



ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC.

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The **ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC.**, since its inception in 1923, has striven to promote the development of pure and applied entomological research in Australia, and particularly in Queensland. Membership is open to anyone interested in Entomology. The Society promotes liaison among entomologists through regular meetings and the distribution of a *News Bulletin* to members. Meetings are announced in the *News Bulletin*, and are normally held in the Goddard Building, University of Queensland at 7.00 pm on the second Monday of each month (March to June, August to December) each year. Visitors and prospective members are welcome. Membership information can be obtained from the Honorary Secretary, or other office bearers of the Society.

Contributions to the *News Bulletin* such as items of news, trip reports, announcements, etc are welcome and should be sent to the *News Bulletin Editor*.

The Society publishes **THE AUSTRALIAN ENTOMOLOGIST**. This is a refereed, illustrated journal devoted to Entomology in the Australian region, including New Zealand, Papua New Guinea and the islands of the South Western Pacific. The journal is published four parts annually.

EMBLEM: The Society's emblem, chosen in 1973 on the 50th anniversary of the Society, is the king stag beetle, *Phalacrognathus muelleri* (Macleay), family Lucanidae. Its magnificent purple and green colouration make it one of the most attractive of all Australian Coleoptera. It is restricted to the rainforests of Northern Queensland.

COVER: Aboriginal stylised depiction of a biological control agent (*Malacorhinus irregularis*) and its host plant (*Mimosa pigra*) on a background piece of torn bark, by Otto Fahey and Soussanith Nokham.

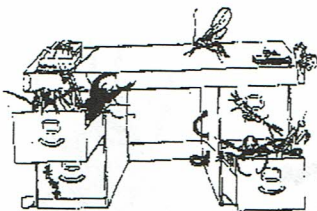


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The cover design is derived from the logo developed for the XI International Symposium on the Biological Control of Weeds to be held in Canberra in April 2003. See www.ento.csiro.au/weeds2003

The issue of this document does **NOT** constitute a formal publication for the purposes of the "International Code of Zoological Nomenclature 3rd edition, 1985". Authors alone are responsible for the views expressed.



*The Entomological Society of Queensland
wishes you all a safe and merry Christmas!!*

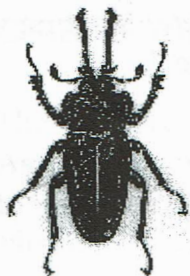
**A Christmas / end of year social gathering will be held
following the December Notes and Exhibits meeting.**

**All members, friends and visitors are invited to share in
pizzas ordered from the Schonell Pizza Cafe**

(a small charge will apply).

Wine and beer will be available.





THE ENTOMOLOGICAL SOCIETY OF QUEENSLAND

MINUTES OF THE GENERAL MEETING: 11 November 2002

Held in Room 257, Goddard Building, The University of
Queensland, 7 October 2002, 7.00 pm.

Attendance: Allan Allwood, Jenny Beard, Frédéric Beaulieu, Karen Bell, Richard Bull, Bronwen Cribb, Bill Crowe, Greg Daglish, Rod Eastwood, Des Foley, Stephen Frances, Jan Grigg, Angela Hatch, Tim Heard, John Holt, Rob Lachlan, Elisha Ladhams, Simon Lawson, Peter Mackey, John Neilson, Sarina Pearce, Carolyn Polsen, Sarah Russell, Matthew Shaw, Dave Walter.

Visitors: Dennis Bell, Andrew Disney, Gaynor Dolman, Gordon Grigg, Conrad Hoskin, Andrew Hugall, Grant Joseph, Karen McNeale, N. Spiller, Rom Stewart, Mark Wade, John Wilson.

Apologies: Ross Kendall, Judy King, John Moss, Andrew Ridley, Margaret Schneider, Myron Zalucki

Minutes: The minutes of the October General Meeting were circulated in the News Bulletin Vol. 30 Issue 7.

Moved: Angela Hatch

Seconded: Bronwen Cribb

Nominations:

The following nominations were received since the last General meeting and are now put before the meeting:

David Lane of Atherton

Dr Darryl Washbourne of Warwick

Roger DeKeyzer of NSW

In accordance with the Society's rules, these candidates will be considered for election at the next meeting.

Elections:

The following nominations were announced at the last General Meeting, and circulated in the News Bulletin Vol. 30 Issue 7.

Gunter Theishinger

Graham Forbes

Les Ring

The nominees were elected unanimously.

General Business:

The Society received a letter from the Noosa Parks Association asking for speakers with an entomological slant to give a talk at one of their regular Nature Discovery Meetings.

Tim announced that the Society's Christmas Party will be a BBQ on at Guyatt Park in St Lucia. THIS HAS BEEN CANCELLED - PLEASE SEE MAIN ADVERTISEMENT FOR CHRISTMAS FUNCTION.

Tim Heard called for one minute silence in honour of honorary life time member of the Society, Pat Marks, who recently passed away.

Main Business:

Tim Low

Invertebrates in the feral future

Unfortunately, a transcript of Tim Low's talk will not be available.

Questions:

Q. You make it sound pretty bleak, is it really worth putting a lot of effort into trying to keep things out? Unless there is a really major recession, world trade just going to get worse.

A. I have a few answers to that, but the most obvious one is, if we can keep out Fire Ants for 20 years then that's a generation of children that can run around in bare feet. Even if something is inevitable in the long-term, it can still be worthwhile in the short-term. What is conservation about - in theory its saving national parks forever, but if you look far enough ahead an asteroid is going to crash into the earth anyway. If you take a completely long-range view, what's the point of anything.

Its amazing some of things we don't have, some of the insect pests, some of the diseases, some of the weeds, and so it does mean that by putting in more effort you can possibly keep some things out for very very long periods of time.

Q. Should we target particularly nasty pests?

A. Generally speaking that is what is mostly done, there are hit lists of things they are looking for.

Q. But that costs a lot of money and constant support, and needs constant funding which it obviously isn't getting.

A. That's why I am here talking, to try and raise the profile of the issue so that it filters through the community, and that Australian tax payers will want to put money into funding it.

Q. You don't think having 3 million Queenslanders stung by Fire Ants might make a difference?

A. There are two problems with that, which I alluded to earlier, one is that it has been covered so badly in the media further south. I had a journalist from The Age ring me up wanting to interview me about something trivial, and I asked 'Why don't you do a story on Fire Ants?' and she said that they had done a story on Fire Ants - 'a' story! So they are not taking it seriously, and I assume its partly because Queensland is wacky, Queensland has cane toads, Queensland's got weird politicians, we don't worry about what goes on in Queensland. But of course, bioclimatic modelling for Fire Ants has shown they will live even where there is snow on the ground, as well as further north.

That's part of the problem, I think, and the other problem is that there is a conservation issue. People like to break the problem down into its constituents, so people will say "My God, we have a Fire Ant problem" and not even recognise that there are a whole lot of other ants we could get, and why stop at ants, there's wasps, diseases etc. So its difficult to convince people to think of invasive species problems like that because it appears in so many guises which are all so different. So there's a long way to go in terms of communicating on this.

Q. Do you foresee a future prospect where the number of species on the planet is reduced to those that are active colonisers themselves and those that have had a helping hand by humans?

- A. No, I think biodiversity on earth will always be very high. New species will evolve, I mean its already happening like with that bug that has changed the length of its beak to feed on seeds. So I think we will get evolution of new things, I'm not that pessimistic. Eucalypts are fairly good weeds overseas, but they are so well adapted to conditions in Australia that it would be really tough for other trees to knock them out. I mean pine has the best chance, ecological analogous, fire adapted etc. But the advantages of having evolved in a climate for a long period of time will often outweigh the disadvantages. And if you look through the literature on invasive species there are very few examples of species going extinct as a result of competition from an exotic invader. You may get things being wiped out by an invading disease, and you get things like foxes targeting certain size marsupials. The example has been given of goats displacing Yellow-footed Rock Wallabies from rocky outcrops, but the evidence for that is very weak, and foxes appear to be much more implicated in that. But the fact is that competition does not appear to be a major mechanism by which things go extinct as a result of exotic invasion, but it tends to be a result of more direct impact. This should give up hope that biodiversity in the world will remain high in the long-term.
- Q. As you are talking to entomologists, you have painted quite a good picture, but this does not take into account the fact the you have not mentioned all the marine invasive species and freshwater invasive species. Then the picture gets pretty bleak indeed.

A. Yes, when I set about writing *Feral Future* I thought this issue is not getting addressed properly. You could write articles, but its not going to be enough, partly because they don't have as much impact. Also, getting to the point that you are raising, there are so many heads on the hydra, it takes hours. I'll have a journalist ring up and say "What do we do about the exotic species problem?" as if its one thing. Some things are coming in deliberately, some things accidentally, some things on the bottom of ships - people don't realise how complicated it is, but yes thank you for pointing out that it is much worse than I said.

Q. I think more people are starting realise that its not just birds and feathery things which are the problem. It was the same problem with cats and even now people are only just beginning to recognise that cats are a problem, and there are still people out there who will not have a word said against the moggie. As for these other less sexy things, which you have to go out and look for, unless its something like Fire Ants which actually come and bite you, people are not going to be aware of it. You need a huge PR campaign.

A. Yes, you can sell nasty bugs pretty well, I think they are marketable. As a naturalist, I am more into vertebrates than I am to invertebrates, I have great affection for butterflies and beetles and so on, but I am really pushing the invertebrates as the ones to watch. But you are quite right, the marine situation is terrifying. And there is a double standard when it comes to water where we would never allow hunting in a National Park but we allow fishing in National Parks. We

degrade our aquatic systems terribly. And we don't give a damn about all this exotic stuff in the water.

Q. I guess one of the things for us that is hardest to deal with is hitchhikers. What really brought it home to me was Asian Gypsy Moth. We intercepted an egg mass not long ago. We put in the insectary, went out into the front garden to get some gum leaves because we did not know what it was, and we reared nearly 100% through. It is really quite scary what is out there, and the pathways for that can be anything - a lawn mower catcher, it can be someone's hat, whatever was around at the time it wanted to oviposit. That is the big problem for us, the things that are on things that people don't take any notice of.

A. Yes, what I found scary in researching it was that every time I would come out to the library, I'd realise it was so much worse than I thought. About half way through I realised that I could pick any topic, like marine, trees in north Queensland, any concept or theme, and if I looked into it, it would end up being so much worse than I thought. And that was just from the Journal literature, and if I actually phoned up people they would say that things have gotten a lot worse since that article was written 2 years ago. What you just said as an example is terrifying, and if I had known that I would have woven in Gypsy Moth wiping out *Eucalypt* forests as part of it. I put a whole lot of effort into it, I mean there are 500 references in the book, but I could of just kept going. You don't finish because you ran out of examples, you finish because people are getting sick of examples.

Q. Do you think there is a way of educating the more energetic part of the Australian community, maybe the people in high schools, to start to recognise these things. I think the older generation would be fairly recalcitrant in there approach towards these things having grown up not having to worry about them and it may be a lot harder to change their views, but younger people are often a lot more motivated about these issues, and I am wondering should we be writing for them?

A. Go for it. I'm spent, I want to stop doing this. As for social change, its happening through the bushland rehabilitation, which is usually a much older age group. So you've got people who are walking their dog down the local creek, they realise there is a little bit of rainforest there, and the Brisbane City Council or whatever local council it is around Australia, is supporting them to rip out the weeds. And then they realise that all of the weeds are garden plants, and that their neighbours are growing some of them. My neighbour started improving the local creek, and I photographed her Brazilian Pepper Bush for a weeds poster, and so she is so embarrassed that she poisoned it. So awareness is coming through that bushland regeneration movement that clearly garden plants are a major problem. When I started the Invasive Species Council I talked about this group and I had immense interest from rehabilitators, like the northern NSW scrub group wants an ISC, and my concern was that they could hijack it and so it just ends up being an anti-weeds group, but the gratifying thing is that it isn't happening at all. I think that it is easy for those people

who are getting radicalised by garden plants to see that Fire Ants are part of it.

Q. From a consumer's perspective, is a radical endpoint the revolutionising of the garden industry, as to what is for sale?

A. Yes, that needs major reform. I talked to the main gardening industry guy in Brisbane about the huge number of new garden plants being imported. When a new garden book comes out. A lot of the stuff we are getting is from South Africa, and North America gets a lot from China - where they crawl all over the mountains to find a new *Magnolia*. They are trying to match climatic zones is a huge problem too. An example from *Feral Future* was how the Perth Botanical Garden put in a Mediterranean Garden section to visitors Mediterranean plants from all different the world, and of course the plants just went straight into King's Park. And what's happening now is that we will get a new gardening book will come out of South Africa, for example the *Ericas* of South Africa, and it'll be bought by certain nursery people in Australia and they'll start importing the stuff. So I spoke to the gardening industry and asked why do we need these new plants, and the explanation was that customers want something new. What we really want is the same trend that is going on in fashion where they have really run out of clothes to invent, so they bring back flares and platform shoes. So what I'd really like to see in the nursery industry is to stop importing and to stop selling plants that are weeds. It does not seem to be such a big problem in Brisbane, but the most obvious

thing at the moment is *Murraya*. Everyone is planting *Murraya* hedges, and its moving straight into rainforest. I think *Murraya* is the fastest moving plant at the moment. It would be incredibly difficult to stop nurseries selling *Murraya*, as it would be one of their fastest moving items. In the last 5 years I have had the woman on one side of my house put in a *Murraya* hedge and the guy at the back has just put in a *Murraya* hedge, and I have it coming up in my garden, and I have seen it right out in a rainforest patch on the Sunshine Coast miles and miles from the nearest houses. So firstly I'd get them to stop selling the big weeds, and get across the idea of a safe list. We've become addicted to newness, we want to see new movies we want new songs, people are feeling a bit depressed so they go to the nursery and come back with a new flower. This is just ecological death, this whole desire for the new. We should just stick with what we've got. My advice for gardeners would be just don't garden. Even the whole push towards native garden plants will probably lead to the next wave of new weeds - its going to be wattles from Western Australia taking off - and people think this is good, a good alternative. The best thing to do is to look at the garden, rip out all the stuff that's clearly a weed, and do as little as possible. I am recommending minimalist gardening. We really shouldn't have nurseries. If nurseries were only being invented now, they would not be allowed. They would not get past the Federal Governments Environment Act. If they didn't already exist and someone says "Hey, lets get this big area of land and we'll have all these weird plants from all over

the world, things that you don't see in your garden and we'll grow then all close together". And the only land that is affordable is going to be on the edge of a forest. There is no way that would be legally allowed. There is a long way to go in terms of changing attitudes. There is still an allegiance of people, particularly in Victoria, who hate environmental weeds and who are really putting a lot of pressure on the nursery industry. Its an area where there is a lot of emotion and energy, there's a lot of change, a lot of education, a lot of fighting battles. Its very volatile.

Q. That's actually one area where there is an alternative to saying you can't have anymore gardens. There are sterile cultivars. That could be enforced, and the government could actually maintain some sort of control.

A. Yes, there certainly are avenues like that that are very good. But you have to watch it, I mean plants can double their chromosomes and go from sterile to fertile. If you look at the 20 worse weeds of international significance, it is amazing the number of those species that are of hybrid origin. Once you start hybridising cultivars etc, you have to watch them. For example, the major weed Singapore Daisy was said to be sterile when it was introduced.

Q. Do you think anybody else is keeping stuff out any better than we are? Or are we better than most?

A. We are definitely better than most. There is a very strong correlation between how badly affected a country is and its response rate. I'd put New Zealand number 1 and I'd put Australia number 2. At

International Conferences, Australian and New Zealand examples are held aloft as the way to go. The north Americans would love to have our weed risk assessment scheme. There are many pests flowing into Miami for example, such as snails and slugs, and then there are all the exotic pets they sell in North America. We may start getting into that soon with liberalisation of laws on pet shops.

Q. Just a comment on your example about Brazilian Myrtaceae, of course the Brazilians are just as worried about the flow in the other direction, of Australian eucalypt insects getting into their plantations.

A. Of course lots of Australian insects are moving very fast. In *Feral Future* I would have loved to have included examples of Australian invaders overseas. I grew up with that ecological cultural cringe, and the idea of Australia as being primitive and backward, and that's why we have all this exotic stuff. But what about the major crop pests we have exported, for example the scale insects, tobacco disease, there's a huge number of insects on a vast range of crops that have originated in Australia. And New Zealand as well is a major exporter of pests. Its true globalisation. That book by Crosby about European ecological imperialism is complete junk, its totally misleading. There are things going everywhere from everywhere else. He spoke about things coming from England colonising the English empire, but half the things he talked about are not native to England, black rats, rabbits, hares, pheasants, house mouse. None of these are in the

English fossil record, they have all come in since the Roman times.

Vote of thanks: Professor Gordon Grigg

What can I say about your talk? Thought provoking? Frightening? Veracious? All sorts of things. I reminded a little bit when I think of you and your career about hearing a talk from a guy called John Pickard. He gave a paper at the Centre for Conservation Biology conference here, and he addressed an audience of about 150-200 people, and he said "Hands up everybody here who has published a paper in the last two years". Practically everybody put there hand up. He said "Now, keep your hand up if it was in Woman's Weekly, Woman's Day, Rolling Stone" etc., and of course every hand came down. "You've all been wasting your time, the people to convince aren't the people who are the converted its the people that don't know about these things". Now tonight you've been talking to the converted, but I know you also talk a great deal, and through your writing, and in natural history magazines and every other opportunity you get to try and push this message to the public at large. I salute you for that. With regards to your comments about the quarantine inspectors, I am quite happy to tell you that in fact a lot of the things that were being done weren't really being done properly. I strikes a chord with me, I heard about a half a dozen stories now from the people on the Fire Ant Eradication Team who say "Well, you know all they did was they insisted for political reasons that it was the long-term unemployed who were put on the job to spread the insecticide and so on, but of course what a large proportion of them do is go and scatter

the stuff off, get rid of it as quickly as possible, and don't trudge over into the gullies and get rid of it properly". So whether or not that is true, whether its an urban myth, I've got absolutely no idea, maybe you do, but there is often a very big gap between the window dressing that we are presented by governments and the reality. I recently went to a big media event, I didn't realise it was a media event at the time, in a suburb that will remain nameless, and the minister was coming along and it was something to do with local community Fire Ant watch something or other and people were being recruited. We went along and we had a sausage sizzle and the minister arrived and gave his speech. As soon as the minister arrived the cameras sprang into action and media people ran around taking notes, and as soon as the minister left, so did everything else. And the whole thing was clearly designed to be nothing than more than an event for the media to convince the populous that everything was going to be OK with Fire Ants because the minister had it firmly in control and we were going to eradicate Fire Ants. And of course and the reality it quite different from what you have been presenting. And again I salute you for the stand that you take. The last thing I suppose is something slightly more philosophical to say, you alluded to it yourself. You said you had a lot of faith that species would continue to evolve and somebody might well say: Well humans are part of the process. We are animals. We're all part of biology, this is just one part of the natural process. We're gonna rock on, things will be different, they will change, maybe there will be a different sort of biology that we are going to see, but its not the end of biology. It might be the end of the *status quo*, personally I like the *status quo*. But its probably the end of it, and its sad,

I guess, from many respects, but something that you didn't mention, and may still be worth mentioning, is that my suspicion is that this century is going to be the one that sees the greatest amount of transmigration of humans between different societies, between different nations, different continents and so on, and who knows where that is going to end. Tim thanks very much for a very thought-provoking talk, and congratulations.

Transcript of October presentation:

Greg Courtney

Mountains, midges and monsoons: biosystematics of torrenticolous flies

My research focuses on aquatic entomology and the systematics of Diptera, especially (1) phylogeny of nematocerous Diptera; (2) phylogeny and zoogeography of aquatic flies; (3) structural and ecological adaptations to aquatic habitats; (4) systematics and ecology of torrenticolous insects; and (5) faunistics of unusual aquatic habitats (e.g., hyporheic zones, phytotelmata). This presentation will provide an introduction to torrenticolous habitats and the diversity and adaptations of resident insects. I also will discuss research on the biology and systematics of several torrenticolous Diptera (e.g., Blephariceridae, Deuterophlebiidae) and on ongoing projects in Southeast Asia.

Torrential streams are a common feature of mountainous areas throughout the world. These streams often contain numerous waterfalls, cascades, rapids, and other torrenticolous habitats, which typically have coarse substrata, high current velocities (>1

m/s), cool temperatures, and well-oxygenated water. Depending on watershed characteristics, torrential streams also can show dramatic fluctuations in discharge and seasonal shifting and scouring of substrata. Torrenticolous insects show a variety of adaptations to life in high current velocities, including: (1) flat body shape and small size, both of which permit entry into the lower velocities of the boundary layer; (2) streamlined body shape, which decreases drag; (3) appendages that bear stout claws, grapples, hooks, or other specialized attachment devices such as friction pads and suctorial discs; and (4) avoidance of current by residing in retreats or crevices, and between or beneath stones. Groups demonstrating these adaptations include all major aquatic insect orders. Among the better known are certain Ephemeroptera (e.g., many Baetidae, Ephemerellidae, Heptageniidae), Coleoptera (e.g., many Dryopidae, Elmidae, Psephenidae), Trichoptera (e.g., many Brachycentridae, Hydropsychidae, Rhyacophilidae), and Diptera (e.g., all Blephariceridae, Deuterophlebiidae, Simuliidae). Torrenticolous Diptera are the primary focus of my research and this presentation.

Selected groups of torrenticolous Diptera

Net-winged midges (Diptera: Blephariceridae) are one of the most distinctive and specialized torrenticolous insects. The family contains approximately 300 described species in 29 genera, with representatives on most major continents (except Antarctica) and several continental islands (e.g., New Zealand, Sri Lanka, and Madagascar). Despite their wide distribution, distinctive appearance, and frequent collection, there are many undescribed species, especially in the Oriental and Neotropical regions. The immature stages of these flies are remarkable in their adaptations to and intimate association with torrential streams, where larvae graze on epilithic algae. Larvae show many adaptations to torrential habitats, including six ventral suctorial discs, which function as hydraulic suckers and allow for secure attachment to

current-exposed substrata. Other unusual features include a fused head, thorax, and first abdominal segment (= cephalothorax or cephalic division), which keeps the anterior larval body compact and close to the substrata while the larva is feeding. Pupae also are adapted to torrential streams, being dorsoventrally compressed, streamlined, and attached immovably to rocks by 3-4 pairs of ventrolateral adhesive discs. Adult blepharicerids are slender-bodied, long-legged, and show a diversity of habits. Females of many species are predaceous, feeding primarily on other insects. Females of other species and males of most species are nectarivorous. Although often considered rare, blepharicerids can be a significant component of many stream ecosystems. Densities can exceed 1000/m², making blepharicerids both a dominant grazer and one of the most abundant insects. In some streams, net-winged midges also can be an important food for certain fish. Furthermore, because blepharicerids generally inhabit clean, cool, well-oxygenated streams, these flies are potentially sensitive indicators of water quality.

Mountain midges (Deuterophlebiidae) are another unusual and distinctive family of torrenticolous flies. The group contains only 14 described species, including six from western North America and eight from Asia. Additional undescribed species are likely in Asia and perhaps elsewhere. Although generally associated with torrential streams, these flies but range from cold, mountain streams (most species) to ephemeral, semidesert streams. Larvae and pupae show many morphological adaptations to life in current, including eversible, crochet-tipped larval prolegs and markedly flattened pupae. Both life stages are restricted to riffles where current velocities typically exceed 1m/s. Adults have broad, fan-shaped wings and vestigial mouthparts, and show striking sexual dimorphism. Adult mountain midges survive for only a few hours and exhibit marked diel synchrony, with emergence, flight, and mating during only the early morning. The entire flight period

lasts approximately two hours, with most activity during a 30-45 minute period. Subsequent to mating, females shed their wings as they crawl beneath the water to select oviposition sites.

Nymphomyiids are another small group of flies, both in size (<2mm body length) and diversity. The family contains only seven described species, five from eastern and central Asia and two from eastern North America. Most species occur in small, cool, headwater streams, usually on moss-covered rocks. Larvae are distinct in their possession of elongate, ventral, crochet-tipped prolegs on abdominal segments I-VII and the anal segment. Larvae appear to be grazers or collector-gatherers, feeding on thin films of algae and other organic matter on current-exposed substrata. Adults also are morphologically distinct, characterized by a larviform appearance, vestigial mouthparts, ventrally contiguous eyes, and wings that are narrow and fringed with long macrotrichia. Although adults possess wings at emergence, few details of flight behaviour exist. Data on several species suggest that adults mate soon after emergence, crawl beneath the water *in copula* (losing their wings in the process), and the female then lays a rosette of eggs around the coupled bodies. Adults of at least some species die *in copula*. The vestigial mouthparts and poorly developed digestive tract suggest an ephemeral adult life.

Moth flies (Psychodidae) are another dipteran group that sometimes is considered "torrenticolous." Although the larvae of most genera (e.g., *Pericoma* Walker, *Philosepedon* Eaton, *Psychoda* Latreille) occur in depositional zones and relatively protected habitats, those of at least two genera are adapted for life in and around torrential streams: *Maruina* Müller and *Neotelmatoscopus* Tonnoir. The larvae of these groups possess highly modified friction pads along the ventral margin of the abdomen. In *Neotelmatoscopus*, these pads are circular in shape

and reminiscent of (but not homologous to!) the suctorial discs of blepharicerid larvae. Both *Maruina* and *Neotelmatoscopus* are common in mountain streams, where the immature stages frequent the splash-zones of waterfalls and wetted margins of emergent rocks. Larvae are grazers, feeding primarily on epilithic algae.

Current research on torrenticolous flies in Thailand

The biota of Thailand is one of the richest, most endemic (unique), and most endangered in the world. Concerns about deforestation and the loss of biodiversity has prompted conservation organizations to identify Thailand and surrounding areas as a biodiversity hotspot, underscoring the richness, endemism, and immediate threat to the biota. The mountains of northern Thailand represent the southeastern edge of a montane corridor that extends northward to Nepal, and interdigitate with an extension of the tropical rain forest farther from the equator than anywhere else in the world. Consequently, northern Thailand is a nexus where typically northern and southern taxa have invaded biogeographically extreme latitudes. Concern about deforestation, pollution, watershed degradation, and attendant loss of aquatic species has led to an acute interest in Thailand's aquatic insects and in their potential use as indicators of water quality. These and other considerations have prompted me to undertake a variety of projects in this region.

Among my current research projects is a biotic survey of lotic insects of northern Thailand. The project includes sampling through a variety of methods, including Malaise-trap, black-light, and aerial collection of adults, rearing of larvae and pupae, drift-netting, and qualitative and quantitative sampling of riffles, depositional areas, rootmats, and other habitats. Although we are collecting material from throughout the region, several sites have been selected for more frequent (i.e., monthly) inventory. Our

research team includes insect taxonomist from the United States, Thailand, and Europe, and provides expertise on all major aquatic groups. The primary objectives of this survey are to: (1) discover and describe new species of lotic insects; (2) document the distribution, relative abundance, and natural history of lotic species; (3) associate and construct user-friendly keys to lotic taxa; (4) develop a database and web site for faunal, distributional, and ecological information. This study will provide a comprehensive inventory of lotic insects from northern Thailand, greatly enhance our knowledge of Southeast Asian biodiversity, and create an authoritative reference collection for educators and researchers in aquatic entomology and systematics. Data on the diversity, distribution, relative abundance, and natural history of aquatic insects will provide insights into potential bioindicators of water quality and permit identification of areas of local endemism and sites of phylogenetic and biogeographic significance. All of these will strengthen aquatic entomology and insect systematics programs in Thailand and have important implications in the conservation and management of the region's streams.

Questions: (reprinted from last month)

- Q.** You showed an SEM of some mandibles that have been worn down- do you have any information on extra hardening incorporating metals or calcium into the cuticle as this would be an ideal environment for such a modification to occur?
- A.** I certainly haven't heard of any and I haven't looked at it but blepharicerids would be a likely candidate.
- Q.** Do the mandibles look darker or are they essentially the same colour as the rest of the cuticle?
- A.** Yes, much darker , usually black and much more heavily sclerotised.

- Q. Since the larvae are long-lived and the adults are so short lived, are there any that have dropped the aerial stage altogether and the adults stay emerged?**
- A. No, they all fly. They tend to be fairly asynchronous in terms of their entire emergence within a given season but within a given day they emerge from a stream within a few hours of sunrise. I should qualify too that the larvae aren't really all that long-lived as very few live more than a month. Some of the winter species of blepharicerids live a little longer eg. one species hatches in late August and pupates in April but most aren't that long-lived. Most are also univoltine.
- Q. What stage do they spend most of their life cycle in?**
- A. Egg diapause in the summer or winter or a combination of both.
- Q. Where do the females lay their eggs?**
- A. Most lay on rocks in the splash zone although some crawl under rocks in the water.
- Q. The males you mentioned have very long antennae: what do they use these for?**
- A. I get this question all the time. They are agile flyers and if it is a single male they will fly in a zig-zag fashion in an upstream direction and when they meet other males they swarm in a group zigzagging. I don't think the antennae are in any way an adaptation in not getting stuck with the water tension as there are no hydrofuge hairs such as there are on the legs so the legs probably serve this function. The antennae do have sensilla especially on the tip and perhaps they use the antennae to help space themselves in the swarms. I don't really know. The females fly in a different manner and very briefly. Most of the ones you catch sweeping are males and I think this is as the females mate and then head straight for the water spending the rest of their

lives ovipositing. They mate aerially – we know that as I have caught a few mating pairs on the wing.

Q. How large are the blepharicerid pupae?

A. They range from 3mm to 6-7mm.

Q. What stage would be predated upon?

A. All stages would be predated upon and the predators would be different for all stages. The main predators for pupae would be caddis flies which will also take larvae. Stoneflies and I would guess that odonates and possibly naucorids would take the larvae too.

Q. Would odonates take the adults?

A. I would guess they could but not all blepharicerids swarm as most adults are resting on the underside of trees or rocks.

Q. What is the difference between the hydrolic sucker and a friction disc?

A. With the friction disc it is the shape generating a lower pressure above it and the suction is therefore created by the shape alone whereas in the hydrolytic sucker a muscular piston distorts the structure and creates suction that way.

Vote of thanks:

Margaret Schneider

Notice of next meeting

MONDAY 9th December, 2002

Room 388, GODDARD Building, U.Q

Matthew Shaw: Puny Parasites: some interesting new mites

Michael Ramsden: new CD of forest surveillance

Don Sands: collecting permits for entomological society members

John Moss: two moths of note



**Don't forget the Christmas function
immediately after the meeting!!**

Nominations for 2003 office bearers of the Entomological Society of Queensland

Members are invited to use the following form to nominate office bearers for the Entomological Society of Queensland inc. for 2003.

Nominations should be referred to the secretary at the address listed on the back cover of the News Bulletin.

A list of nominations received will be circulated in the News Bulletin, and an election held at the Annual General Meeting in March 2003. In the absence of a nomination for any particular office, the president may receive nominations at the Annual General Meeting.

Positions to be filled are as follows:

- Senior Vice President
- Honorary Secretary
- Honorary Treasurer
- News Bulletin Editor
- Councillors (3 positions)

The Entomological Society of Queensland functions effectively because members play an active part in the Society. All members are encouraged to nominate for positions on the Council of the Society. If you want to know more about any of the Council positions, please contact one of the existing Council members listed on the back cover of the News Bulletin.

OFFICE BEARER NOMINATION FORM

I nominate (name)

.....

For the position of

- ☐ Senior Vice President
- ☐ Honorary Secretary
- ☐ Honorary Treasurer
- ☐ News Bulletin Editor
- ☐ Councillor

On the Council of the Entomological Society of Queensland inc.

Nominated by

.....

Seconded by

.....

I accept the nomination

.....

(nominee signature)

Entomological Society of Queensland

2003

\$250 student Award

This is an award by the Society to encourage entomological research. Entries are judged by a panel of three entomologists appointed by the President of the Society. The winner will be announced at the May General Meeting and is then invited to present a summary of their research at the June Notes and Exhibits meeting of the Society.

Honours, Diploma and 4th year Degree students at any Queensland tertiary institutions may submit their thesis or report on an entomologically related topic examined during 2001 or 2002 for judging of this award.

Entrants need not be Society members

Theses or reports should be directed to the Society's Secretary at the address listed on the back cover of the News Bulletin.

Student Award Sponsors

Centre for Identification and Diagnostics, University of Queensland

Pest Management Research, Department of Natural Resources

Tropical Fruit Fly Research Group, Griffith University

ENTOMOLOGICAL SOCIETY OF QUEENSLAND
2003 STUDENT AWARD
ENTRY FORM

Name

.....

Title of thesis or report

.....

.....

Degree

Institution

.....

Supervisor(s)

.....

Date of Examiners reports or grading

.....

Address for return of report

.....

.....

Signature

date

.....

Send the thesis or report and entry form to:

Dr Jenny Beard

The secretary, Entomological Society of Queensland

C/- Department of Zoology and Entomology

University of Queensland St Lucia, 4072

Queensland Entomological Society

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The email version of the Bulletin

The Bulletin will be available by email for the remainder of the year to anyone who requests it. I stress that this would be an additional option and the hard copy version of the Bulletin will still be available to those who wish to continue receiving it.

Please contact me on (07) 33102810 or Cas.Vanderwoude@dpi.qld.gov.au to be added to the email distribution list.

Cas Vanderwoude
(Editor)

download the latest version of Adobe reader (free) at
<http://www.adobe.com/products/acrobat/readstep2.html>

Corrections to contact details on back cover

Please note that the following changes to contact details of Society office bearers:

Dr Tim Heard's correct telephone number is (07) 3214 2843

Dr Jenny Beard's correct telephone number is (07) 33657085

e-mail J.Beard@zen.uq.edu.au

Contact details for Dr Bronwen Cribb:

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With the departure of Heather Proctor for Canada, Dr Manon Griffiths has kindly agreed to assist the committee at monthly meetings. Her contact details are:

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SOCIETY SUBSCRIPTION RATES

- ORDINARY:** Persons resident within the municipality of Brisbane - \$26pa (\$23 if paid by the AGM)
- COUNTRY:** Persons resident elsewhere - \$24pa (\$21 if paid by AGM)
- JOINT:** Couples in either of the above two categories who share a copy of the *News Bulletin*, but each otherwise have full membership privileges.
Ordinary \$33 pa (\$30 if paid by AGM)
Country \$30 pa (\$27 if paid by AGM)
- ASSOCIATE:** Students and others at the discretion of the Society Council, \$18 pa (\$15 if paid by the AGM). Associate membership conveys full membership privileges, except the right to vote on the conduct of affairs of the Society, to hold office and to nominate new members.

THE AUSTRALIAN ENTOMOLOGIST SUBSCRIPTION RATES

- AUSTRALIA:** Individuals A\$16 pa Institutions A\$20 pa
ELSEWHERE: Individuals A\$20 pa Institutions A\$22 pa

Subscriptions should be sent to the Business Manager, *The Australian Entomologist*.

Sustaining Associates

Tropical Fruit Fly Research Group, Griffith University
Pest Management Research, Department of Natural Resources
Centre for Identification and Diagnostics, The University of Qld

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NOTICE OF NEXT MEETING

The next meeting of the Society will be held at 7.00 pm on **9 December 2002 in Room 388, Goddard Bldg.** Refreshments will be served before the meeting at 6.30 pm in the tea room on level 2 of the Goddard Bldg. **A CHRISTMAS GATHERING WILL BE HELD AFTER THE MEETING - see main advertisement on Page 157.**

VISITORS ARE WELCOME