

Chalcid Forum

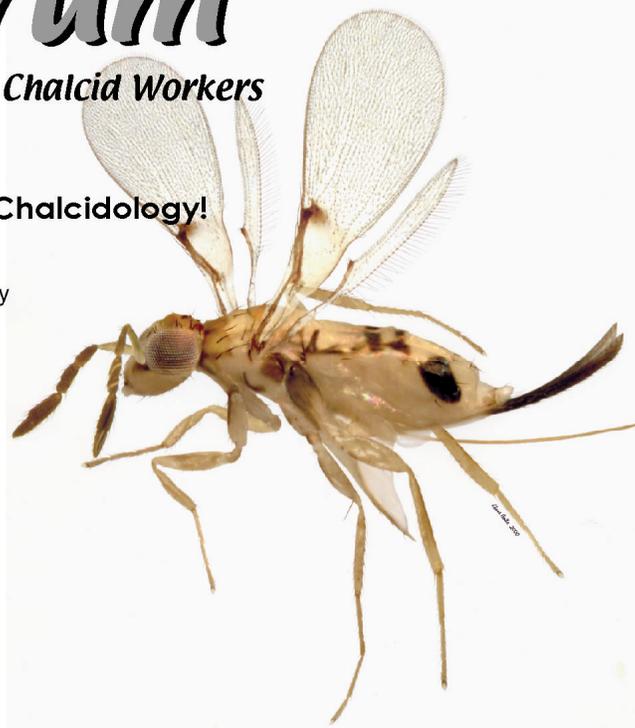
A Forum to Promote Communication Among Chalcid Workers

Volume 25. April 2003

Silver Jubilee Issue Celebrating 25 years in Chalcidology!

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Welcome to the 25th issue of Chalcid Forum - This issue our masthead features *Xiphogramma* sp., another superb digital photo by the incomparable Klaus Bolte, CFS, Ottawa, courtesy of John Huber. This and all prior issues of CF are available on the SEL web site at www.sel.barc.usda.gov. Many thanks to Mike Gates who shouldered much of the burden of producing this issue.



Two Titillating Tomes

Specimens Available

Over the past several years, Stuart Fullerton of the University of Central Florida, has been running a series of traps in the Orlando, Florida area. He has amassed thousands of parasitic Hymenoptera, which could be a potential treasure trove of chalcidoids. (At least 1 new species has been described from this material). He's been sending me a major portion of the microhymenoptera, which I've sorted to family. I've sent a few of these groups on to other researchers, and returned the remainder to Stuart.

Stuart's project receives almost no support from the University, and is run on a shoestring budget. Unfortunately, to date he does not have access to a critical point-dryer, and many of the delicate specimens show it. But he still has unsorted backlog in 70% alcohol. If you are interested in seeing this material, you can contact him at: stuartf@pegasus.cc.ucf.edu

-Bob Zuparko

Heraty, J. 2002. A Revision of the genera of Eucharitidae (Hymenoptera: Chalcidoidea) of the World. Memoirs of the American Entomological Institute 68: 367 pp.

This generic level revision provides both keys to the genera and species in selected genera, plus discussions of taxonomic and phylogenetic interrelationships for 53 genera. Thirteen genera and 37 species are described as new and 34 new combinations are proposed. Catalog-style listings are included for 413 species under the appropriate genera. Phylogenetic hypotheses for relationships among the eucharitid genera are based upon parsimony analyses of 100 morphological characters.

Hansson, C. 2002. Eulophidae of Costa Rica (Hymenoptera: Chalcidoidea), 1. Memoirs of the American Entomological Institute 67: 290 pp.

The first in a planned series of monographs in Neotropical Eulophidae, treated in subfamily units. Seven genera and 146 species of the subfamily Entedoninae are treated and specific keys provided.

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Chalcidoidea Website Proposal: A Call for Information

A strict consensus has emerged from recent discussions among concerned chalcidologists at a centralized, web-based clearinghouse of information be established for disseminating information on Chalcidoidea. The first step in this process will be the creation of information pages on researchers, workers and students in Chalcidoidea. Jim Woolley and Brian Urbaine of Texas A&M University have agreed to host the site on their server on campus. I have offered to receive the information from those interested in participating and placing it into a standardized template. These templates can then be uploaded to the website. Those interested in contributing, or having any questions about what is involved, please contact Mike Gates at: mgates@sel.barc.usda.gov, (202) 633-8164. The following information is required (MicrosoftWord 2001 or earlier document format):

- 1) Contact information (address, e-mail, phone, etc.).
- 2) Research interests (present & future work).
- 3) Selected publication (most important and/or recent).
- 4) 2"x2" photo of your head (anterior view; .jpg format).

Those not wanting a photograph posted online will have "Photo Unavailable" in its place. If you do not have access to a digital image of yourself, let me know and we will make alternate arrangements.

Thanks!
- Mike Gates

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World Chalcidoidea (Insecta, Hymenoptera) Database CD-ROM: Reviewed

J. S. Noyes. 2002. Interactive Catalogue of World Chalcidoidea 2001 (2nd Edition). CD-ROM. Taxapad and the Natural History Museum. US\$190.00 (+S/H).

The long-awaited sequel to the 1998 first edition features the superfamily Chalcidoidea, a large taxon of parasitic Hymenoptera. This catalog continues to be an absolute must not only for workers in taxonomy and systematics of Chalcidoidea, but also for those working in biocontrol, forestry, agriculture or having a general interest in parasitic Hymenoptera. This CD sets the bar quite high for chalcidologists and I have found it to be an incredibly useful tool for research. Like the first version, the second edition is only PC compatible (Windows95 or later) with Mac users again relegated to using "SoftWindows" or "VirtualPC" in order to use the CD-ROM. However, this is not as much of a problem in terms of quick access with the faster Macs and drives of today.

This CD, current to May 31, 2001, covers a vast amount of informational territory contained within 39,154 references pertaining to 21,502 valid species names plus 110,000 host and 110,000 distribution records. Each taxon has an information window that displays the original and valid names as well as having tabs allowing access to taxonomic, biological and distribution information. Clicking a tab yields information specific to that tab, thus the taxonomy tab provides the original reference, type status and nomenclatural history while the biology tab divulges hosts, host plants, associates, parasitoids, biocontrol, etc.

The image library has expanded to 351 (from 317) original photos of chalcidoids alone or interacting with their hosts. These pictures can be printed, but not saved for other uses. Dumping the on-screen image makes it available for use in other applications. New features not found in the first version include both a distributional mapping capability and enhanced searching abilities that allow one to search for host or

parasitoid by any taxonomic level. The mapping feature allows visualization via three projections: cylindrical, global or equal distance (zoom in). Although fairly generalized, this is still a useful feature for quickly assessing and printing taxon distributions. Green and yellow identifier icons, when clicked, allow for the addition/deletion of geographical points and the redrawing of the distribution map. Further, many corrections and additions have been made. To test this, I referred to a review of the 1st version written by John LaSalle (Chalcid Forum 21: 2-5) to see if corrections and complaints had indeed been corrected.

1) Synonymy in *Cirrospilus* (Eulophidae): the 1st version listed 3 genera that had never been considered synonyms of *Cirrospilus* (*Pseudochrysocharis*, *Achrysopophagus*, *Chrysonotomyia*). This has been corrected as has the misleading "SYNONYMY" listing under the taxonomy tab, which was a synonym history rather than the ACTUAL synonyms and is now "SYNONYM HISTORY". Still, one is required to click on the "rose" button at the top of the information window to obtain current synonyms.

2) Multiple searches from Chalcidoidea table: a search (after selecting Eulophidae in the Chalcidoidea table) on eulophids attacking *Liriomyza* in China (process detailed on pg. 78-79 in instruction manual) yields a list of known taxa. However, when the order of the search is changed and one searches on China then *Liriomyza*, the resultant list of taxa is different. This is the same problem encountered during the review of the first version of the CD-ROM. The one difference being that in this instance all of the differences were for generic- or subfamily-level hits; all of the specific taxa hits were identical for both searches, thus all of the specific taxa representing the higher taxa omitted in the first search were included. Further, the Chalcidoidea table is still the only table that allows multiple searches. For example, I can enter the Diptera, Brachycera database via the control window at the top of the screen and search on *Odontomyia* to obtain a list of species associated with Chalcidoidea. By highlighting all *Odontomyia* species and clicking the list of taxa button, I can isolate, print

or save these names but cannot perform statistics or referencing functions. Thus, I cannot obtain a list of chalcidoids known to attack these hosts in this manner. The workaround is rather laborious: one must enter the Chalcidoidea database through the control bar, select the "Biology" tab, click on "host", search the local index for "Stratiomyidae-*Odontomyia*" (still cannot obtain statistics or search on *Odontomyia* here) and click on each name (every genus and genus + species) to bring it up in the information window on the left side of the screen. Then it is possible to click the "X" (search other modules) button for EACH taxon to obtain a list of parasitoids associated with each species of *Odontomyia*. This information can only be printed, not downloaded, and it is not possible to obtain a list of the Chalcidoidea associated with a host genus. This is my main gripe about this CD-ROM. It would not be so bad if it were possible to simply search other modules for a particular host genus to obtain ALL of the chalcidoids known for that host genus AND its included species on one screen. As it stands, there are differences in chalcidoid taxa associated with *Odontomyia* at the generic level versus, for example, *Odontomyia pubescens* that is parasitized by a pteromalid not included on the generic screen. I would love to see screens listing chalcidoids associated with a particular host also list all of the chalcidoids documented on host species within that genus, perhaps distinguishing these records with the host species listed parenthetically after the chalcidoid taxon that could be linked to the specific record. The only other concern that I have would be the reporting of statistics if some hosts are recorded for a chalcidoid at the species level but not at the generic level or vice versa?

3) Downloading: facilities for printing lists directly and saving lists to flatfiles have improved considerably since the last edition. For example, it is now possible to print and/or download statistical overviews, lists of taxa, taxonomic trees, etc. not possible in the first edition. Two of the concerns from the earlier review concerned the inability to download statistical summary information (e.g. the number of genera and species in a given subfamily) or the hierarchical "taxonomic tree". Now, it is possible to print statistical summaries (but not download) and save particular taxonomic trees.

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4) Cut and Paste: this continues to be a problem since the ability to cut and paste information would be of great utility for quickly obtaining a reference. Instead, it is necessary to save a flatfile, open it in a text editor and cut and paste from there, print out a hard copy for future reference and hand typing or, finally, flipping back and forth between screens to type the information of interest.

Most of the errors that I found include small inconsistencies or omissions of literature. An instance of the former occurs when I selected the eurytomid *Sycophila mimosae* in the local taxonomic index window of Chalcidoidea and found that it is a parasite of *Tanaostigmodes*. However, when I searched on *Tanaostigmodes*, I did not find *S. mimosae* listed as a host at the generic level as it had been listed for *S. mimosae*. This could be problematic for those searching for host information by host or parasite alone in terms of acquiring all of the information available. Examples of omissions are not necessarily difficult to find given that the roughly 40,000 references included on this CD-ROM deal primarily with taxonomic literature rather than references on biocontrol or general biological topics. In that respect, searching for articles in obscure journals that only reference a chalcidoid taxon once or twice simply to find a flaw in such a monumental work is grossly unfair, but I'll do it anyway. For example, an article by Murlidharan (1993) from the Plant Protection Bulletin concerning the scale insects of date palm in India mentions several chalcidoids as parasitoids of these pests, but was omitted from the CD-ROM references. Levity aside, I include this because Noyes contacted ME for the reference once he knew that I had it. He continues to scour the literature, constantly updates the database and is definitely amenable to receiving and incorporating such omissions into the latest version of the database.

Finally, I must wholeheartedly recommend this CD to those having an interest in Chalcidoidea. It is a very useful tool despite any shortcomings and high price, although the sheer quantity of information and the effort that went into making it available justify the price in my opinion. I await the third edition with

chalcid breath...

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Twenty-five Years, but Who's Counting

Eric Grissell
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Washington, DC

Twenty-five years! Time does fly slowly when you work for the Federal Government. From paper and pencil to electronic keyboard; from electronic keyboard to enormous piles of laser printed paper—the cycle seems to get ever more effortlessly cumbersome. The "paperless society" certainly has found ways to produce paperwork faster than it used to, and has somehow turned into the society of "infinite accountability": minute-by-minute record keeping so that the higher-level folks, who really have no job, can say that we (who work for a living) are doing ours properly. Ah, for the good old days when a pencil meant something and you could write something down without having to write down that you were writing something down so that your boss had a record that you actually had written something down and were not trying to fool him/her. Life has clearly become more complicated since Chalcid Forum was born.

The world of chalcidology has changed tremendously since those early days when light was first discovered and people weren't born with plastic water bottles sprouting from their hands. We all worked blindly with scarcely any keys, any specimens, any teachers, or any comrades with whom to commiserate on our sorry lots in life. Zdenek Boucek, the Father of Modern Chalcidology, and mentor to us all, was our only source of comfort. We worked on the finest, funnest most interesting group of insects on earth, and hardly anyone else knew it. Now everyone knows it and rejoices each time another new paper is published.

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OK, I exaggerate just a bit. Perhaps I'm dreaming. We, here in the Nearctic, have cause for celebration in the wonderful opus *Annotated Keys to the Genera of Nearctic Chalcidoidea* spearheaded by the vivacious Gary Gibson, the distinguished John Huber, and the dapper Jim Woolley. The results of that endeavor will be of lasting use to all in this region. It will not soon be duplicated—imitated, perhaps, but not duplicated. Throughout the world, many fine regional keys and catalogs of chalcidoids have been produced, not to mention a few world family overviews. But still, the award for the most dedicated of all chalcidological endeavors must go to that paragon of the stiff-upper-lip, John Noyes and his summation of world chalcidoid knowledge. What a remarkable achievement by a single person—truly amazing and awe inspiring (but don't tell John, his head might pop). I would not have thought it possible. Undoubtedly somewhere in that huge mass of data is the "Theory of Everything", or at the very least an answer to the question about "Life, the Universe, and Everything" posed by Arthur Dent in Hitch Hiker's Guide to the Galaxy. I will keep searching for that bit of knowledge until my fingers give out.

Whatever the case with the Universal Grail, we are now closer to the Unholy Grail of chalcidoid phylogeny than we've ever been (or may ever be, if the job market doesn't start proffering more opportunities for new students). And yet we still don't seem to know very much about chalcidoids? We've tried cladistic analyses with varying unsatisfactory results. We've learned that paraphyly is probably better than no phyly at all. And we've learned that whether using morphology or dnaology, the more we learn, the more confused we seem to get. The good news, however, is that we chalcidoid-lovers are made of stern stuff and we keep on going, not unlike that famous chalcidoid purveyor—A. A. Girault. And we do this in spite of ourselves and every major disappointment known to humankind. Within the next twenty-five years of research we may yet stumble across the Rosetta stone of chalcidology. It would be nice if someone could figure out a reasonable hypothesis of chalcidoid relationships—the sooner the better. Regrettably (or maybe thankfully), if the answer does not come soon, I will have forgotten what a chalcidoid is. I am already beginning to forget what it is that I started out to say. Something about

twenty-five years and counting, I think. Does anyone recall what I was counting? I've forgotten.

Hosts and Ranges

Welcome to a new feature that is hoped will be an at least semi-regular occurrence in the pages of Chalcid Forum. We will be offering new host records, range expansions, introductions, etc. of general interest to the CF readership, but not necessarily of interest to a broader audience, say, in the form of a formally published scientific note. If anyone has an interesting range extension or host record that you'd like to share, please send your submissions in to one of the editors. Here goes...

Eulophidae:

Platyplectrus americana (Girault): Clark Co., VA, Shenandoah Valley, Red Gate Farm, 24.vii.2002, C. Lowe. Ex larva of *Packardia geminata* (Limacodidae) (USNM). Although known to attack limacodids in SE Asia, this is the first Nearctic record for our single species.

Pteromalidae:

Monoksa dorsiplana Bouček: Riverside Co., CA, University of California, Riverside Botanical Gardens J.W. Kim, emerged from seeds of *Acacia farnesiana*, 30.x.1997 (UCRC). The insect host, certainly a bruchine beetle (Chrysomelidae), was not kept. This is the only described species of the genus, and has been previously recorded from Israel and South America.



Figure 1. Head of female *Monoksa dorsiplana*.

Thanks to M. Gates & R. Burks, respectively, for this year's contributions.

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Trip Reports I

Michael Gates
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Southwestern New Mexico's Gray Ranch and

Puerto Rico: During the past year, I was fortunate enough to spend a week in two interesting localities. I spent the second week of August, 2002 with some colleagues from Riverside, CA at the Gray Ranch. This 500 square-mile parcel abuts the Mexico border and contains the Animas Mtns (up to ~8,500'), sand dunes, swampy impoundments and riparian areas, among other interesting habitats. Biotic influences are primarily Madrean/Chihuahuan with some Rocky Mtn elements thrown into the mix. We stayed in an old adobe homestead equipped with hot water, gas, a full kitchen and plenty of room to spread our rearing equipment. Our days were spent running yellow pan traps, malaise traps and sweeping while our nights were spent processing samples and polluting our bodies. We probably wound up with a few thousand chalcidoids and hope to return soon.

I presented at the Pink Hibiscus Mealybug (PHMB) Workshop (with Douglass Miller, USDA-ARS-SEL) in San Juan, Puerto Rico during the third week of October. Although there on "business", we spent about 2.5 days collecting various habitats: coastal mangroves, low dry forest remnants, higher moist forests and urban planting in downtown Old San Juan. All were fairly productive for sweeping and I learned a lot more about the ubiquity of scale insects since Doug was on hand. We stopped in Mayaguez at the USDA South Atlantic Tropical Agriculture Research Station whose impeccable grounds contained hundreds of identified representatives of tropical crops and ornamentals. We obtained hundreds of "protein bags" (scales) that we wound up setting up for emergence in our hotel room, administering to them each evening. Surprisingly, our jaunt through the urban plantings yielded dozens of chalcidoid species, including some of the encyrtid taxa released against PHMB. I look forward to returning some day...

Research Tidbits

Gary Gibson (Biodiversity Theme, Agriculture & Agri-Food Canada, 960 Carling Avenue, Ottawa, Ontario, Canada, K1A 0C6).
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Those of you who have followed our numerous organizational name changes over the years will see from the address given above that once again we have re-organized and been renamed. On the bright side, 'Biodiversity Theme' is somewhat more informative of what a taxonomist does than was 'Eastern Cereal and Oilseeds Research Centre', which was our previous curse. Regardless of the name, chalcid research goes on. I am pleased to announce I finally submitted my monograph, "Phylogenetics and Classification of Cleonyminae (Hymenoptera: Chalcidoidea: Pteromalidae)" for publication in *Memoirs on Entomology, International*. This study started during my one year work transfer to the Australian National Insect Collection (ANIC) in 1998-1999. Once again I have to thank Ms Jennifer Read for illustrating the text with 490 world-class scanning electron micrographs. If you can't follow my descriptions, just look at the figures. Following the example of John Heraty and his eucharitid monograph, we plan to include a CD-Rom containing a pdf version of the manuscript with the book. Look for it in a couple of months. Up next is a species revision of North American *Pachyneuron*, plus a few other smaller potboilers. Many of you may be aware that my Internet site on chalcid wasps and chalcid parasitoids of filth-breeding flies was removed from the AAFC server this year. The reason was because of new "common look and feel" regulations concerning format and official languages for all government documents released over the Internet. I hope that the site can be re-established later this year, but this will require removal of all pdf documents and French translation of remaining documents.



Necrology

Mahadeva S. Mani (1908-2003). Mahadeva Subramania was born on March 2, 1908 at Tanjore (Thanjavur), Tamil Nadu. He passed his SSLC examination in 1926 from the KS High School, Tanjore, and the Intermediate Examination from the Government College, Coimbatore in 1928. He joined the Madras Medical College but left after a year or so due to financial constraints. He landed in Calcutta in 1933 to seek employment. His first job was at Bangabasi College, Sealdah, as a part time demonstrator and tutor in Physics. At the same time he worked at the Indian Museum and the Zoological Survey of India as an honorary research student. Hired by the Zoological Survey of India in the early 1930's. He worked on plant galls and gall insects and became interested in Chalcidoidea. In 1937 he obtained his M. A. degree from the University of Madras on the basis of his research papers in Entomology, the only candidate to be so honored. In 1937, M. S. Mani joined the Imperial Agricultural Research Institute (IARI) as a Research Assistant to the Imperial Entomologist, Dr. H. S. Pruthi.

Apparently, Pruthi had promised Mani of a permanent position when the next opening was available. However, the job was given to his junior on extraneous reasons. In 1944, Dr. Mani revolted and resigned. Unemployed for some time, he earned a living by acting as an interpreter and German language translator for the Censor Section of the Army HQ at New Delhi. In 1945 he got a teaching job at St. John's College, Agra where his talents were recognized and encouraged. In 1947 he obtained the D. Sc. degree from Agra University for his work on galls and gall insects of India. In 1950 he established the School of Entomology at St. John's College, Agra initiating entomological research and mentoring graduate students. It was here that he initiated research on Himalayan Entomology and led several entomological expeditions to the Himalaya during 1953-56 and again after returning back to Agra in 1968. Professor Mani was invited to join the Zoological Survey of India in 1956 Deputy Director, ultimately becoming Director in 1963 to be offered the Directorship of the ZSI, he was again denied his just claim, and was superseded by his junior. He resigned but was persuaded by the Ministry to continue with his official position of Officiating Director. In 1968, he returned to the School of Entomology, Agra as Emeritus Professor, continued there until 1984, then shifted to Madras (now Chennai). Since 1990 he has been an Emeritus Professor at the Botany Department, Presidency College, Chennai and continued to be involved in research projects and guiding research students.

Professor Mani has over 35 books to his credit besides over 250 research papers and monographs. Several awards have been bestowed upon him. His books range from text books, books on plant galls, general entomology, light readings on general biology, and comprehensive reference books on Entomology, Ecology, Biogeography and High Altitude Biology that have been acclaimed the world over.

Thanks to Virendra Gupta, whose detailed information provided the basis for this necrology [Eds].

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Trip Reports II

Christopher Desjardins
University of Maryland

South Africa and Australia: This past October, I was fortunate enough to take a six-week collecting trip funded in part by a Dissertation Improvement Grant from the National Science Foundation. The primary purpose of my trip was to collect chalcids (mainly pteromalids) for the molecular component of my dissertation, and to collect (and examine) diparines for the morphological part. My trip began with a weeklong stay at the British Museum, followed by 3 weeks of collecting in South Africa, and 2 weeks in Queensland, Australia. This trip would not have been possible, let alone successful, were it not for the generous hospitality and assistance given to me by Chris Burwell, John Noyes, Simon van Noort, and Gerhard Prinsloo. Although it would be impossible to detail each of my escapades, I thought I would share a few highlights with Chalcid Forum.

Of all the parks I collected in, the most spectacular had to be Ndumo Game Reserve, which is located in the province of KwaZulu-Natal, South Africa, on the border with Mozambique. Ndumo is not the most conveniently located reserve. From Pongola (the nearest town that I was willing to get out of my car in) it took four hours to drive to Ndumo. The reserve lies at the end of a 20-km stretch of rough dirt road which my rental car, a 94 Mazda Sting, did not fully appreciate.

A week or so prior to my arrival, Gerhard told me that Ndumo was one of his favorite places in South Africa. I understood this sentiment as I traveled the brief trip from the reserve gate to the rest camp and office. The landscape of Ndumo is flat and harsh. It seemed to me that, every tree was about 30 feet high and mushroom shaped, creating a strangely flat canopy and a hauntingly sparse understory. Whatever plants did exist in the understory are covered with thorns, and the complete lack of elevational change made it impossible to see more than 100 feet through most of the park. None of this seemed to be a deterrent to the wildlife; during my drive from the gate to the rest camp I spotted

rhinos, giraffes, warthogs, and a variety of antelopes.

At the rest camp, officers informed me that if I wanted to collect outside the camp area, I would need to be accompanied by an armed guard. I decided that maybe it would be best just to stay near the camp. Fortunately, my collecting success in the area left me with no desire to go elsewhere. I started by sweeping the trees in the rest camp itself (those of which that were not thorny acacias, that is), and I stumbled upon a tree that the camp officers later identified to me a green monkey orange, or *Strychnos spinosa*. After taking just a few sweeps of the heavily fruiting tree, I had collected a variety of chalcids, including some brilliantly colored tolymids and eucharitids, and a stephanid. With such instant success, I decided to lay out a transect of 30 pan traps in the forest behind the rest camp.

After laying down my pan traps, I looked down at my pants to what I initially thought was just a whole lot of dirt, only to realize it was a swarm of ticks and fleas numbering at least a thousand. I spent the next couple hours pulling and burning ticks off my clothes, and vowing to purchase stronger insect repellent.

My second day at Ndumo brought more success. Although my pan traps did not produce my most desired taxon, the diparine *Myrmicolelaps*, they did provide me with a variety of chalcids, including the diparine *Netomocera*, and a few megalyrid females. After another day of beating the poor green monkey orange (which never seemed to stop producing chalcids) with my net, I returned to camp a second night satisfied. It was at this juncture, that I learned with every reward, comes a price. While lying down to sleep, I found a large, unwanted visitor engorged in my belly button. Needless to say, the chain of events that followed was fun-filled and educational, including a couple free shots from the lodge owner/bartender and a lesson in the use of methylated spirits. The bite came back to haunt me, to say the least, although that is a story for another day (and not telling it will probably save my friendship with many of you).

With ten days remaining in my trip, I had just visited the Cairns 24 Hour Medical Center for a course of antibiotics, hadn't seen anyone I knew in 3 weeks, and

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my collecting was less than optimal. The lack of collecting success was based on the fact that wherever I went, the rains were late and hadn't come yet, or they were early and everything was well dried out. In this state, I called Chris Burwell of the Queensland Museum. I told him of my plight, and asked him if I could come a few days early to relieve my suffering. Thus began the second highlight of my trip and some real collecting success. Chris invited me down right away and asked me to bring a list of the taxa I wanted. The collecting that ensued was nothing short of magical.

I knew things were going to work out well when Chris took me to a few parks near his house and we had immediate success. In a single afternoon of sweeping in a deciduous forest near North Pine Dam, we collected *Australolaelaps* (Diparinae), *Moranila* (Eunotinae), *Encyrtcephalus* (Ormocerinae), and *Macroglenes* (Pireninae). The next day we went to a park in the Long Pocket area of Brisbane and swept some *Ormyromorpha* (Coelocybinae) off of some mangroves along a riverbank.

Even though collecting in the nearby parks was quite successful, it was nothing compared to the few days we spent at Mount Glorious, a mountain west of Brisbane with an abundance of beautiful rainforest. With Chris' help and quite a bit of collecting enthusiasm, we managed to sweep a tremendous variety of pteromalids, including *Ausasaphes* (Asaphinae), *Thaumasura* (Cleonyminae), *Omphalodipara* (Colotrechinae), *Ophelosia* (Eunotinae), and a host of others. Although Mt. Glorious may have lacked the remoteness and exoticness of Ndumo, it easily made up for it with its pteromalid diversity and an environment kind enough to allow collecting in shorts. (Heat aside, my field pants at this time could walk around on their own.)

While at Mt. Glorious, Chris taught me a new collecting technique that had been developed by Geoff Monteith, also of the Queensland Museum. It turned out to be spectacular for diparine collecting. The technique involves laying a plastic sheet down underneath a rotting log or against a tree trunk. The

log or trunk is then sprayed with a can of fast knockdown pyrethroid insecticide (i.e. high powered RAID). Amazingly, insects of all sorts pour out from the log, fall onto the sheet, and die (surprise). After 5 minutes, the sheet can be funneled in a jar of alcohol. Although this technique did not produce a large quantity of chalcids, it was quite successful at capturing chalcids typically associated with rotten logs and leaf litter. During two days of using the knockdown technique at Mt. Glorious, we collected females of the diparine genera *Neapterolelaps*, *Parurios*, and *Dipara*, along with large numbers of the pteromalids *Neocalosoter* (Cerocephalinae) and *Hetreulophus* (Colotrechinae). Exhausted but relieved by the end of my journey, I was able to return home to the states with more chalcids than I would be able to use.



Obstacles to collecting abound at Ndumo Game Reserve, South Africa.



Chris Burwell utilizing the pyrethrum knockdown technique.

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Student News

Jeremiah George: Second year MS UC- Riverside
Major professor: John Pinto.

Currently I am working on stabilizing generic concepts within the Paracentrobiini (Chalcidoidea: Trichogrammatidae) and in the process revising the Nearctic species of *Paracentrobia*. Currently four genera are recognized within the Paracentrobiini: *Paracentrobia*, *Ittys*, *Ittysella* and *Paraittys*. However the current arrangement appears not to represent monophyletic groups based on morphological and molecular evidence and numerous extralimital species have recently come to my attention through intensive collection efforts under taken by J. Pinto and others in recent years. I will be completing my MS this August and in the fall will be starting the PhD program here at UCR looking at a world wide revision of the Paracentrobiini (wish me luck). Over the last year I have had the pleasure to do a number of field trips to collect material for my research. In February of 2002, J.W. Kim (UCR) and I spent three weeks collecting in South Africa with the help of G. Prinsloo and S. Van Noort. During August of 2002, M. Gates and I spent a wonderful ten days collecting on the Gray Ranch reserve in south west New Mexico. I collected a number of species of *Paracentrobia* known only from a few specimens from S.E. Arizona, New Mexico and southern Texas. I was also able to successfully collect a number of specimens of *Ittysella lagunera* for molecular work. In late 2002 The J. Pinto lab and three members of the J. Heraty lab spent 6 weeks collecting in Australia. We covered the south west, Canberra area and southern Queensland with the help of J. LaSalle, C. Burwell and A. Houston. We brought home two full suitcases of material and have currently processed about a 1/3 of it. Currently it appears that we were incredibly successful and have pulled thousands of Chalcidoidea and other taxa to date. Not to mention a plethora of material relevant to the various research going on in the Pinto and Heraty labs.

Research News

Interactive identification key to the world species groups of *Leucospis* (Hymenoptera: Leucospidae)

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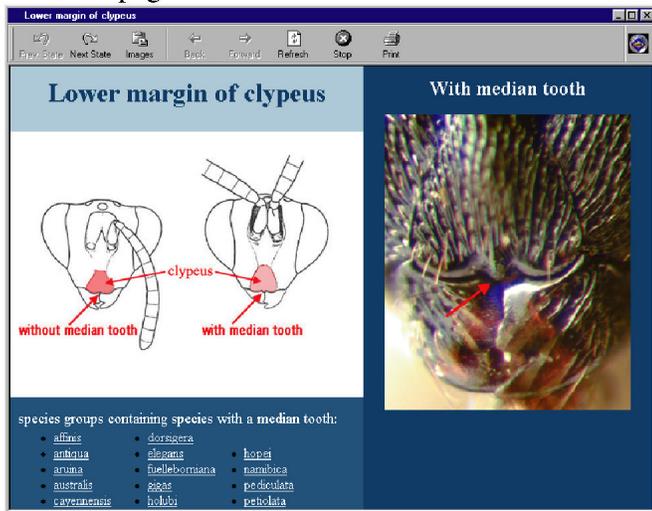
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Assessment of globally declining biodiversity requires innovative approaches to taxonomy and systematics. Interactive identification keys now exist to streamline the identification process. It is widely recognized that interactive identification keys provide several advantages over traditional dichotomous keys (Snow and Sharp, 1999). They allow unrestricted character use – any character can be used in any order – and characters that are not clear to the user or unavailable on the specimen can be avoided. Interactive keys can also be easily updated and multimedia files such as images, video and sound can be incorporated. In addition, the databases that underlie such keys can be used to facilitate the recognition and description of species, and to ultimately to conduct phylogenetic analyses (Askevold and O'Brien 1994).

We have constructed an interactive identification key to the world species groups of *Leucospis* using the computer program LucID (CPITT 1999). Although leucospids are among the largest and most conspicuous parasitic wasps, most species are relatively rare in collections. Little is known of their biology, but all species for which host records are available are ectoparasites of larval aculeate Hymenoptera. Most leucospids are thought to mimic wasps or bees. They are typically patterned with red and/or yellow with a black background, and females are characterized by an upturned ovipositor. The genus is worldwide in distribution and contains 112 species. Most species are confined to the tropics, but a few are found in temperate areas. More importantly, Leucospidae is the only chalcidoid family monographed at the world level (Boucek 1974). Boucek recognized 15 species groups and 4 species sola, and provided regional keys to the known species and species groups.

Initially, the LucID key was constructed to identify 19 taxa of *Leucospis*. However, as more species were examined and coded for the 33 characters used in the key, it became increasingly difficult to separate and diagnose some of the species groups, thus questioning the monophyly of some groups. A second version of the key was constructed in which both species and species groups were coded, thereby providing a working version that will allow us to determine the usefulness of the currently recognized species groups on a world level.

The key makes extensive use of web pages. A web page has been created for every character state, to illustrate and explain the characters in the key. Most of these pages include line drawings on the upper left side of the page that show the location of the structure on the specimen, and to illustrate each state found in the character. Clicking on these line drawings returns a photograph of the corresponding state on the right side of the web page. A list of species groups with the character state is presented on the lower left side of the page. Figure 1 (below) is an example of a character state web page.



Web pages were also created for each species group. The species currently referred to the species group are listed and a habitus photograph is provided for each species coded in the database. These images aid in assessing the accuracy of identifications. In addition, the geographical ranges and host records for the species are provided as well as a diagnosis of the species group. Figure 2 is an example of a taxon web page.

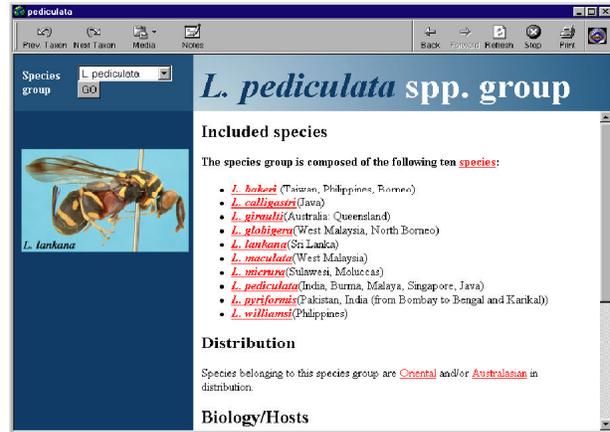


Figure 2. Example of a taxon web page.

As previously mentioned, interactive keys can be easily updated. Therefore, as new species become available for study and coded, they can easily be added to the data matrix and incorporated into the key. Likewise, as errors or ambiguities are found in the key, appropriate changes to either the characters or coding can readily be made. Therefore, with some trepidation, we will distribute a “beta test version” of the key to anybody with species of *Leucospis* in their collections and the willingness to try the key and provide us with feedback. If you are interested in testing the key, please contact us, and a version of the key will be provided on CD-ROM. Once the key has been adequately tested, it will be posted on the Internet and available through www.LucidCentral.com.

Askevold, I.S. and C. W. O'Brien. (1994) DELTA, an invaluable computer program for generation of taxonomic monographs. *Entomological Society of America* 87: 1-16.

Boucek, Z. (1974) A revision of the Leucospidae (Hymenoptera: Chalcidoidea) of the world. *Bulletin of the British Museum (Natural History) Entomology* 23: 1-241.

CPITT (Centre for Pest Information Technology and Transfer, The University of Queensland). 1999. LucID Professional for Windows: Contemporary Identification Tools. CD-ROM plus Instruction Manual.

Snow, N. and D. Sharp. (1999) LucID Professional for Windows: Contemporary Identification Tools. *Systematic Biology* 48: 828-829.

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Address Changes

New Additions to Chalcid Forum mailing list

Missing Persons

The last issue of Chalcid Forum sent to the following people were returned. If you know the correct address for these folks, please let us know.

Anna M. Garrido Torres (Spain)

Tom Goodman (England)

Michael Kuhlmann (Germany)

Robert Stauffer (USA)

Yu-qing Tang (USA)

