th July 2012. For further details see pages 19 and 20. In particular, there is an awesome competition that absolutely everyone can take part in – the *Make a Stick Insect Competition*. See page 19 for further details, but basically just get busy making a model of a stick insect, take it along to the meeting (or make one at the meeting – or BOTH!) and you may well win a wonderful prize. **PLEASE BE AWARE THAT YOU SHOULD BRING YOUR MEMBERSHIP CARD WITH YOU FOR ACCESS TO THE MEETING – Read about it on page 19.**

Lord Howe Island Stick Insect. I am much indebted to Paul Brock for his permission to use his iconic photo of a Lord Howe Island Stick-insect on the front cover of this Newsletter. Members may recognise this from various publications and websites. Also, Paul provided me with other photos, and checked over my article on page 23. I was further privileged that I had contact with David Priddel and Nicholas Carlisle, who complimented me on my article, and gave me an update on the Lord Howe Island Stick-insect – including some new photos. Chris Pull also had additional information on this stick insect (which people find so fascinating); so Chris and I plan to do a joint follow-up article in the December PSG Newsletter.

Regards to all, Mike Smith

The PSG Committee

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Merchandising: Gavin Ridley and Mike Strick. E-mail: merchandise@phasmid-study-group.org.

Other members: Phil Bragg and Ian Abercrombie.

The PSG Membership 2012

The PSG membership numbers are steadily increasing for 2012 ☺, a concerted effort by the committee and members has helped reverse the downward trend. Please continue to assist us by inviting any friends that are interested in phasmids to join us, and advertise the PSG at any shows etc that you attend. The PSG can remain viable only with the help of its continuing membership.

PSG MEMBERSHIP FORMS

If you want any copies of the colourful, new Membership Form eg for handing out at shows, demonstrations, museums, zoos, pet shops, etc. please print them from the PSG website, or 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.

HOW TO JOIN THE PSG!

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

Just go to the PSG Website: www.phasmid-study-group.org. Payment can be by *PayPal*, or 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, England, UK.

***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.

HOW TO PAY PSG MEMBERSHIP BY *PayPal*

PayPal

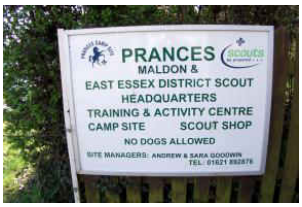
- Log into your *PayPal* account (or set one up at **www.paypal.com**)
- Click the "Send Money" tab
- In the "To" field, enter: **pauldbrock@btinternet.com** (NOT p.brock@phasmid-study-group.com)
- In the "Amount" field enter the correct amount for whether you are in the UK £12, Europe, £14, or Overseas £15
- There is no surcharge for using *PayPal* (so ignore any old PSG literature that says there is)
- 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** (NOT 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.

Insect Man at Prances *by Mike Smith*


Sadly, St George was not there!

To celebrate St George's Day, the 1st Heybridge Scouts laid on an event at *Prances* (their campsite in Wickham Bishops, Essex). I was honoured that they invited me to bring along some of my critters and to have a stand at their show. The date was Sunday 22 April (the day before **St George's Day**). In view of the past weather and forecasts, it was a bold decision that most events were planned for outside (albeit some under gazebos). But I chose to have my stand inside, as it was a bit windy. However, as it turned out it was sunny most of the time - though there was a short, sharp shower of rain in the early afternoon, and another just after the event finished. (Indeed, it has rained every day since the powers that be declared a drought and imposed a hosepipe ban a few weeks ago!)



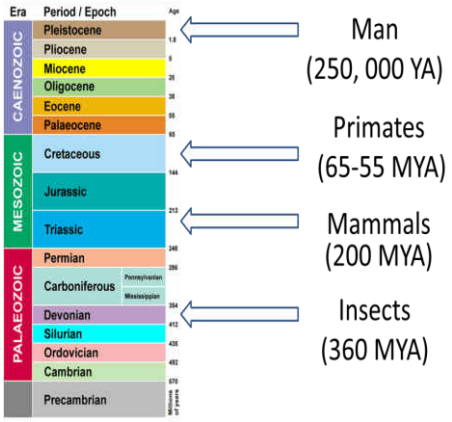
I was reliably informed that I am known in the scouts as Insect Man. I had hoped it would be Spiderman which has a bit more street cred but, then again, it could have been worse – I could have been known as Cockroach Man. Anyway, I took along one of my tarantulas, 3 species of cockroach, some millipedes, and of course lots of stick insects – including *Peruphasma schultei,* Jungle Nymphs, *Eurycantha,* and Indians. (Obviously, I was careful over which ones I let be handled). I had a big branch of bramble on the table with four sticks set free on it, which added a bit of interest. I also took in Sid, my corn snake, who as usual stole the show. I brought in some dried specimens of various critters, mainly stick insects, and quite a few handouts, including PSG Membership Forms (though few took them).

I had a slow start, so went round the show with a snake round my neck to drum up some support. There was so much going on in the field, that few people ventured inside initially, and I was pleased to see that some vintage cars had been brought in, and they were attracting some interest. But the tea, coffee, and cakes were also inside, together with the tombola stall, so it was not too long before my stall was noticed and getting lots of attention. PSG member Karl Jarvis is a Scout Leader there, and he gave me assistance at the show, and I was generously given TWO Hamburgers, plus refreshments, a cake, and a gingerbread man – not bad eh?

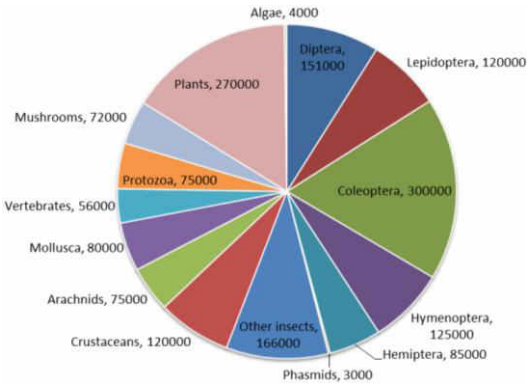
As usual, I was honestly really impressed with how polite and helpful the Scouts, Cubs and Beavers (boys and girls) were. No pushing and shoving, no shouting, happy to queue and wait their turn, and even those that did not like a critter just calmly avoided it. They were a tribute to the 1st Heybridge Scout Group and I look forward to taking in my critters again next year.

All photos had the permission of both the Group Scout Leader and the person being photographed and, as a matter of policy, children's names are protected.

Insect Conservation *by Chris Pull*



Introduction. This article is a summary of the talk I gave at the 2011 Summer PSG meeting. I will cover the expansive topic of insect conservation, a subject I feel quite passionate about and I hope you will also feel this way by the end of it, if you do not do so already. Insects represent millions of years of evolution and are finely tuned to exist in often complex relationships with their ecosystem. Because of this, they are at great threat from (you guessed it) human activities. I will be looking at what we currently know about insect declines, and covering the threats they face, which we will see are multifaceted and species specific. I will also cover a few examples where insects are in danger of extinction and the work being carried out to mitigate declines. But firstly, I want to look at why we should conserve insects and reasons for their importance.



Diversity and Importance. Why should we care about insects at all? Well, there are several arguments. Firstly, invertebrates make up approximately 94.5% of all life on earth and of those there are approximately 950,000 described species of insects, with true estimates ranging between 4-10 million species (including around 3,000 species of stick insect). Insects are the most diverse and species rich group of organisms on the planet, with the number of known beetle species alone ranging around 300,000. They are not only species rich, but mind-bogglingly numerous. The largest ever recorded swarm of Desert Locust (*Schistocerca gregaria*) is thought to have contained around forty billion individuals, a stupendous figure, considering the human population stands currently at around 'just' 7 billion.

Secondly, the insects are a very ancient order having been present in the fossil record for about 360 million years, representing a huge amount of evolutionary history. However, this must not lead you to think of them as primitive. They are highly adapted, specialised creatures, inhabiting every part of the globe and filling every conceivable ecological niche. Some can withstand temperatures of up to 50°C; others have a gut pH stronger than bleach, and some species can flap their wings at a rate of thousands of times a second, faster than the speed of a nerve impulse and thus a speed no vertebrate could ever achieve (hummingbirds are limited by the speed their nerve impulses can travel to cause muscle contraction, the fastest is about 200 flaps per second). Essentially, even if you don't like insects, you cannot help but have respect for them as they are highly evolved and can 'do' about almost anything better than any other animal on the planet.


Swarm of locusts – theepochtimes.com

So in terms of protecting biodiversity, i.e. the variety of life on earth, and evolutionary history, the insects are incredibly important. Another way of arguing their importance is the benefits they bring to the ecosystem and to ultimately to us. Due to their incredible diversity and dominance in all terrestrial food webs, they fill many different roles and carry out what are termed 'ecosystem services'. These range from being soil producers and aerators, to herbivores, nutrient recyclers, predators, prey items, pests and parasites. Dung beetles are a prime example of an insect that carries out an ecosystem service, as they aid in the breakdown of animal faeces by collecting it up and laying their eggs inside. The resultant larvae consume the dung and the locked up nutrients are returned to the soil as fertiliser for plants. Dung beetles are also an example of an insect under threat from human activities. A lot of antibiotics that are provided to cattle in their feed to improve their yield actually pass out of the animal in its dung, and studies have shown that this dramatically alters and reduces dung beetle diversity on intensively managed farms, compared to organic.


Dung Beetle – animalcrossing.wikia.com

Of course, one last argument for preservation of the insects is the aesthetics they provide. I am sure, because you are reading this article, that you will agree with me when I say an insect can be very beautiful and even the ugliest *Eurycantha* has a certain charm to it!

What do we actually know about insect declines? I have alluded to the fact that insects are indeed threatened, but what are the actual statistics and what do we know for sure? Well this is the worrying part. Of the near one million described insect species only 3,338 species have been assessed by the IUCN (International Union for Conservation of Nature). That is a shocking 0.4% of the total described species. As of 2008, only 59 species of insect have ever been recorded as extinct and 746 are classified as critically endangered or vulnerable. That is 0.07% of our described species. Of the vertebrates that have been assessed, of which there are about 60,000 species, 57% have been assessed and 23% are estimated to be threatened. Of just the insect species


Ugly *Eurycantha*?

that have been assessed (0.4%), about *50% are threatened*. This shocking lack of information regarding insect declines and extinctions is largely down to their sheer diversity, size and difficulty in monitoring, which limits just how much we can know about them. However, there have been numerous studies, (which unfortunately I don't have the space to go into in depth, but see the references.) that have tried to assess the general trend of insect species declines. It seems from these that the emerging pattern is that insects are going extinct at a rate 2-3 times faster than birds or plants in the UK.

	No. of Named Species	No. Assessed	No. Threatened
Insects	Approx. 1 million	0.4%	50%
Vertebrates	60, 000	57%	23%

Extrapolations of the data from these studies suggest we're loosing about 1000 insect species a year in just the UK. This is nowhere near the IUCN number of only 59 species extinct since the 1500s. To sum this all up, insects are under a *great* threat, going extinct at a rate much faster than any other animal or plant group, and so require urgent conservation attention.


Rainforest destruction – visualphotos.com

Threats to Insects. We know that insects including many stick insects are in serious trouble, but now I want to move on and discuss why insects are threatened and what is actually driving these declines. Of course, as you may have guessed, the reasons are all anthropogenic. That is, broadly speaking, that the major causes of decline are the same for most organisms: *habitat destruction, habitat fragmentation, pollution, introduction of invasive species and new emergent diseases*. Though in each case there may be a mix of two or more of these stressors affecting a species. In terms of actual activities, agriculture is currently considered the greatest threat to biodiversity. Farming removes and breaks up habitats, degrades ecosystem functioning, and is the source of huge insecticide and fertilizer pollution. Of all agricultural practices, oil palm plantations are truly the worst, having been recently described as the biggest current threat to biodiversity on the planet. The move to biofuels as a replacement for fossils fuels seems rather 'eco-friendly', doesn't it? But the palm plantations actually have severe detrimental effects. Currently estimates suggest palm oil production is increasing at a rate of 9% a year. This may not sound much, but between 1990 and 2005, Sumatra lost 28 million hectares of primary rainforest that was cleared for palm plantations; that's 14 times the size of Wales! A 2008 study found that in these plantations, the number of species was massively reduced and in the remaining portions of primary rainforest, naturally occurring species were being replaced by an increase of alien species (rats are be found in densities of 600 per hectare; see Mike's article on the Lord Howe Island phasmid for the damage rats can cause!). The actual clearing of the primary forest also leads to soil erosion, seed bed destruction, and soil and water pollution, rendering the land worthless for rainforest regrowth. In addition, the slash and burn methods used to tear down the forest releases huge quantities of carbon, which is a contributing cause of global climate change. However, it is a good source of income for these poorer countries, and as we must find alternatives to fossil fuels; for the time being palm oil is providing a 'sustainable' answer. Unfortunately, the palms grow best in tropical regions of high rainfall in low lying areas, which are currently occupied by primary rainforest. You don't have to be an expert to know rainforests are the greatest biological hot spots on the planet. In insect terms, one single tree in a rainforest can support more than 200 different species alone and these rainforest are home to most of the stick insect species that we keep. Therefore oil palm plantations are an increasingly serious threat.


LHIP hatchling

by Rohan Cleave

Insect Conservation in Action. Now I want to move on to a few specific case studies where conservation science has been applied to mitigate and save insect species on the brink of extinction. Here I would have told the story of the Lord Howe Island phasmid (LHIP, *Dryococelus australis)*, as it's the most relevant to this newsletter and a really nice example of a project that has been very successful. It is also rare for an insect to receive the same level of funding and attention that is usually reserved for much larger vertebrates in trouble (think of all the showy WWF adverts for tigers/pandas). However, Mike has beaten me to the punch and here in the same newsletter is a very good article covering the most up to date information on the status of Lord Howe phasmid and its history. But as you can see, the story of the Lord Howe Island phasmid is so far one of great success and it proves that captive breeding can be an effective way of conserving a species. However, captive breeding often isn't an option in most cases, especially where an animal is very much a specialist. Typically, many species of insect come into this category, and the case studies I want to discuss instead, focus on the Large Blue butterfly, which, as you'll see has an incredibly complex and specialised life cycle, and the bee whose importance might be underestimated.


Large Blue – telegraph.co.uk

The Large Blue butterfly. The Large Blue butterfly, *Maculinea arion*, is fairly common throughout Europe and is in the South of the UK, where it is warmer. However, British butterflies in general have shown dramatic declines in the past few decades, due largely to changes in agricultural practices that include the removal of meadow land and the application of pesticides. Butterflies being rather specialised insects, requiring specific plants and conditions cannot deal well changes to their ecosystem. The IUCN lists the Large Blue as near threatened due to the fact there are still large, stable populations in the rest of Europe. In the UK however, this species went locally extinct following a rapid decline from a population of tens of thousands in the 1840s, to just two colonies supporting about 325 individuals in 1972. So, in 1930 to 1969, nine sites were declared protected to try and halt their decline. Despite this, the Large Blue still went nationally extinct in 1979. So why, even though their habitat was protected, did they still die out? The IUCN started a butterfly conservation program in 1974, and selected the large blue as a flagship species for the project, with aims to reintroduce it back into Britain. However, one cannot simply translocate individuals from continental Europe, without first knowing why they actually went extinct in the first place, in habitats that were specifically maintained and protected for them. Since the seventies a lot of research into the ecology of this species has been carried out to try and answer this puzzling question. It was found, by studying European populations, that the large blue has a very unusual life cycle indeed. The larvae hatch in July and spend some time feeding solely on the Common Thyme, until they are big enough and suddenly fall to the ground. Here they switch from being a herbivorous caterpillar to being a parasite of ants. The larvae, now on the ground, secrete honey dew (a sugary liquid) that foraging ants, specifically the species *Myrmica sabuleti* cannot resist. The ants will actively pick up the caterpillar and take it back to their nest. Here, the caterpillar begins to emit pheromones that mimic the smell of an ant brood, and they also make noises that mimic those of the queen.

The Large Blue has evolved to take advantage of this specific ant species over many millions of years, to the point where it smells and sounds exactly like the ants themselves. Thus, they get fed by the ants in favour of the real ant brood, and in the nest they are protected from other animals and parasites. Amazingly, the caterpillars not only leech resources from the ants, but they also turn carnivorous, and eat these ant's own larvae as well. Come May, the caterpillar pupates and hatches as an adult butterfly, and makes a swift exit from the nest before the ants notice their grave error.


Large Blue

Though being such a specialist means the Large Blue can exploit resources no other butterfly can; in a world that is being dramatically altered by man, it means they cannot readily adapt to new circumstances. To work out why these butterflies were fairing so badly, a lot of research was carried out to look at the various stages where mortalities could be occurring, from the eggs being laid, to adult dispersal. It was found that the presence of the correct ant species was actually the limiting factor. For this ant species to flourish in a habitat, the grass must be no longer than 2 cm. Grass length was found to be closely correlated to soil temperature and if the grass is too long, not enough sunlight could reach the ground to keep it at the ambient temperature for the ant colonies to thrive. This means the ants are restricted to sites that are either mown or regularly grazed. In addition, Common Thyme is the only plant the Large Blue caterpillars will consume, and Thyme will only grow in short grassland areas. Changes in agricultural practices have reduced appropriate grassland sites dramatically, and the introduction of myxomatosis in the fifties and sixties has reduced the amount of rabbits grazing the land. Rabbits had previously kept grass at the appropriate length for Thyme to grow, and consequently providing the perfect temperature for the ants to exist. Another reason for the decline of many insect species, in particular butterflies, which I have not mentioned yet, is over-collection by hobbyists. A lot of people like to collect specimens of insects (as we all know!) and the more rare and beautiful a species, the more sought after it is. When the remaining sites of Large Blue populations were declared protected in the thirties and sixties, large fences were erected around them to exclude butterfly collectors. However, this inadvertently excluded the grazers, which had already been declining. So despite the apparent suitability of the habitats, without rabbits and sheep grazing the land, the ants could not survive and the Thyme could not grow, which led to the extinction of the Large Blue Butterfly in the UK.

Since the time the Large Blue went extinct to the present day, roughly one hundred Thymus grassland sites have been managed for reintroductions of the butterfly. From 1983-1992, successful releases of Large Blue butterflies from Sweden were carried out at eight sites in the South of England. In 2008, the butterflies had managed to naturally colonise a further twenty five sites, and the largest populations contained up to 5,000 adults per hectare, which is the largest recorded aggregation of this species world-wide. As you can see, insect conservation is not straightforward and their complex life cycles and specific needs can elude scientists for many years. It is only down to a great deal of research and intense habitat management the Large Blue is now no longer at threat from extinction, and the same approaches are now being applied to other British butterfly species.

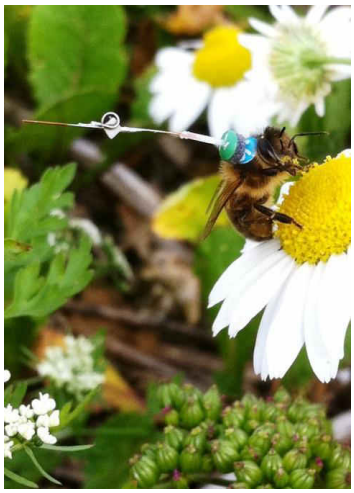
Bees. There is currently a lot of buzz in the media surrounding the ecosystem service provided by pollinating insects, in particular bumble and honey bees. About 1 third of all foods, or to put it another way, one in every three mouthfuls of food is pollinated by honey bees. Global insect pollination has been estimated to have a worth of about US$200 billion. In the UK, honey bee pollination services are thought to be worth approximately £1 billion. Globally insect pollinators have shown a considerable decline in recent years and with the globe's population set to reach 9 billion by 2050, without these insects there is a great concern about how agriculture will be able to reach these increasing demands. With that in mind, a lot of research is being focussed on understanding why these declines are occurring and in the UK a fund called the Insect Pollinators Initiative was set up in 2010 and to provide around £10 million to research the issue. The projects funded range from looking at how changes in agricultural practices are affecting the amount of forage-plants available for pollinators, the effects of pesticides on the learning and behaviour of bees and the effects and mitigation of new emergent diseases. No single factor is thought to be responsible for the decline of bees, and the causes are complex and interact together. For example, recent work has shown that the effect of pesticides and disease together produce combined damage that has a much greater than either one factor alone. In the case of honey bees, there are numerous parasites that are thought to be contributing to their decline, for example deformed wing virus or the *microsporidian Nosema*. Deformed wing virus another parasite, a type of mite called *Varroa*. Because honey bees are transported over great distances in huge numbers, sometimes even globally, to pollinate crops and plantations, the *Varroa* are easily spread between hives, carrying with them pathogens. A mated female *Varroa* mite will hitch a ride on a honeybee back to the hive. Here the mite drops off and finds its way to a cell in the honeycomb containing a honeybee larvae. It will attach to the larvae and feed on its heamolymph (in the same away a flea would on a dog). When the bee larvae is ready to pupae, it is sealed in the cell, with the Varroa. Inside, the mite lays her eggs and the hatchling mites also feed on the larvae as its developing. The mites mate with each other inside the cell and later when the bee emerges, the mated females clamber on board and the cycle starts again, occurring about every 10 days.


Bee pupae with feeding *Varroa m*ites
(Photo: Dave Chandler)

Until the late 20th century there was no *Varroa* in the UK or the USA at all. However, in Asia where a different honey bee species is found (*Apis cerana*), the species *Varroa jacobsoni* is a common parasite of the Asian honeybee. *V.jacobsoni* has little effect on the Asian honey bee, as they have been co-evolving for probably many thousands of years, and the Asian honey bee has a resistance to it. However, in the 1960's, the Western honey bee (*Apis mellifera*), native to the UK and introduced for commercial use in the USA, was transported to Asia for its greater pollination services. Here it inevitably picked up the *Varroa* parasite, bringing with it a multitude of other diseases that the Western honey bee has no defence against. In fact, it is now thought *V. jacobsoni* has evolved into a new species that specialised on the Western honeybee, called *V. destructor*. Not only did the bees pick up Varroa from Asia, they called picked up the pathogen *Nosema cereana*, which previously was also only found in Asian honey bees. *Apis mellifera* does have its own *Nosema* species, *N.apis*, but the new species was more damaging to the Western Honey bee. It is possible to treat for *Nosema*, but it still has major impacts on the industry. It is unclear if *Varroa* simply aid the spread of diseases, or if they weaken the bee and allow parasites like *Nosema* and DWV to manifest themselves, but when it reached the USA in 1987 winter loses of bees rose from only 10% to up to 80% of bees being wiped out, so either way the Varroa are having a great effect.

The threat of honey bee extinction is very severe, and Albert Einstein reportedly said *"If the bee disappeared off the surface of the globe then man would only have four years of life left. No more bees, no more pollination, no more plants, no more animals, no more man".* Though this is a bit dramatic and inaccurate, if all honey bees were to go extinct we would no longer have tomatoes, onions, almonds, oranges, soya beans, carrots,

broccoli, melons, strawberries, apples etc. And not only do we have to worry about crops, but alfalfa which is used as cattle feed, is also pollinated by bees, so there would be implications to meat supplies as well. Of course, humans could pollinate these plants by hand if the bees did die out, but as a single hive pollinates on average around half a million plants a day, it is not really a practical solution, and indeed the cost of food is expected to more than double. Hopefully the work that the IPI is funding out will go some way to reduce honey bees losses worldwide, and safeguard our future food production, but with massive declines of 17-30% occurring every year, the current situation is not looking good. Indeed some species of bumble bee have already gone extinct, including *Bombus subterraneus*. This bee was last recorded in 1988 and declared extinct in 2000, due largely to habitat destruction and mismanagement. The current lab group in which I work is collaborating to reintroduce this species (in much the same way as the Large Blue butterfly). Literally as I am typing (I am sat in the lab now) 89 *Bombus subterraneus* queens have arrived from Sweden to be placed into quarantine in our labs, before being released to start colonies in the South of England.



Transponders are used by researchers to track their flight patterns, revealing the effects of diseases.

Insect Farming. I've focussed a lot on single-species conservation projects, where large sums of money and much time has gone into saving just one single insect species. Unfortunately, as we have seen, perhaps 50% of all insect species are under threat and there are estimates that by 2050, 37% of all current insect species will have gone extinct. This makes the 'single-species' approach a non-viable option. If there are a thousand species going extinct every year, then there is no way we could get enough funding or find enough the time to conserve them all.

Instead, a different way of looking at conservation is to focus on the habitats themselves, with the idea that by protecting the habitat you protect all that is found within it. Another approach is insect farming. As already stated, in the case of particularly beautiful insects, there is a risk of extinction due to over collection by insect hobbyists. However, it is possible that this seemingly detrimental action can be turn around in favour of the insects and the habitat in which they live. For example, the primary rainforests in the Oro Province of Papa New Guinea are under threat from logging and the expansion of the aforementioned oil palm plantations. Endemic to the province is the Queen Alexandra's Birdwing butterfly, which is highly sought after by collectors. This demand could be met as a way to protect the species and the rainforest in which is found from destruction. It could be a valuable source of income for locals, providing a sustainable livelihood that would otherwise come from logging. The locals can be trained to captive breed high quality specimens of the butterfly for the collector trade, whilst also releasing individuals to safe guard the local populations. In a similar fashion, there are hopes that the Jewelled Scarab beetles of Honduras can be used to actually protect their montane forests habitat. These very beautiful insects can fetch from between US$200 and US$500, and there were fears that they were initially at risk from over collection. However, research carried out suggests that because only the adults are collected, leaving thousands of eggs and larvae below ground to continue the population, the risks of over collection are minimal. Additionally, many of these beetles are found in very difficult to reach places. By educating locals and teaching them how to breed these animals, it is thought that beetle farms could be set up, providing a steady supply of beetle for the entomology trade. Additionally, the money generated would support the local economy, and create a sustainable alternative to logging, which greatly threatens the area. Not only will such projects protect the target species, but by protecting the habitat, many more millions of species, across all taxa will be protected.

Queen Alexander's Birdwing, the largest butterfly in the world! learnaboutbutterflies.com

The stunning metallic *Chrysina aurigans* (gold) and *Chrysina limbata* (silver) can fetch high prices from collectors *(Photo: Eduardo M. Libby)*

Conclusion. I hope that I have convinced you the insects are definitely animals that need desperate conservation attention and perhaps that they are even more important, in terms of the ecosystem functioning and biodiversity, than many of the vertebrate species that are used as poster animals by charities such as WWF. There are ways to conserve insects and there have been a lot of success stories than I could cover here. However, there is still a lot that can be done. I am sure many of you will have encountered this very apt quote by David Attenborough before, where he pronounces "*If we and the rest of the backboned animals were to disappear overnight, the rest of the world would get on pretty well. But if [the invertebrates] were to disappear, the land's ecosystems would collapse*". The tragedy is that despite this fact, funding is not often enough directed at insects, purely because of public stigmatism towards them. This attitude is slowly changing, and there are now journals dedicated to insect conservation science, and charities whose sole focus is to conserve insects. One such charity is Bug Life, which carries out a lot of work to conserve UK invertebrate species. Additionally, companies like the Co-Op are raising public awareness of the issues of pollinator conservation, with projects like "Plan B". However, as I stated at the beginning, there are millions of insect species waiting to be discovered, including many stick insect species, and with the current rate of loss we are experiencing, many of these will go extinct before they are even known to science. To illustrate this point, a new species of Katydid was discovered in 1937 on the sand dunes of California, but it wasn't until 1977 that someone got round to classifying it. Sadly, in just those forty years, sand mining and the urbanization of its habitat had led to the entire species being wiped out. The katydid, represented solely by single male collected in 1937, was appropriately named *Neduba extincta.* Who knows how many other thousands of beautiful and wonderfully unique insects have already perished, never to have been known to even exist.

The only known specimen of *Neduba extincta* *(Photo: Piotr Naskrecki, Orthoptera Species File Online)*

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www.bumblebeeconservation.org/subt_project.html - a website detailing the reintroduction of *Bombus subterranus*

Evolution & *Rubus fruticosus* by Andrew Selwood

The evolution of all living species on this planet is an intriguing and intricate puzzle, that has, in recent years, slowly begun to release its secrets through scientific study. My particular interests are in the events in the distant past that trigger species to evolve in a certain way to ensure their future survival.

There is one such conundrum involving the *Rubus fruticosus* (bramble) that I have pondered for many years. What cataclysmic event in pre history was it that caused the bramble to evolve an extreme and vigorous resistance to being stuffed into a bin bag by some idiot on a windy morning, whilst being given a wide berth by dog walkers, hastily putting 999 on speed dial and wondering if you need psychiatric help? How could evolution even suspect that such an eventuality could arise? Does this fact support the intelligent designer theory? Personally, I have no answers and resign myself to feelings of dread when I wake up at the weekend to gales, rain, snow and other such extremes of the British weather.

Bramble has evolved aggressive backward pointing spines to help it grip obstacles that it may grow up or over whilst allowing it to grow through other vegetation. In theory it should glide easily into a bin bag. But does it? No. Once in the bin bag, the backward pointing spines prove to be an extremely effective means of keeping it in the bin bag. A vigorous shake is then necessary to release it but unfortunately for the bin bag it is shredded by the backward pointing spines and left looking like a cheap and indifferent child's Halloween costume. ("That'll do sonny, they'll think you're a Zombie").

You must admit that, to anyone who has never kept phasmids and collected bramble for them, seeing someone lurking in the bushes and trimming the hedge on a foul morning, must seem bizarre behaviour indeed. A few brave and inquisitive souls, usually accompanied by an intimidating large dog, have asked me what I am doing. When I explain, I see a wave of relief in their expression when they think he's not mad after all. Some of the regulars now even stop to say "Good morning, how are your insects".

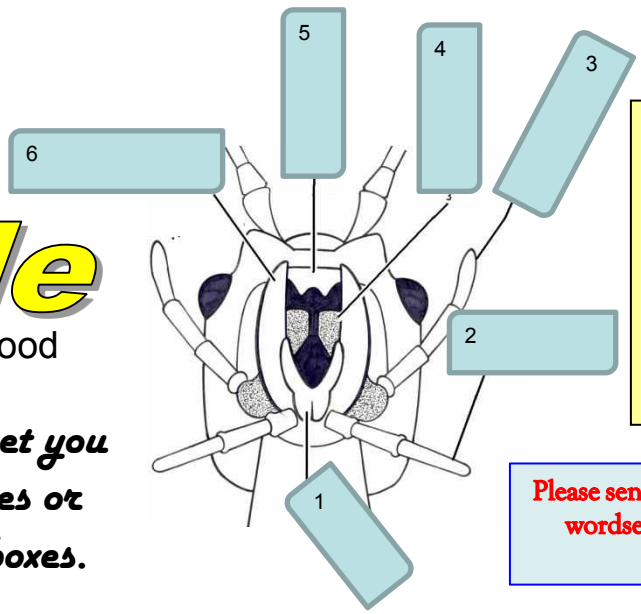
Who would have thought it? The evolution of backward pointing spines could lead to nodding acquaintances and cheap Halloween costumes. Evolution, eh, it's a funny old thing.

Mouthparts of a Phasmid.

Puzzle

By Andrew Selwood

This is a hard one; bet you can't write the names or letters in the right boxes.



Which is which?

A. Labrum.
B. Mandible.
C. Maxilla.
D. Maxillary palpus.
E. Labial palpus.
F. Labium.

(Answers on Page 16).

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

The Midland Entomological Fayre (The "Newark Show"), April 1st 2012.

By Brian Taylor

This is a show I've been going to for the last three years and so I thought it was about time I showed willing and offered to run a PSG stall. Richard Norton travelled up from Norfolk to lend a hand. Neither of us had done this before so we learned as we went along.

Paul Jennings had booked the table for us and the new eye-catching membership forms arrived courtesy of Mark and Nick.

Having arranged to meet up in the leisure centre car park, we unloaded our gear, set up the stall and were ready to go when the punters arrived at 11 o'clock. Prior to this I had a chance to meet up with some of the usual suspects - Jim from JC Exotics who organises the trips to Hamm which I've been on, the couple from the Metamorphosis Company who specialise in invertebrates, Robin Skinner who breeds and sells phasmids, and Steve Higgins from Bicester Exotics.

Whose hand is that?

We had set up a display cage of adult phasmids which included *D. gigantea, O. rentzi, Myronides (Peleng), E. insularis, R.nematodes (blue), Phyllium,* and *P. laetus.* Richard brought some adult and sub-adult jungle nymphs, which soon caught people's attention and we didn't catch our breaths for the next several hours. We managed to sign up seven new members on the day, one of whom is a returning member and quite a few more took forms to join online, preferring to use *PayPal*. The new forms really helped.

Several were recruited (bribed) with the offer of the boxes of livestock we had taken. These included *N.maerens, Sipyloidea (PSG103), P. schultei, P.spinosa, H.dilitata, B.foveolatus* and *O.rentzi.*

It was hectic until about 2.30 pm but we each managed to look round the show. Richard indulged in some *Mearnsiana bullosa* and *Haaniella echinata* and I bought some *Tirachoidea jianfenglingensis* ova and a pair of adult *Pharnacia ponderosa.*

Towards the end I had a long conversation with Richard Skinner about the variability of *E.calcarata* cultures and whether this related to the two PSG numbers allocated.

An enjoyable and, we thought, successful day. The next one is on **Sunday Dec. 2nd** at the **Grove Leisure Centre.**

Phasmida Species File

Paul Brock reminds us that anyone wanting to look for scientific articles can check references in the on-line **Phasmida Species File:** *http://phasmida.speciesfile.org.*

Errata in March 2012 PSG Newsletter No 127.

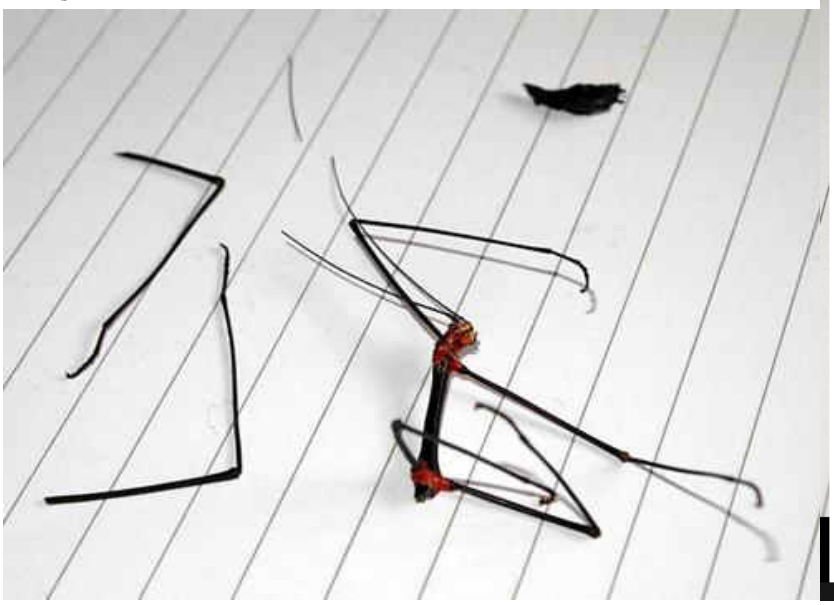
Stephen Lee Thomas advises that, in his article on *Achrioptera fallax* on page 16 when describing their wings, he would like to change it to: "The front pair of wings are little flaps, about 1/3rd the length of the underlying pair of wings".

I also noticed some gremlins regarding page numbering on pages 13-16, and 23, 25, & 26; they should read "Newsletter 127" next to the page numbers at the bottom of the page (not "Newsletter 105"), I apologise for this error.

Facebook - *Phasmid Study Group* *by Mike Smith*

If, like me, you are not that familiar with Facebook, you might be missing out on some very interesting chatter on the PSG Facebook site. I show below part of a subject (murder most foul!) and, as you can see, problems can quickly be shared, and expert help is at hand with speedy replies. I had a good read through some of the other entries, and it was quite an interesting experience. Give it a try, go to: www.facebook.com/PhasmidStudyGroup.

Murder in the Vivarium!



Competition Result

Who won the cuddly, PSG Teddy Bear?

Sadly, the teddy will NOT be donated to science: dismembered, dissected, and put in jars on dusty shelves in the NHM archives - *ahhh*. As I ***did*** have some entries to the competition. The answer was: one of our excellent Livestock Co-ordinators – ***MARK BUSHELL***. (What did he have written on the back of his T-shirt? *Aha, see below.*) I put the names of members with correct entries in a circle and put a stick insect in the middle, (after spinning him around to make him lose his bearings, of course), letting him decide which name to walk to - and the winner is… ***Cat Baker*** – Well Done! (To all other competitors – thanks for your interest, and better luck next time).

Congratulations to: ***Cat Baker.***

THE DEVELOPMENT OF THE PHASMID SPECIES LIST
Part Three: PSG No.101 – PSG No.150

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

PSG No.101 *Valid name:* **Lamponius guerini** (Saussure, 1868)
Country of origin: Island of Guadeloupe. The culture was established from specimens collected by members of the French Phasmid Group in 1984. Originally **Pygirhynchus**, transferred to **Lamponius** by Kirby, 1904(a).

PSG No. 102 Clonaria sp.
Country of origin: Burundi. The culture was established from specimens collected by Nicholas Schlitz in the Sega Forest.

PSG No. 103 Sipyloidea sp.
Country of origin: Thailand. The culture was established from specimens collected by Heinz van Herwaarden and Oscar van Gorkom in Khao Yai National Park in 1989.

PSG No. 104 *Valid name:* **Phaenopharos herwaardeni** Hennemann, Conle & Bruckner, 1996
Country of origin: Thailand. The culture was established from specimens collected by Heinz van Herwaarden and Oscar van Gorkom in August 1989.

PSG No. 105 *Valid name:* **Parapachymorpha spinosa** Bruner, 1893
Country of origin: Thailand. The culture was established from specimens collected by Heinz van Herwaarden and Oscar van Gorkom at Doi Tan National Park between Lampang and Lamphun at 900m. Altitude in August 1989.

PSG No.106 *Valid name:* **Oncotophasma martini** (Griffini, 1896)
Country of origin: Costa Rica. The culture was established from specimens collected by me and Mary Salton at Monteverde in August 1989. A second culture was established from specimens collected at Monteverde by Oskar Conle in 2005.Originally **Bostra**, transferred to **Oncotophasma** by Rehn, 1904.

PSG No.107 *Valid name:* **Bacillus lynceorum** Bullini, Nascetti & Bullini, 1984
Country of origin: Italy, Sicily. The culture was established from 2 adults collected on bramble near Syracuse by Paul Brock in October 1989.

PSG No.108 *Valid name:* **Bacillus whitei** Nascetti & Bullini, 1981
Country of origin: Italy, Sicily. The culture was established from a small nymph collected on bramble at Canicattini Bagni by Paul Brock in October 1989, which subsequently escaped from captivity and is still established in the wild in Slough, Berkshire.

PSG No.109 *Valid name:* **Carausius abbreviatus** (Brunner, 1907)
Country of origin: East Malaysia, Sarawak. The culture was established from specimens collected by Phil Bragg at Mt. Serapi in August 1989. A subsequent culture was established from specimens collected by Ian Abercrombie. Originally **Dixippus,** transferred to **Phasgania** by Hausleithner, 1991, and to Carausius by Bragg, 1992(a).

PSG No.110 *Valid name:* **Hoploclonia gecko** (Westwood, 1859)
Country of origin: East Malaysia, Sarawak. The culture was established from specimens collected by Phil Bragg at Bako National Park in December 1987. A second culture was established from specimens collected at Mt. Serapi in August 1990. A third collection was made by Frank Hennemann and Oskar Conle at Damai in July 1996. Originally **Acanthoderus**, transferred to **Hoploclonia** by Stål, 1875 [a or b?].

PSG No.111 *Valid name:* **Eurycantha insularis** Lucas, 1869
Country of Origin: Papua New Guinea. The initial culture was established by Mel Herbert from eggs sent to him by Robert Prior, a government entomologist in Popondetta, Northern Province. Paul Brock identified the species from adults collected in October 1989, about the time of the import. The species is a minor pest of oil palms.

PSG No. 112 *Valid name:* **Haaniella muelleri** (de Haan, 1842)
Country of origin: West Malaysia. I have been unable to determine the origin of this culture. Brock (1999) refers to an import from Templer Park. Francis Seow-Choen subsequently reared stock he collected from the same locality. Originally **Heteropteryx**, transferred to **Haaniella** by Günther, 1944.

PSG No.114 Ramulus sp.
Country of origin: Thailand. The culture was established from specimens collected by Heinz van Herwaarden and Oscar van Gorkom at Doi Tan National Park between Lampang and Lamphun at 900m. altitude in August 1989.

PSG No.115 Lopaphus sp. (Thailand 6)
Country of origin: Thailand. The culture was established from specimens collected by Heinz Herwaarden and Oscar van Gorkom at Khao Yai National Park at 825m. altitude in August 1989.

PSG No.116 *Valid name:* **Pseudophasma bispinosum** (Redtenbacher, 1906)
Country of origin: Ecuador. The culture was established from specimens collected by Andrew Neal and passed to David Garthwaite, an insect dealer. Originally **Phasma**, transferred to **Pseudophasma** by Hebard, 1919.

PSG No.117 *Valid name:* **Dares ulula** (Westwood, 1859)
Country of origin: East Malaysia, Sarawak. The culture was established from specimens collected by Phil Bragg and Patrick van der Strigchel at Mt. Serapi in 1989. In 1990 a further collection was made at the same location by Paul Jennings and Phil Bragg. A third collection was made by Ian Abercrombie and Ian Bushell at Mt. Serapi in October 2010. Originally **Acanthoderus**, transferred to **Dares** by Stål, 1875(a)

PSG No.118 *Valid name:* **Aretaon asperrimus** (Redtenbacher, 1906)
Country of origin: East Malaysia, Sabah. The culture was established from specimens collected at Poring Hot Springs by Phil Bragg, Chan Chew Lun and Paul Jennings in July 1990. A second collection was made by Mark Bushell and Phil Bragg in 2001. Originally **Obrimus**, transferred to **Aretaon** by Rehn & Rehn, 1938.

PSG No.119 *Valid name:* **Lonchodes jejunus** (Brunner, 1907)
Country of origin: East Malaysia, Sarawak. Same as **PSG No.39**.

PSG No.120 *Valid name:* **Carausius cristatus** Brunner, 1907
Country of origin: East Malaysia, Sabah. The culture was established from specimens collected at Kinabalu National Park at altitude 1580m. in 1991 by Phil Bragg. A second collection was made in 1992 by Phil Bragg at the same locality, and further collections were made in 2001 and 2003 by Phil Bragg and and Mark Bushell.

PSG No.121 *Valid name:* **Carausius spinulosus** (Hausleithner, 1991)
Country of origin: East Malaysia, Sabah. The culture was established from specimens collected at Kinabalu National Park at altitude 1580m. in 1990 by Phil Bragg. Originally **Phasgania**, transferred to **Phenacephorus** by Bragg, 1991.

PSG No.122 *Valid name:* **Anisomorpha paromalus** Westwood, 1859
Country of origin: Belize. The culture was established from specimens collected 150 km. north of Belize City by Jan Meerman in 1993.

PSG No.123 *Valid name:* **Pijnackeria hispanica** (Bolivar, 1878)
Countries of origin: Spain; France. The culture was established from specimens collected by Paul Brock on broom from Mirador de la Pelona, near Los Molinos, Guadarrama mountains, Spain on 30 June 1991, also by Kim d'Hulster near Altea, Costa Blanca, Spain in July 1993. Originally **Bacillus**, transferred to **Leptynia** by Pantel, 1890, to **Parabacillus** by Caudell, 1903(a) then back to **Leptynia**, 1903(b); transferred to **Phthoa** by Kirby, 1904(a), and back to **Leptynia** (as **Leptinia**) by Brunner, 1907, currently **Pijnackeria** Scali, 2009.

PSG No.124 *Valid name:* **Acacus sarawacus** (Westwood, 1859)
Country of origin: Brunei. The culture was established from specimens collected by Mel Herbert at Bukit Belalong in August 1991. A second collection was made at the same locality by Frank Hennemann in August 1994. Originally **Bacteria**, transferred to **Staelonchodes** by Kirby, 1904(a), and to **Acacus** by Brunner, 1907.

PSG No.125 *Valid name:* **Haaniella grayii** (Westwood, 1859)
Country of origin: East Malaysia, Sarawak. The culture was established from specimens collected by Phil Bragg at Mt. Serapi in August 1990. A second collection was made by Phil Bragg in August 1991, a third by Frank Hennemann and Oskar Conle in July 1996 and a fourth collection by Ian Abercrombie and Ian Bushell in October 2010. Originally **Heteropteryx**, transferred to **Haaniella** by Kirby, 1904(a).

PSG No.126 *Valid name:* **Haaniella dehaanii** (Westwood, 1859)
Country of origin: East Malaysia, Sarawak. The culture was established from specimens collected by Phil Bragg at Mt. Serapi in August 1990. A second collection was made by Phil Bragg in August 1991. Originally **Heteropteryx**, transferred to **Haaniella** by Kirby, 1904(a).

PSG No.127 *Valid name:* **Hermagoras megabeast** (Bragg, 2001)
Country of origin: East Malaysia, Sarawak. The culture was established from specimens collected by Phil Bragg at Mt. Serapi in August 1990. A second collection was made by Ian Abercrombie in August 1991, and a third collection was made by Wim Potvin in August 1998. Originally **Lonchodes**, transferred to **Hermagoras** by Hennemann & Conle, 2007.

PSG No.128 *Valid name:* **Phyllium (Phyllium) westwoodii** Wood-Mason, 1875 Country of origin: Thailand. The culture was established from eggs bought from dealers in Thailand.
Originally misidentified as Phyllium celebicum de Haan, 1842 but correctly identified by Hennemann et al., 2009.

PSG No.129 *Valid name:* **Lonchodes jejunus** (Brunner, 1907)
Country of origin: Brunei. Same as **PSG No.39**.

PSG No.130 *Valid name:* **Diesbachia hellotis** (Westwood, 1859)
Country of origin: East Malaysia, Sarawak. The culture was established from specimens collected by Phil Bragg and Ian Abercrombie. A second culture was established by Ian Abercrombie from specimens collected in 2009. Originally **Lopaphus**, transferred to **Centrophasma** by Redtenbacher, 1908, and to **Diesbachia** by Bragg, 1992(b).

PSG No.131 *Valid name:* **Leiophasma adustum** (Redtenbacher, 1906)
Country of origin: Madagascar. I have been unable to establish the origin of this species. Originally **Orobia**, transferred to **Leiophasma** by Brock, 1998(a).

PSG No.132 *Valid name:* **Leiophasma n. nigrotuberculatum** (Redtenbacher, 1906)
Country of origin: Madagascar. I have been unable to establish the origin of this species. Originally **Orobia**, transferred to **Leiophasma** by Brock, 1998(a).

PSG No.133 *Valid name:* **Parectatosoma hystrix** Wood-Mason, 1879
Country of origin: Madagascar. The culture was established from eggs bought from an insect dealer by Frederic le Corré.

PSG No.134 Lopaphus sp.
Country of origin: Indonesia, Java. The culture was established from specimens collected by Eric van Gorkom. Culture lost.

PSG No.135 Carausius sp.
Country of origin: Indonesia, Java. The culture was established from specimens collected by Eric van Gorkom. Culture lost.

PSG No.136 Carausius sp.
Country of origin: Indonesia, Java. The culture was established from specimens collected by Eric van Gorkom. Culture lost.

PSG No.137 Pharnacia sp.
Country of origin: Indonesia, Lombok Island. The culture was established from specimens collected by Eric van Gorkom. Culture lost.

PSG No.138 *Valid name:* **Mnesilochus modestus** (Brunner, 1907)
Country of origin: East Malaysia, Sabah. The initial culture was established from specimens collected by Phil Bragg at Sepilok in 1990. A second collection was made by Phil Bragg and Eric van Gorkom in Kalimantan in 1993. Originally **Prisomera**, transferred to **Lonchodes** by Günther, 1932 and to **Mnesilochus** by Hennemann & Conle, 2007.

PSG No.139 Carausius sp.
Country of origin: Philippines. I have been unable to establish any details as to the origin of this species. Culture now lost.

PSG No.140 Bacteria sp.
Country of origin: Ecuador. I have been unable to establish any details as to the origin of this species. Culture now lost.

PSG No.141 Clonaria sp.
Country of origin: Democratic Republic of Congo. The initial culture was established from specimens collected by Patrick van der Strigchel in 1990. Culture now lost.

PSG No.142 Clonaria sp.
Country of origin: Kenya. The initial culture was established from specimens collected by Patrick van der Strigchel in 1990. Culture now lost.

PSG No.143 Sipyloidea sp.?

Country of origin: Indonesia, Bali Island. The culture was belived to have been established from specimens collected by Eric van Gorkom at Gunong Batur at an altitude between 500m. and 1000m. Culture now lost.

PSG No.144 *Valid name:* **Ramulus artemis** (Westwood, 1859)

Country of origin: Vietnam. The culture was established from eggs obtained from a Czech insect dealer. Originally **Bacillus**, transferred to **Baculum** by Kirby, 1904(a), to **Clitumnus** by Brunner, 1907, back to **Baculum** by Cappe de Baillon, 1928, and to **Ramulus** by Otte & Brock, 2005.

PSG No.145 *Valid name:* **Paramenexenus laetus** (Kirby, 1904)

Country of Origin: Vietnam. The culture was established from eggs obtained from a Czech insect dealer. Originally **Promachus**, transferred to **Paramenexenus** by Carl, 1913.

PSG No.146 *Valid name:* **Centrophasma hadrillum** (Westwood, 1859)

Countries of origin: Brunei and East Malaysia, Sarawak, The original culture was established from specimens collected by Mel Herbert at Badas in Brunei. A further collection was made by Ian Abercrombie and Phil Bragg from Simunjan in Sarawak. Originally **Lopaphus**, transferred to **Centema** by Redtenbacher, 1908 and to **Centrophasma** by Brock, 1995.

PSG No.147 *Valid name:* **Carausius alluaudi** (Bolivar, 1895)

Country of origin: Seychelles Islands. The initial culture was established from specimens collected by Tony and Pat James in 1991. Originally **Lonchodes**, transferred to **Staelonchodes** by Kirby, 1904(b) and to **Carausius** by Brunner, 1907.

PSG No.148 Paraclonistria sp.

Country of origin: Island of St. Kitts. The culture was established from specimens collected by Tony and Pat James.

PSG No.149 *Valid name:* **Achrioptera punctipes** (Audinet-Serville, 1838)

Country of origin: Madagascar. The initial culture in the 1990s was established from eggs imported from a local insect dealer by Frederic le Corré. This culture died out. In 2004 this species was split into 2 sub-species by Hennemann and Conle.

i) Currently a culture of **A. punctipes cliquennoisi** collected by Nicholas Cliquennois and Kai Schütte in Manompana, Tamatave in 2007;

ii) A culture of the nominate sub-species was established from specimens imported by Bruno Kneubühler from an unknown source. Originally **Cyphocrana**, transferred to **Achrioptera** by Kirby, 1904(a).

PSG No.150 *Valid name:* **Dinophasma guttigerum** (Westwood, 1859)

Country of origin: East Malaysia, Sarawak. The culture was established from specimens collected by Phil Bragg and Peter Inglis at Mount Santubong in July 1992. A second collection was made in October 2010 by Ian Bushell and Ian Abercrombie. Originally **Phasma**, transferred to **Datames** by Kirby, 1904(a), to **Dina** by Redtenbacher, 1906 and to **Dinophasma** by Bragg, 1993(a).

Acknowledgements:

Grateful thanks to Ian Abercrombie, Ed Baker, Phil Bragg, Paul Brock, Ian Bushell, Mark Bushell, Ingo Fritzsche, Frank Hennemann, Bruno Kneubühler, Judith Marshall, Kristien Rabaey, Mary Salton and Rob Simoens.

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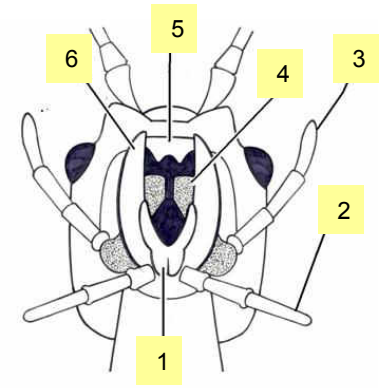
A Poem About Collecting Bramble *by Sarah Darwin*

Bramble picking's a dangerous task.
"But why is that?" I hear you ask
"Surely there can be no beeves
when out collecting blackberry leaves?"
Dander abounds; take heed, beware!
Take my word, and please take care.
Bramble is a cantankerous weed –
It will think nothing of making you bleed.
Those thorns, you know, like shards of glass.
Maybe sharper, a different class.
They'll grab your skin and tear and maim.
Bramble thorns are a bloomin' pain.
"But phasmids eat bramble" you say "It's a fact!
So how can I feed them and stay intact?"
Get a *Carausius*, and then you can give it
kindly food-plants like oak, ivy and privet.

Puzzle Answers

From Page 10.



1 = F
2 = E
3 = D
4 = C
5 = A
6 = B

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.

PSG MERCHANDISE (Sample selection below)

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. Also, look out also for their special offers.

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

Orestes mouhotii (Bates, 1865) PSG 192 *By Tom Low*

Introduction – I was surprised to discover that no one had written a species report for *O. mouhotii*, as it is such an easy species to keep and breed due to its hardiness and parthenogenetic reproduction. Due to its small size it can be ignored, but these are very beautiful insects and are suitable for phasmid keepers of any level of experience.


Ova

Classification – Previously a member of the subfamily *Heteropteryginae*, *Orestes mouhotii* now belongs to the *Dataminae*, along with phasmids such as *Dares*, *Epidares* and *Pylaemenes*. It was previously known as *Datames mouhoutii*.

Distribution – This phasmid is found in Thailand and Malaysia. [Also Cambodia (type locality - Chantaboun), Singapore, and Sumatra; possibly also in China and Japan.]

Ova (eggs) – The ova of this species are very large in comparison to the insect itself; this appears the case even more due to the covering of grey hairs, which causes the eggs to stick together in clumps if incubated together. The eggs are grey in colour and are 4 x 2mm (length by width), with inconspicuous darker markings. The ova are much larger than the droppings and therefore are easily spotted if dropped on the tank floor; however, the hairs mean they may stick to dry leaves (check before throwing them out) and the insects may also bury them in moist compost. Here they are difficult to find due to their colour and their tendency to stick to lumps of soil. No capitulum is present.


Small Nymph

Hatchlings – The newly hatched nymphs of this species are usually between 1 and 2cm long – I am not entirely sure as the ones I initially received had moulted at least once and my eggs have not yet hatched, but around 1.5cm should be a reasonable estimate. They are happy to feed after a few days.

Moulted Nymphs – There is no problem identifying the sexes for this species as due to their parthenogenetic nature, all the insects in culture are females (although males do occur). At this stage the nymphs are varying shades of brown with numerous black spots or darker patches. The nymphs seem happy both to climb and to sit near the bottom – I have found it is normally the same ones that sit on the bottom and the same ones that climb, and in this respect each appears to have a preference! Cork bark and driftwood make good hiding places, although cork bark is less good for very small nymphs due to the small size of the nymph and the various holes in the bark. I learnt this the hard way – one of my small nymphs mysteriously disappeared; presumably it climbed inside one of these holes and never found its way out again! Having said this, this is the only instance of mortality I have ever experienced, showing the nymphs to be very hardy and undemanding. The nymphs will also hide inside or underneath curled up dead leaves, so be careful when cleaning the tank. (I almost threw out a *Dares* this way once; it was only when I found it crawling around the room later that I realised what had happened! It is surprisingly easy to do!)


Medium Nymph

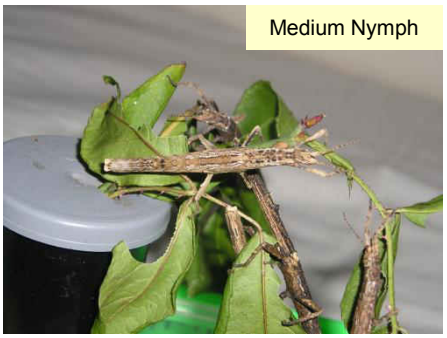
O. mouhotii are not dangerous in any way. They have no sprays or other chemical defences; their only method of defence is catalepsy (playing dead). If disturbed or picked up, the insect will attempt to cling onto whatever it is sitting on. If this fails it will tuck its legs into its body and lie motionless, so that it can be rolled on a palm without any response from the insect. Misting with water can 'bring it back to life' but sometimes the insect will wait until nightfall before stirring. As they grow, the nymphs' colourings become more individual and range from pale beige to almost black. However they are similar in that each has a darker stripe down the centre of the body when viewed from above, which is bordered by black stripes and spots; it is in the shade of this that each insect varies. The antennae are short and the insect is rough-bodied although without spines. The legs, which are thin and rough, and the main body are covered in minute warts to give the rough texture. As the nymphs were all kept together it appears there is little relationship between captive conditions and colouring; however the insects that preferred to sit near the bottom of the tank in general developed darker colouring (see above picture for darker specimen, accommodation section for lighter). This could be the insect changing colour slightly after each moult in order to improve the level of camouflage with the darker compost; or that the higher humidity, resulting from being near the moist compost, results in darker colouring. When moulting the nymphs had no problems with humidity; between them they never got stuck once, even at relatively low humidity, and left a perfect copy of themselves behind if it was not eaten – which often happens.

Adults – As mentioned earlier, *O. mouhotii* are parthenogenetic and therefore males do not usually occur in culture. However from the Species List they are recorded as being 40mm long, 10mm smaller than the adult female.


Adult Female

By the time they reach adulthood, the females become more similar to each other in colouring although subtle differences occur. The insects are mottled in colours ranging from white through to black. The ovipositor is virtually non-present, although the abdomen of the female becomes visibly distended while laying eggs due to their large size. The adults climb less and prefer to have something to cling onto – cork bark, sticks and twigs, driftwood and/or each other. Eggs may also become attached to these due to the covering of hairs. They are less willing to play dead and prefer to hold on to something, although this may still occur. They are not aggressive in any way. The usual resting pose is to flatten the legs against the body as much as

possible or to tuck them underneath, to look as stick-like as possible. The time from hatching to maturity is around one year, give or take a month depending on the conditions. Once adult it is 1-3 weeks before egg-laying commences, although this is not particularly noticed due to the low rate of laying. They live for months after reaching adulthood, laying a small number of eggs (1-2) each week. This is typical in long-lived phasmids.


Medium Nymph

Accommodation – As this is a small phasmid, only a small tank is required. For small nymphs, a jar or margarine tub is more than sufficient – if too large a tank is provided, nymphs can 'get lost' – see above. When sub-adult to adult they need only a plastic pet home in the smallest size. The disadvantage of these is that the lid is very well ventilated. The *O. mouhotii* can be sprayed, or moist compost added, but they do not seem to mind slightly lower humidity at all. It does not affect them moulting successfully. Sellotape can also be stuck over some of the holes. There is always the risk that an insect will get stuck, but this has never happened in my experiences with this method [general PSG advice is not to use sticky tape on stick cages]. The only disadvantage I have found is that in hot weather mould can develop on droppings without enough ventilation. By gluing mesh on the inside of the tank and sticking tape on the outside, you can prevent the sticks from reaching the tape and becoming trapped, while the humidity can also be increased. It also gives the phasmids somewhere to hang while shedding their skins.

Another alternative is to buy a plastic box such as a transparent food container and drill your own holes in it. This allows the correct level of humidity to be maintained without the regular spraying. This is also cheaper than buying a specially-made pet home. During their lifetime I have kept the *O. mouhotii* in both of these and the insects have not had problems with either. For adult insects a tank of 15 x 15 x 15 is sufficient due to their small size and relatively lethargic natures.

Light is unnecessary as they are nocturnal and light will limit the time in which they are active and can be viewed by the keeper. Room temperature is fine for this species. Humidity should ideally be around 75%; however *O. mouhotii* are very hardy and as long as the humidity does not drop below 50%, they will have no problems. For the adults to lay their eggs in, I provide a pot of compost. I find this easier than covering the whole tank bottom as mould is less likely to spread, it is easier to tip away frass, and eggs deposited on the ground can easily be spotted and collected up. I have also tried giving them a moist sponge to stick the eggs to, although this was not used by the insects and they dropped them on the ground instead. However this makes it easier to spot eggs and mould is less likely to spread on a sponge.

O. mouhotii are a peaceful species and can be kept successfully with similar species. *Sungaya inexpectata* nymphs can be kept with them but after a while the *Sungaya* become too big and must be removed. However, *Dares* and *Epidares* are of the right size – I have kept *Dares validispinus* and *Epidares nolimetangere* with *O. mouhotii* without problems for either species. I imagine that *Pylaemenes* can also be kept with *O.* although I have never kept the former.


Medium Nymph

Foodplants – Bramble (*Rubus fruticosus*); other *Rubus* species e.g. raspberry; and rose (*Rosa spp.*). As very small nymphs I fed them initially on just rose, going on information from the Species List, which they ate happily. I then tried to feed them just raspberry, as I had a more plentiful supply, but it was refused. Therefore I gave them a mixture of rose and raspberry, and managed to trick them into eating it. From then on, each time I added less rose until I had weaned them off it and they would take raspberry on its own. Since then they have been more than happy to eat this, and will still go back to rose when this is offered. Although I have not tried bramble more than once I am almost certain they would take it on a regular basis, due to its similarity to raspberry and the fact that similar species of phasmid also take it. I keep the foodplants in a film canister with water, to keep them fresh for longer. Due to the small size of *O. mouhotii*, they do not eat huge amounts of food and therefore the food often dries up before they have finished it. The water saves the time and effort of cutting and replacing leaves

Breeding – These insects are incredibly easy to breed as they are parthenogenetic. 1-3 weeks after the final moult, the females begin to lay; this can be recognised by the obvious swelling of the abdomen. Eggs are produced at a relatively slow rate, like many other long-lived phasmids. My group of 5 adult females have been laying for 3 months and so far have produced approx. 70 eggs between them. The eggs are either buried in moist potting compost or simply dropped, resulting in them often sticking to dead leaves. I remove the eggs from the main tank to reduce the chance of mould. I spray them regularly and keep them at around 24/25ºC. They can be kept in an airing cupboard or next to a radiator if room temperature is much lower than this. At this temperature the eggs hatch in 4-6 months.

Problems – I have had virtually no problems with this species whatsoever; they are very hardy and tolerant of temperature and humidity fluctuations. The only instance of mortality I have had is a small nymph getting lost inside some cork bark, which does not really count as a problem with their captive care!


Adult females with hatchling *Sungaya*

Similar species – *Sungaya inexpectata* can be kept in the same way except that they need a bigger tank when adult and will eat a wider range of foodplants – in addition to those eaten by *O. mouhotii* they will take blackcurrant, strawberry, plastic mesh, cardboard, small nymphs…(I found out the last three by accident and I wouldn't recommend them!)

Dares and *Epidares* can be kept in similar conditions except that they are much more fussy about humidity and will die in overly dry conditions. When small, *Eurycantha calcarata spp.* PSG 44, *Aretaon asperrimus* and *Trachyaretaon brueckneri* can also be kept this way but again need a larger tank as they grow and will take a wider range of foodplants.

References – The following websites have some information on captive care, and photographs:

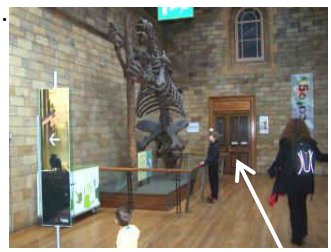
www.sungaya.de – Oliver Zompro's site; **www.lemondedesphasmes.free.fr** – Once this has been translated from French this site has information on captive care of the species along with photos.

PSG Summer Meeting, Saturday 7th July 2012 *by Mike Smith*

Wow! Yet another fantastic meeting awaits all PSG members. Just take a look at the agenda on page 20 and see for yourself. Entry to the meeting, and to the Natural History and Science Museums, is completely *FREE*. I reckon you should attend at least one PSG meeting in your lifetime, wherever you live – I'm sure you will be glad that you did. There is so much going on that day (just see the agenda), so many friendly, fellow enthusiasts to have really interesting chats with, plus two iconic museums available to go round if you wish, so you can't help but have a great time.

The Natural History Museum in London is the venue for the meeting, which might seem a long haul for some members, but the infrastructure is good with trains, tubes, buses, and taxis, readily available. If you don't want to go alone, bring any friend (and try to get them to join the PSG), and youngsters can drag a parent or other adult along with them. The address is the Dorothea Bate Room, on the ground floor, when you arrive at this room ring the door bell (on the outside, to left of the door) and someone will let you in.

The museum's main entrance is in **Cromwell Road, SW7 5BD**; there is also a side entrance in **Exhibition Road** (which tends to have shorter queues). The queues can be quite long, but still usually take only 15-20 minutes maximum. Please note bags are searched on entry for "dangerous" objects so knives, scissors, etc should not be brought in. The nearest tube train station is South Kensington which is on the Circle, District, and Piccadilly Lines. Bus routes include: 14, 49, 70, 74, 345, 360, 414, and C1. But before you travel best check with London Transport for any planned closures (eg for engineering work). Phone **0207 222 1234** (44 207 222 1234 from overseas), or go to the website **www.tfl.gov.uk.**



Dorothea Bate Meeting Room door.

PSG Membership Cards. Please remember to bring your PSG membership card with you. You will need it to access the meeting room. Also, the card will be put in a holder at the meeting so you can wear it as a name badge. (We have limited supplies of these holders, if you have your own holder please bring it along). Non-members who accompany members will be given a white name badge to wear. Members who have lost or forgotten their membership cards will still be able to access the meeting, but checks will be made to ensure they are members, and a temporary members' name badge will be issued. Only *members* can vote and/or collect free livestock.

The Natural History Museum (**www.nhm.ac.uk**.) opens at 10am, and you can access the Dorothea Bate Meeting Room from around 10.15, but do use some of the time before the meeting starts (and during the lunch break, and after the meeting) as an opportunity to look round the Natural History Museum or next door's Science Museum (unless you prefer to look at the PSG tables and chat with PSG members in the meeting room, or to visit one of the museum's reasonable restaurants at lunchtime). In the meeting room there will be a refreshments table with tea, coffee, and biscuits for a voluntary contribution (and members are welcome to add some cakes to the table, yum, yum). There will be a table with books and merchandise for sale, and you are welcome to put your own phasmid-related items on it to give away or sell (just label it with the price and whom to give the money to). Of course there will be the "Livestock Exchange" table where members can deposit their spare livestock - we of course want mainly stick insects for this table but you are welcome to bring in other spare critters eg cockroaches, sun beetles, snails, centipedes, etc. Please check before you leave that your critters have been distributed, otherwise please take them home with you.

Main entrance is in Cromwell Road. From the tube at South Kensington, take the walkway marked "Museums" for access to either entrance.

MAKE A STICK INSECT COMPETITION *by Derek Pattenson*

Once again we'll be running a fun competition at the July meeting in London, again with prizes for the lucky winners. In true Olympic style we're hoping to have Gold, Silver and Bronze awards in each of **two** competitions. We want you to get creative and crafty, combining your entomological knowledge with your other talents to come up with the most original, OR lifelike, OR creative, OR imaginative, OR educational MODEL relating to phasmids. Anything from a knitted draft excluder to a 3D model of the innards of a *Eurycantha*, from a pottery *Extatasoma* ova to a jungle diorama, all ideas and creations will be warmly welcomed. In the past for many competitions we've separated adult and children's entries, but for this I think that's letting the adults off the hook a bit, so we'll mix everyone up regardless of age. We're pitting children's imagination against professional entomologists' knowledge here, the results should be interesting! The only restriction is it must be something Phasmid-related.

But I said TWO competitions... One class is for creations you've made in the comfort (and privacy) of your own home in advance and brought in to the NHM; but the other is a challenge to make something ON THE DAY. We will provide a range of materials and tools, from coat-hangers to pipe-cleaners, sticky paper to twigs, scissors, glue, paints etc, and set aside an area to see what you come up with. So please get involved and bring along something you've made beforehand, but also bring along your creativity and imagination (and leave your inhibition at home). I'm really looking forward to see what ideas people come up with...

PSG SUMMER MEETING, Saturday, 7th JULY 2012

Website: http://phasmid-study-group.org

If you have any comments on what you would like to see at future PSG Meetings, or if you would be willing to give a talk or other offering at a meeting, please let Judith know. E-mail: j.marshall@nhm.ac.uk

DOROTHEA BATE ROOM, NATURAL HISTORY MUSEUM, CROMWELL ROAD, LONDON, SW7 5BD, UK.
(FREE PUBLIC ENTRY* members may also walk round the excellent museum if they wish)

AGENDA

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

10.30am – 12.00noon WELCOME, members are invited to exchange ideas and experiences, view the displays, and take part in the competition**.

**PLEASE BRING AND WEAR YOUR MEMBERSHIP BADGE-
A HOLDER WILL BE PROVIDED.**

Bugfest Display – Nick Wadham

Make a Stick! – Derek Pattenson

1. "Here's one I made already" – set up home-made specimens for judging.
2. The "Blue Peter" challenge – make your own stick insect at the meeting.

Prizes will be awarded for the best specimen in each category: each member present will have two votes to allocate, one in each category.

12.00noon – 12.45pm Illustrated Talk on collecting Phasmids by Ian Abercrombie.

12.45pm - 1.30pm Lunch

1.30pm – 2.15pm Talk on giant invertebrates of movie, myth and legend, by Nick Wadham.

2.15pm – 2.45pm Panel of Experts answer your Questions on stick insects/general discussion.

2.45pm – 3.00pm Competition results and prize giving.

3.00pm – 4.00pm Livestock Exchange***, and final viewing of displays, etc.

4.00pm – Competitors and exhibitors to collect their entries; leftover livestock*** should be taken back by the contributor (please check).

*You are requested to bring this sheet with you for security reasons to ensure access to the *meeting room* (bring in the whole Newsletter, or a photocopy of the appropriate page, if you do not want to tear the page out). The agenda will also help you follow the proceedings.

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

***You are reminded to follow the rules as laid down concerning the Livestock Exchange: eg livestock should be given some foodstuff, and their container must be clearly labelled with their name & PSG number; the food plant they are being fed on, and your name & PSG number. **Please don't forget to check before you leave that all of your livestock has been distributed and, if not, take them back with you.** Do not overcrowd the sticks, but also please use reasonably-sized containers (not too big), and do not spread the spare stock over too many different containers (especially common species). Please remain in your seats throughout the session – ie do not crowd round, or obscure, the livestock table during livestock distribution.

Stick Insects Survive One Million Years Without Sex *by Ella Davies*

***Timema* stick insects** live in shrubland around the west coast of the US. Stick insects have lived for one million years without sex, genetic research has revealed. Scientists in Canada investigated the DNA of *Timema* stick insects, which live in shrubland around the west coast of the US. They traced the ancient lineages of two species to reveal the insects' lengthy history of asexual (parthenogenesis) reproduction. The discovery could help researchers understand how life without sex is possible.

"Asexuality does not always result in the rapid extinction of a lineage" says Dr Tanja Schwander of Simon Fraser University, Canada. Scientists from Simon Fraser University, Canada, published their results in the journal Current Biology. Certain species of *Timema* stick insects were known to reproduce asexually, with females producing young in "virgin births" without the need for egg fertilisation by males. The insects instead produce genetic clones of themselves.

Dr Tanja Schwander and her team set out to test how old these species were, and therefore to find out how long they had reproduced in this way. By analysing the DNA of the insects, scientists were able to trace back their lineages to identify when they became a distinct species. The team discovered that five of the asexual stick insects were "ancient", dating back more than 500,000 years. Two of them were even older. *Timema genevievae* is a female-only species of stick insect. "All the evidence points to *Timema tahoe* and *Timema genevievae* having persisted for over one million years without sex," Dr Schwander told BBC Nature.

"Our research adds to the growing amount of evidence that asexuality does not always result in the rapid extinction of a lineage," she said. In the past, asexual reproduction has been associated with "evolutionary dead ends" because the lineages of organisms studied were often short-lived. In more recent studies, tiny invertebrates called bdelloid rotifers and darwinulid ostracods were described as long-established asexuals by scientists investigating fossil records. But there has been ongoing controversy surrounding these ancient asexuals. Further study suggested that asexuality was, in some cases, likely to have been a recent adaptation.

Dr Schwander and her team's genetic analysis confirmed that their stick insects have a long female-only history. "*Timema* are indeed the oldest insects for which there is good evidence that they have been asexual for long periods of time," said Dr Schwander. Comparing sexual and asexual species of stick insect could teach scientists more about how organisms survive without sex. Asexuality does bring certain benefits, including rapid population growth. But the repeated cloning of genes through generations is thought to have significant negative consequences too. This replication means that species are less able to adapt to new environments through "shuffling and tweaking" of genes. Dr Schwander said: "Why *Timema* asexuals have been able to persist for so long despite all the predicted negative consequences of asexuality is the focus of ongoing studies."

Ella Davies is a reporter for BBC Nature. Source: www.bbc.co.uk/nature/14122050 - © [2011] BBC. (Submitted to Newsletter by Mike Smith).

Timema Stick Insects

***Timema* is a genus** of relatively short-bodied, stout stick insects native to the far western United States. The genus was first described in 1895 by Samual Hubbard Scudder, based on observations of the species *Timema californicum*.

Compared to other stick insects (order Phasmatodea), the genus *Timema* is considered basal; that is, the earliest "branch" to diverge from the phylogenetic tree that includes all Phasmatodea. To emphasize this outgroup status, all stick insects not included in *Timema* are sometimes described as "Euphasmatodea."

Five of the twenty-one species of *Timema* are parthenogenetic, including two species that have not engaged in sexual reproduction for one million years, the longest known asexual period for any insect.

Timema spp. differ from other Phasmatodea in that their tarsi have three segments rather than five. For stick insects, they have relatively small, stout bodies, so that they look somewhat like earwigs (order Dermaptera).

Source: Wikipedia www.wikipedia.org

Timema genevievae

PHASMA Meeting at Veurne 22nd April 2012 *by Ian Bushell*

Phasma, our sister organisation on the continent, like us hold two meetings a year, these are in April and October. They, however, have no permanent location for the meetings, but that in April is held in Belgium, and the October meeting is in the Netherlands. Originally this April's meeting was to be held in Oostend, but a last minute change moved the venue to Veurne. Maureen and I, together with Ian Abercrombie attended, staying for the weekend with Kristien and Rob.

The meeting, held in a school in Veurne, was attended by about 50 members from Belgium, the Netherlands and Germany. The theme of the meeting was the new specimens collected in Vietnam by Joachim Bressell, and an impressive display of 15 of these that have been brought in culture by Kristien Rabaey and Rob Simeons put on was put on show.

Kristien, Rob, & Joachim, looking at the exhibits.

Ingo Fritzche gave a very good talk, in English, of his holiday with his daughter Jasmine in Thailand in 2009 when he took the opportunity to revisit areas that he had collected in before, as well as highlighting the beauty and diversity of Thailand's culture and wildlife.

Joachim Bresseel gave a most interesting talk on his latest scientific expedition to North and Central Vietnam in the summer of 2011, sponsored by the Koninklijk Belgisch Instituut voor Natuurwetenschappen Brussel - the Belgian equivalent of the BNHM in London. The expedition was a great success, collecting some 90 different species of which as yet about 60 have not been fully identified. Some will doubtless be at our PSG Summer Meeting.

As always a high spot of the meeting is the livestock exchange. Conducted slightly differently to our own, where all available stock is listed - in this case an impressive 73 species, and then individual bids for 'wants' are submitted. These are sorted, then distributed to the individuals and the remaining stock is offered as we do. I was particularly lucky in getting amongst others *Anisomorpha paromalus, Alienobostra brocki* and from Kristien and Rob *Abrosoma johorensis* – these Maureen and I had originally collected in Kuantan, Malaysia but had lost the culture.

Yet again a most successful and enjoyable meeting and a chance to meet up with friends from the continent, catch up on their news and discuss different methods of culturing the various species. It is also an opportunity to obtain species that have perhaps not crossed the PSG livestock table for some time.

After clearing the venue some of us went for a very good meal in Veurne. Finally many thanks go to Kristien and Rob for their generous hospitality and organising such an enjoyable and informative meeting.

Livestock Report *by Ian & Mark Bushell*

The following species are currently available:

Eggs – 55, 195, 210, 215, 221, 282, 292, 294, 301, 308, 315 & 320.
Insects – 4, 23, 90, 215, 264, 266, 294, 295, 313, 314, 315 & *Aretaon* Sp. 'Palawan' .

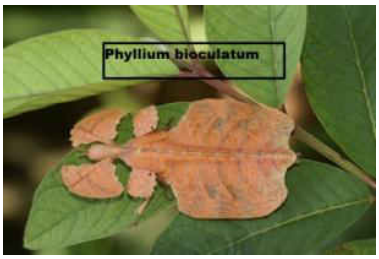
Your surplus livestock can be sent to our address, but *please get in touch before sending if live insects are being posted or the parcel is too large to fit through a letter box*. Please also include your name and address, as well as what species have been sent: **Mark & Ian Bushell, 43 Bradford Road,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

We are all looking forward to the Livestock Exchange at the Summer Meeting, but the usual plea is made. All livestock and eggs are 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 of 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 home with you (unless previously arranged with us).

SAGA LOUT TOUR – BORNEO/JAVA 2010 – PART TWO *by Ian Bushell*

On our return to Singapore from Borneo Ian Abercrombie and I stayed with Francis and Chin Peng which allowed us time to sort out our kit and relax before the visit to Java. On the Wednesday we visited Singapore Zoo, but declined their big promotion of a 'Night time jungle experience' - thought it might be too scary. As always Francis was very keen to find examples of *Phyllium,* and so that evening we went to the Sungei Buloh Nature Reserve in Singapore where there had been various reports on Facebook that *Phyllium* had been seen there. Disappointingly, despite extensive searching, we found no examples there, but never mind Java awaited; one of Francis' patients from Indonesia assured him that he knew where big *Phyllium* existed and would arrange for him a visit to that area.



Thus on Thursday 28th, in the evening we flew from Singapore to Jakarta arriving at 22:40hrs. It was a short flight, but getting through Jakarta airport proved quite a challenge. Visitors need to pay a landing tax of US$25.00, itself a long queue, then join another very long queue, by now we were some way behind Francis, for immigration controls. We must have looked tired as the "two old men" were invited by the Customs Officials to go through the Flight Crews' desk, and thus we ended up waiting for Francis. Baggage collection was another adventure as it developed into a lottery between five carousels. However, finally we met our contact and were whisked off to the The Borobudur, a 5* hotel, in the centre of Jakarta – such luxury.

Friday 29th, feeling very refreshed, we go for an early walk in the vicinity of the hotel; the traffic is a mad dashing mixture of minibuses, motorcycles and the little Lambretta taxis. We returned to the hotel for breakfast with Francis' patient and family – most amazing spread, and later feeling replete we relaxed in a very comfortable air-conditioned 4x4 on our way to meet Yushi, who is our contact and is guaranteeing finding *Phyllium.* Jakarta is vast. The journey to meet Yushi on the outskirts of the city took 2 hours, then another 2 hours, with a break for lunch and change of vehicles to a battered minibus, to take us on the last stage to Kg Markjaya. Here we met Moman, Yushi's contact, and see his *Phyllium* collection mostly of *Phyllium bioculatum*.– but such a variety of colours, yellow, green and red. Here too we met the 'Boys' who were to be our guides and helpers during our time in Indonesia.

Having seen what was in the area we went in the Boys' minibus to our first location and immediately set out that afternoon with the intent of getting to the tree line and staying out that night. The party set off, Francis, Ian A and self with Yushi and the Boys, who all it transpired were related in some way to Moman. It was a steep climb along narrow muddy paths between cultivated fields, much of it down to rice but other vegetables as well. The plots were interspersed with Guava and Rambutan trees, and it was in these trees that the Boys said were *Phyllium* and other insects. Soon they had selected and were climbing a tree and amazingly next thing some large *Pharnacia* females were being dropped to the ground. While collecting these from around the tree we also found some interesting Mantids. After this diversion we pushed on up towards the tree line, however, in a little while it started to rain. We continued to climb and search the scant secondary growth beside the track as the rain got harder; nothing much a few *Carausius*, a couple of snakes and some interesting frogs. As it turned towards dusk we arrived at a small attap shelter on one of the plots. The Boys got a fire started a brew going and produced curry and fruit for all – bliss.

We were now at about 1100m, still short of the tree line and it was raining hard. Drenched but still full of enthusiasm we decided to carry on up towards the tree line. However, after another hour or so with finding very little apart from a couple of *Carausius*, it was generally agreed to return to the Kampong. It was easier going downhill but still a long tramp and by this time everybody was thoroughly soaked, it was getting colder, and Francis's umbrella was inside out and tattered. We arrived at the Kampong after midnight and went to the home of one of the Boys' relatives. We all just crashed out in our sodden clothing on the bare wooden floor and tried to sleep – somewhat different to last night's 5* accommodation.

The morning dawned fine and we all gradually emerged to warm ourselves on the verandas and get a hot brew. Looking around we saw scattered throughout the Kampong were Guava and Rambutan trees and from these the Boys were soon collecting *Phyllium*. It was decided then to go to another area where there were reported to be *Phyllium* so we all set off. The country here is just sets of steep ridges coming down from the higher ground, and invariably to get from one place to another requires the traversing of these ridges. The area, although a National Park, is intensively farmed with typical paddy terracing going up from the valley floors. The few trees that do remain after clearing to make the plots are usually Guava or Rambutan, these along or just below the ridge line or within the Kampongs or where it is just too steep to terrace. The day was fine so we set off, but by now Ian A looking like an old Victorian explorer, leading a group of boys carrying his heavy camera kit. The paths were narrow and steep, we were sliding down muddy paths, wading and falling into streams at the bottom of the valley, and slithering and scrabbling up the far side. Once on the top of that ridge you faced the same struggle to get to the next ridge.

It was a relief to come across the odd cluster of huts and have a slightly less steep but better path for a short while. We walked for a couple of hours and were probably no more than 5Km as the crow flies from our start position and about 20m higher at some 950m. Despite all the effort we found very little. We stopped for lunch at one of the Kampongs where one of the Boys found a flying lizard, then made a 'leisurely' stroll back to base, arriving late in the afternoon just before the rain. We packed all our sodden gear and took the Boys' minibus back to Moman's Kampong where we had a good meal and again looked at his impressive collection of *Phyllium*.

So far, apart from the rather sodden first evening, all our collecting had been done during the day – somewhat unusual for us – and all within a cultivated environment. For our last chance at collecting we wanted to find secondary vegetation, preferably near the tree line and see what was about during the night. Also we had not found any 'ground' phasmids, *Dares* etc., again unusual. The Boys said they knew an area that matched our requirements but that we would need the minibus to get there, so as dusk fell, about 1800 hrs, we set off. It is somewhat understating it to say that the journey was an experience. The track, winding up and down the ridges and with hairpin bends, was in parts only one vehicle wide, and the surface was mostly pebbles and boulders with great runnels where the rain had eroded it. The minibus 'lost' its exhaust on boulders about four times and we had to debus to let it get round corners on the steepest gradients. One tyre was purely canvas with no rubber covering, the others in racing terms would be called 'slicks'. All this at night and in the rain.

But I digress. We finally arrived at our destination, a laterite road on a ridge with secondary vegetation on either side for about 10 yards in depth. The rain had stopped and so with high hopes we began searching carefully along both sides. Interesting but not very fulfilling, several tree frogs, a small constrictor and some *Carausius* and *Asceles.* Not a sign of any *Dares* or similar. After searching for about four hours we decided to head back at about 22:30, see previous paragraph for the journey, and have an early night. However, when we got back Moman said that one of the *Phyllium's* was about to start its final moult, and over the next 3 or so hours both Ian A and Francis captured wonderful shots of this happening.

Sunday, our last day in Indonesia. Packed all our gear and then moved to the comfort of the air-conditioned 4x4 for our return to Jakarta, via Yushi's house. Here we saw his collection of invertebrates, mounted in various forms, and destined for the mainly Japanese market. There were some stunning examples of beetles and phasmids. Then to the airport, the usual wait, and finally the flight back to Singapore, arriving just before 2200hrs. Tired, but happy it was an early-ish night.

Monday, our final day in Singapore and lots to sort out before our early morning flight to UK the next day. We papered as many of the insects from our earlier trip to Borneo as we thought would make the return journey, plus all the eggs. Finally fond farewells and thanks and then Chin Peng drove us to the airport for the return flight. Tired but happy we arrived at Heathrow and then went our separate ways determined to try and bring into culture the fruits of all our searching.

Bug Day at Manchester Museum on 28th April 2012 *by Yvonne Golding*

As usual the place was packed. These events are very popular giving children (and their parents) an opportunity to actually handle insects which for many, is the very first time. Many adults are able to get over their phobias around insects by being able to look at them closely in a safe environment and some even handle them. You can see some pictures on the Manchester Museum flickr site: http://www.flickr.com/photos/themanchestermuseum/sets/72157629649236324/

I was able to display about 12 phasmid species and I'm very grateful to Ian Bushell from PSG who supplied some extra stock. I would say the stars of the phasmid show for sheer prettiness were my 2 female *Necroscia annulipes* which on several occasions took flight across the hall revealing their beautiful pink wings. They do not seem to have suffered in any way and in fact are still with me. The 2 female *Phaenopharos khaoyaiensis* that Ian supplied were also popular looking like very large mottled sticks with tiny showy wings. These were very good for handling. I had a scary-looking full grown *Eurycantha calcarata* which had just moulted so there was a beautiful intact skin to show people. The black *Peruphasma schultei* and their look-a-like cousins *Pseudophasma* also caused a stir but these stayed firmly in their cage. Has anyone noticed the different in behaviour between these two? The *Peruphasma* just scuttle about when disturbed but the *Pseudophasma* stay still and quiver.

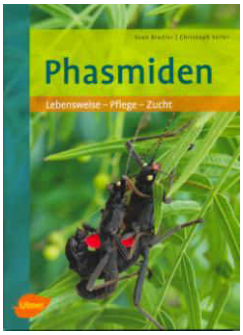
Apart from phasmids there were centipedes and spiders; freshwater invertebrates and lots of insects displayed from the museum entomological collection. I also had my Madagascan hissing cockroaches and these were more popular than I expected. Maybe it was because I was prepared to handle them and people thought well if she can do it then so can I! Children and their parents were queuing and the roaches got so blasé that they stopped hissing!

It was good to have the new PSG leaflet on display and I hope that some who took them away might think about joining PSG.

Concerns Over Illegally Imported Livestock *by Paul D. Brock*

Mike's article in this issue on the critically endangered Lord Howe Island Stick-insect prompts me to write a few notes on Australian phasmids in culture. Having seen a recent species report in Europe on rearing Robinson's Stick-insect *Candovia robinsoni*, there are concerns about illegal imports of phasmids. In some cases, dealers are making money on stocks, in others probably pet keepers are keen to have more and more species. However, most people are aware that there are tight regulations on exporting livestock from Australia and severe fines if caught. The Australian authorities are, not surprisingly, also extremely concerned about livestock of foreign phasmids entering Australia, in case they escape in the wild, hence it is prohibited. *Candovia robinsoni* - a rare species found just in the Robertson area of New South Wales so far, is not on an approved list for export, although a few species are, such as Macleay's Spectre *Extatosoma tiaratum*. There would be a huge outcry, however, if the Lord Howe Island Stick-insect found its way to the pet market and rightly so, it is on the borderline of extinction. Where the authorities give permission to an individual to rear livestock outside of Australia, this comes with an undertaking that a research stock is not distributed; permits are also needed to collect them in the first place. A plea to anyone tempted to import livestock into Europe or anywhere, please check the regulations first. There are no problems importing live phasmids into the UK, but exporting them from Australia and indeed many other countries, is highly illegal. Rearers should steer clear of stocks not legally imported, there are more than enough species to rear already in good culture. Very little is known about many species in the wild, but gradually it is hoped that the IUCN Red List of endangered insects will include more phasmids.

PHASMIDEN - New Book on Phasmids



There is a new book out by Sven Sadler and Christoph Seller on phasmids. It is called ***"Phasmiden"*** and, as the name suggests, it is written in German. However, it does contain some brilliant, beautiful pictures of phasmids, see some on the cover. The good news is the book will be available for sale at the Summer PSG Meeting (Saturday, 7th July 2012), and for only £25 (or 30 Euros). There are limited supplies, so to be sure of getting a copy, you should reserve one by emailing PSG members Kristien and Rob: kristien.rabaey@skynet.be.

(I believe "Lebensweise-pflege-zucht" translates to "Life-style – maintenance - breeding"; according to my on-line translator! *Must learn German…Editor).*

Phasmid Wings – a Special Request *by Olivier Béthoux*

I am preparing a survey of the wing venation of stick- and leaf-insects. I am trying to make sure that as many phasmid subfamilies as possible will be represented in this contribution. I have issues with the Clitumninae, for which my sample is inadequate. Therefore I would greatly appreciate if some of you could provide me additional material of a species of *Pharnacia*, and of *Phobaeticus*. Ideally, the material should be determined at the species level. I would need at least five specimens (max 10) of each species (ideally including males and females, if winged). I would add this material to my current collection. My details are as follows, thanks in advance for your help: **Olivier Béthoux, 40 rue d'Aveillans, 38770 La Motte d'Aveillans, France, +33683073015, obethoux@yahoo.fr.** *[Olivier, we are happy to advertise this in the Newsletter, especially as you are joining the PSG – please let us know how your survey gets on!]*

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.

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).**

Newark / Midlands Spring Entomology Fayre: 11.00 am to 4pm, Sunday, 2nd December 2012, The Grove Leisure Centre, London Road, New Balderton, Newark, NG24 3AL .

The Lord Howe Island Stick Insect, *(Dryococelus australis)* The Story so Far.

by Mike Smith

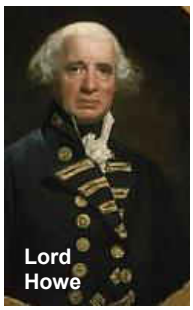

Dryococelus australis - Male

Potted History of Lord Howe Island.

Around 7 million years ago, in the late Miocene Epoch, a large, shield volcano ("shield" because the lava spreads over great distances and is shaped like a shield) erupted from more than 2,000 metres under the sea, intermittently for about 500,000 years. This huge volcanic rock subsequently gradually eroded away until the remnants formed the Lord Howe Island group of 28 islands, islets, and rocks of today, which include the Lord Howe Island itself and Ball's Pyramid. Lord Howe Island is thought not to have been inhabited by humans before the end of the 18th century; and then it was initially only a provisioning port for the whaling industry, but was permanently settled in June 1834, and currently has around 350 individuals in about 150 households. Its economy relies on the export of endemic Kentia palms and, more recently, on tourism. Lord Howe Island is listed by UNESCO as a World Heritage Site of global natural significance (each World Heritage Site remains part of the legal territory of the state wherein the site is located, but it is in the interest of the international community to preserve each site).

The Naming of Lord Howe Island and Ball's Pyramid.

The first reported sighting of Lord Howe Island was on 17th February 1788, when Lieutenant Henry Lidgbird Ball, commander of the armed tender HMS *Supply* (oldest and smallest of the First Fleet ships), was on his way from Botany Bay in Sydney, Australia, with a cargo of 15 convicts (9 male, 6 female) to found a penal settlement on Norfolk Island (which is 900 km from Lord Howe Island). On his return journey, on 13th March 1788, Ball observed Ball's Pyramid, and later that day sent a party ashore to Lord Howe Island to claim it as a British possession. He named Ball's Pyramid (and Mount Lidgbird) after himself (Mount Lidgbird 777m dominates the southern section of Lord Howe Island, together with the slightly higher 875m Mount Gower); and he named Lord Howe Island after Richard Howe First Lord of the Admiralty at the time - 1726-1799, his mother was a half sister of King George I, and he is an ancestor of Diana, Princess of Wales.


Lord Howe


HMS *Supply*

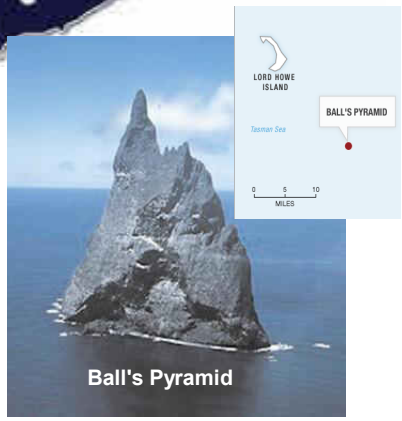
Lord Howe Island and Ball's Pyramid.

Lord Howe Island is in the Tasman Sea in the South Pacific Ocean, 780 km north east of Sydney (and is included, administratively, as part of New South Wales). Its size is 10 km north to south, and between 2 and 0.3 km wide, with a total area of 14.55 km^2, it roughly describes a crescent. It supports the southernmost coral reef in the world, boasts spectacular topography, is home to numerous endemic species - and has been invaded by rats. Ball's Pyramid is a desolate, treeless, extremely steep, monolith; it is rat-free, but no-one lives there. It is about 20 km south east of Lord Howe Island, and is the world's tallest volcanic sea-stack, being just 200m across at sea-level base, and yet rising to nearly 600m high.

Lord Howe Island

How Did the Lord Howe Island Stick Insect Become Extinct?

The Lord Howe Island stick insect (*Dryococelus australis*) was found only on Lord Howe Island. It was first described by Montrouzier in 1855 from specimens collected years earlier by HMS *Herald* (then by Westwood in 1859). The Europeans labelled it as a Land or Tree Lobster because of its size and hard, lobster-like exoskeleton. Local fishermen fished with them. All was well – then, on 14th June 1918, a catastrophe occurred which changed Lord Howe Island forever. The supply ship *Mokambo* hit a rock and ran aground. One passenger drowned, and its cargo – including some stowaway black rats (*Rattus rattus*) - was washed ashore onto Lord Howe Island. It took 9 days to repair the *Makambo*. The rats' invasion caused the demise of much



Ball's Pyramid

wildlife on the island. This included 5 bird species, 10 invertebrates, countless plants and, in particular, *Dryococelus australis* - as none have been seen on the island, its only known habitat, since 1920, and by the mid-thirties it was considered extinct. If it were to be found again it would be known as the "Lazarus effect" ie the re-discovery of a species thought extinct.


Rattus rattus

The Lazarus Effect!

In the 1960s, some climbers found 3 dead *Dryococelus australis* on Ball's Pyramid. The significance of the find was not realised until a photo of a specimen was fortuitously shown to an entomologist from the Australian Museum that happened to be in the audience for a talk. In the intervening years, some research expeditions were undertaken on the island, but with no positive results. Then, in February 2001, two Australian scientists, Nicholas Carlile and David Priddel, plus 2 assistants including local ranger Dean Hiscox, paid Ball's Pyramid a visit. High up by a *Melaleuca howeana* bush they saw some fresh droppings. Nick and Dean returned with flashlights that night and, high up on a near vertical, unstable slope, they found just 24 Lord Howe Island stick insects, all on this one, lonely *Melaleuca howeana* bush. The *Melaleuca howeana* is a low shrub or tall bush and, although endemic to the Lord Howe Island group, very few specimens are found on Ball's Pyramid. It is a Tea Tree, in the Myrtle family Myrtaceae, and is found on cliffs and ridges, often stunted and prostrate on the rocks next to the coast. It has pale cream flowers September to December.


Dryococelus australis - Female

How Did the Stick Insects Get to Ball's Pyramid?

How the phasmids got from Lord Howe Island to Ball's Pyramid is a mystery, as is how they survived on just a single plant in such a harsh location. Eggs or adults may have floated there from Lord Howe Island, or they could have been brought there with nesting material carried by birds, or live stick insects could have been discarded there by fishermen who used them for fishing.

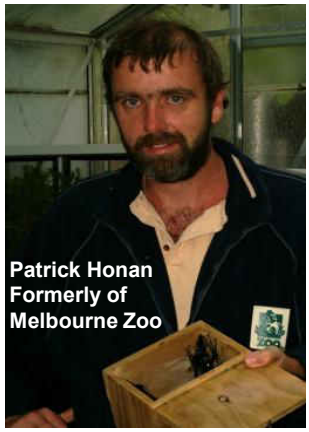
The Breeding Programme.

The New South Wales government were reluctant to allow any insects to be moved but, after 2 years of discussions, the scientists were allowed to remove just 4 insects. The team returned to Ball's Pyramid in February 2003 and, despite a rockslide, found their 2 pairs on the original bush. One pair was given to Stephen Fellenberg, a private breeder in Sydney – but they died within 1 month after laying 21 eggs, 7 of which hatched. (However, Stephen has since successfully bred them in his invertebrate annexe, with the help of a generous Australian $10,000 grant and with *Melaleuca howeana* plants specially grown for the project by nearby Mount Annan Botanic Gardens). The other pair, named "Adam" and "Eve" was given to Melbourne Zoo, in the charge of Patrick Honan, and the first captive-born individual hatched in September 2003, they eventually laid 257 eggs - 71 hatched, 24 reached adulthood. In 2008 the Zoo had 700 insects and 11,376 eggs. Twenty adults were returned to a special, protected habitat on Lord Howe Island. In the last 12 months, Melbourne Zoo have bred over 1,300 *Dryococelus australis*; however, they are still classified by the IUCN as "Critically Endangered" on the Red List of Threatened Species.

"Critically Endangered".

The IUCN (International Union for Conservation of Nature) is the world's main authority on the conservation status of species. Its classifications are considered to be the most objective and authoritative system for classifying species in terms of the risk of extinction. Their aim is to convey the urgency of conservation issues to the public and policy makers and to help the international community to try and reduce species extinction. It has 3 main categories: "Vulnerable", "Endangered", and "Critically Endangered". The category of every species is re-evaluated every 5 years if possible, or at least every 10 years. The percentage of each animal group on the "Critically Endangered" list is: Amphibians around 7%, Mammals around 3%, Reptiles around 1%, Fish around 0.5%, Molluscs around 0.3%, and then for Insects - virtually none!

Melaleuca howeana


Patrick Honan
Formerly of
Melbourne Zoo

Description of the Lord Howe Island Stick Insect.

The *Dryococelus australis* nymphs are vivid green, after around 1 year they are a shiny black or dark brown; they are about 20 mm when hatched. All are wingless. Females grow to around 12.5 cm long and weigh up to 25 grams, males are around 10.5 cm long. Compared to the female, the male has a narrower abdomen, longer and thicker antennae, and thickened hind femora (legs) with a few heavy spines beneath. Nymphs are diurnal (active in the day), and adults are nocturnal. On Lord Howe Island adults hid in cavities in the trunks of living banyan trees by day, and came out feeding by night. On Ball's Pyramid they were found on a *Melaleuca howeana* bush, the only shrub type on the island, and they sheltered in cavities formed amongst plant debris. In captivity, adults feed on a variety of different plant species, and nymphs thrive on bramble. This is the sole species of *Dryococelus*, but it has a superficial resemblance to *Eurycanthinae*. Eggs are light brown, oval, ridged, and are laid in batches of about 10, with 7-10 days between batches. Single eggs may be laid in the intervening period. They are laid in the soil (as is done by the *Eurycantha* species). Eggs take about 6 months to hatch, and nymphs take around 7 months to reach adulthood. Females are more numerous than males which some say suggests the insect is capable of parthenogenesis (where unfertilised eggs hatch into females) – but not seen in captivity. Possibly unusual behaviour for phasmids; they pair off, with the male often having 3 legs protectively over the female beside him.


Nymph

Rats – What Can You Do With Them?

The eradication of rats on Lord Howe Island is the goal of many. Indeed, plans are afoot to do so, and it is expected to cost around $A9m (£6m). But 1450 hectares of mountainous island presents a logistical challenge. Rat infestations have been eradicated on over 300 islands throughout the world. In particular, in nearby New Zealand's Stewart Island with a similar terrain, and Campbell Island which is 8 times larger than Lord Howe Island; both were successfully baited using an aerial delivery of poison. But Lord Howe Island would be the largest, permanently populated island on which the eradication of exotic rodents has been attempted. The islanders are in favour of rat eradication as, apart from the distress they cause socially, rats consume the seeds of Kentia Palms – the island's main cash crop. The bait would be brodifacoum, 843 grams deployed via 40 tons of cereal pellets. Islanders have concerns about the effects on people, water, and non-target species – eg pets, birds, and marine life. Obstacles can be overcome, however, eg Woodhens are endemic to the island and had to be saved from extinction by a Foundation-funded breeding programme – all of these would have to be rounded up and kept in captivity for the duration of the baiting. But then, do the islanders want to see a return of the Lord Howe Island stick insect? Actually, most are not interested. So, as part of a public relations campaign, there was a video recorded by former zoo keeper Rohan Cleave showing a *Dryococelus australis* nymph emerging from an egg; it was so cute as to hopefully soften the hearts of the islanders. See it for yourself as at:
http://www.npr.org/blogs/krulwich/2012/02/24/147367644/six-legged-giant-finds-secret-hideaway-hides-for-80-years?ps=cprs.


Egg

Other Phasmids on Lord Howe Island

Well, there is Rentz's Strong Stick-insect (*Davidrentzia valida)*, thought by the late 1980s to be extinct, but rediscovered recently in a small palm forest on Lord Howe Island. Also, the Lord Howe Horn-headed Stick-insect (*Cornicandovia australica)* which is possibly already extinct; it is only known from the type specimen collected pre-1908. Now, these could be the subject of another article…

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Nick Carlile
by Patrick Honan