

MELISSA

The Melittologist's Newsletter



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MOLECULAR SYSTEMATICS SURVEY

GEORGE C. EICKWORT

George C. Eickwort, professor and chair of the Department of Entomology at Cornell, died July 11, of injuries sustained in an automobile accident earlier that day while vacationing on Jamaica. He was 54.

A specialist in the morphology, systematics and behavior of wild bees and mites, Eickwort was a member of the College of Agriculture and Life Sciences faculty since 1967 and department chairman since 1993.

He was driving from Montego Bay airport to a hotel in Ocho Rios Monday afternoon when his rental car collided with a tractor-trailer, according to the American consul there. Eickwort died Monday evening in a nearby hospital.

Associate Dean of Agriculture and Life Sciences Brian Chabot noted Eickwort's distinguished reputation as a classroom teacher and researcher: "Students came first for George, and he always was available to visit with them and provide whatever help was needed," Chabot said of Eickwort, whose primary teaching responsibility was the introductory course in insect biology. "As a result, his impact as a mentor and friend went well beyond the classroom. He delighted in challenging graduate students during their oral exams to describe what they knew about an insect, which he just happened to have brought with him."

In 1986 Eickwort received the Distinguished Achievement Award in Teaching from the Entomological Society of America. Besides Cornell, Eickwort also had taught at the Rocky Mountain Biological Laboratory, University of California at Davis, University of Arizona, University of Texas and Cornell Adult University.

Eickwort had recently begun his service as department chairman, and already "was impressing everyone with the diligence and commitment he was putting into that job," Chabot continued. "At the same time, he was providing positive leadership to bring together the large group of insect biologists at Cornell and the Boyce Thompson Institute for Plant Research. His leadership and enthusiasm in all these roles will be greatly missed."

Eickwort's research made him a frequent sight on campus, hovering over locations of ground-nesting bees and observing their behavior. His research centered on the systematic and

evolutionary studies of wild bees and the coevolution of mites and their insect hosts.

Eickwort was an associate curator in the Cornell University Insect Collections. His extension responsibilities included identification of ticks, mites and bees for Cornell Cooperative Extension and for other scientists on a worldwide basis.

He was the editor of a series on insect biology for Cornell University Press.

Born June 8, 1940, in New York City, Eickwort earned his B.S. and M.S. degrees in entomology at Michigan State University, and a Ph.D., also in entomology, from the University of Kansas in 1967. He joined the Cornell faculty as an assistant professor of entomology that same year.

He is survived by his wife, Kathleen Eickwort, of Muskegon, Mich.; a daughter, Alex, and a son, Jeffrey, both of Madison, Wisc.; another son, Robert, of Colorado, a brother, John, and his mother, both of Long Island. [reprinted from the Cornell Chronicle, July 14, 1994, vol. 25(40); another obituary of George Eickwort will be in the final 1994 issue of *Insectes Sociaux*, prepared by Bill Wcislo, Ulrich Mueller, and Bryan Danforth].

Eickwort Memorial Symposium

Greetings fellow Eickwortians, Colleagues, and Friends:

The Cornell University Biological Science Community* is hosting a memorial symposium to posthumously honor Professor George Campbell Eickwort. This two day symposium hosts five research topics and several subtopics that reflect the research interests of George Eickwort. We encourage you to participate in this symposium by presenting a talk and a manuscript in the area that reflects your own research interest. Your manuscript will be submitted for peer review to the Journal of the Kansas Entomological Society in a special edition honoring George Eickwort. Please submit one original and three copies of the manuscript at the time of the meetings.

April 22, 1995 --Saturday

Evolution and systematics of wild bees and other arthropods:

Subtopics:

- a. Biogeography and natural history of wild bees
- b. Molecular phylogeny
- c. Behavioral Phylogeny

Organizers: (a) Bryan Danforth (b) Mike Engel and (c) Ted Schultz

Pollination biology of wild bees and other life history attributes

Organizer: John Vandenberg

April 23, 1995 -- Sunday

Morphology: The Queen of Sciences

Organizers: Rex Cocroft, Mike Engel, Nancy Jacobson, Mike McDonald, Ted Schultz

Social behavior of vertebrates and invertebrates

Subtopics:

- a. The behavioral ecology of presocial and
- b. eusocial species
- c. Sex ratio theory

Organizers: (a & b) Janet Shellman-Reeve and (b & c) Ulrich Mueller

Select one topic or subtopic and submit your request along with your name, talk title, short abstract, and e-mail or regular address to the section organizer, in care of Eickwort Memorial Symposium, Comstock Hall, Department of Entomology, Cornell University, Ithaca, NY 14853. State your preference for a 15 or 25 minute talk. An informal evening reception will be held on Friday, April 21.

An evening banquet will be held on Saturday, April 22, and requires a \$30.00 cover charge from each guest.

Special request: The Department of Entomology seeks to establish a perennial fund to be named in George's honor. A donation made in the name of the "Eickwort Teaching Fund", dedicated to innovations in teaching, is greatly appreciated.

* Our special thanks to the Dean and Associate Dean of Agriculture and Life Sciences, Director of Biological Sciences, Griswold Fund, Entomology, Neurobiology & Behavior, Genetics, and Ecology & Systematics, Boyce Thompson Institute, and the Cornell Experimental Station for supporting the Eickwort Memorial Symposium.

Eickwort Memorial Book

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I, like you, have spent much time recently in shock and in contemplation of what could be done as a tribute to George. I plan to compile an informal book containing friends' thoughts about George, and a few pictures. I will photocopy and spiral bind it, and give a copy to each of his children, and to anyone else who wants one.

If you are interested in participating, please write out your thoughts about George: why he was so special, or an anecdote that typifies him, a poem, a song, or whatever.... It would be nice to mention who you are and how you knew George, as I'm sure his children (and other friends) do not know all his friends by name. I would like you to limit your thoughts to one single-spaced page - at most two, and send them to me in typed format, ready to be photocopied directly into the book. You may include a photograph (print), but be sure to leave space for it within the page or pages you submit. I would prefer pictures and writing I can keep, to simplify things, but if you would like the materials returned, please write me a note to that effect.

I would like to receive input for this book by October 16 - that should give people who are impossible to reach during the

summer enough time when they return in the fall. I would also like to know if you would like a copy of the book.

If so many people submit thoughts and want copies that this venture turns out to be huge, I may ask for a couple of dollars from each person to help cover costs - but I will deal with that when I know the scope of the project.

Since George's first love was always his children, I think he would appreciate us doing something for them. I also think those of us who miss him dearly would like to have something more personal to remember him by.

GENERAL NEWS

Non-*Apis* Guild Survey Extension

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Fifteen more responses were received to the survey and accompanying article which appeared in *Melissa* 7 (March, 1994):1-3. This is 41% percent of the original response. A majority of these were from outside of the USA, including Germany, France, Israel, Russia, and several other countries. Unfortunately, in keeping with the blind nature of the compilation, I did not maintain the return addresses of all the respondents, so an exact tally of nationality is not possible. Aside from the delayed nature of the responses, however, this apparent bias in nationality is an obvious feature by which to compare the responses with those tallied earlier. The discussion which follows will emphasize differences between the results of the initial survey and those of the late respondents.

Most of the late respondents are (also) researchers, although there are similar proportions of hobbyists, students, conservation consultants, teachers, retirees, commercial developers, and administrators (not mutually exclusive) compared to the initial respondents. Fewer of the late respondents concern themselves with honey bees (20% vs. 53%) and fewer consider themselves "gainfully employed" in non-*Apis* work (54% vs. 86%). On average, late respondents have been employed in non-*Apis* related work nearly twice as long (21 vs. 11 years) and have fewer students and staff working with them (average 1.6 vs. 3.5). They carry out an even greater proportion of their work in spare time (42% vs. 19%) and on personal funds (35% vs. 25%). Nearly half of the late respondents cited no particular threat to their existing programs (47%; among initial survey respondents, only 18% felt no threat). Those that did feel a threat cited increased responsibilities in other areas, loss of position, and decrease or loss of funding. Five out of 13 late respondents reported nonspecific negative changes in numbers of full-time positions in their institutions during the past 5 years. Of those reporting specific figures, 4 were zero, 2 were positive and large (increases of 20 and 30 employees) and 2 were negative and large (-10 and -25). The resulting mean is +1.9 compared to a

mean of -5.8 in the initial survey. As a group, the late respondents felt 44% sure that they would find a similar position if they lost their current one (cf. 21%). A somewhat greater percentage of late respondents have contributed to volunteer projects in the field (93% cf. 68%) and would be willing to do so in the future (93% cf. 85%). A greater proportion felt that eating more blueberry pie might help the mission of the non-*Apis* "guild" (21% vs. 13%).

Late correspondents seem to comprise a more stable and optimistic group relative to length of employment, prospects for future work, and hiring/firing of institutional colleagues. Their working groups appear to be smaller and they are perhaps more fanatic in terms of work done in spare time or on personal funds. Despite these observations, the more recent results mostly reinforce the conclusions of my previous write-up.

I will send a copy of the complete response summary and analysis to anyone who requests one. Thanks again to all those who participated in the survey.

Mail Service to Cuba

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RARE Center for Tropical Conservation, a non-profit conservation organization based in Philadelphia, has recently started a program of scientific information exchange with Cuba. The long-term goal of the program is to develop the Caribbean region's capacity to conduct biosystematic research and training.

One of the services RARE Center is offering through this program is an express mail service to Cuba, which is designed to reduce the time (often several weeks) it takes for scientific correspondence to reach Cuba. DHL packets are sent regularly from RARE Center's office in Philadelphia to Havana, Cuba. If you would like to use the service, correspondence should be addressed to Cuban colleagues and mailed in an envelope not exceeding eight ounces to the address listed above.

RARE Center will also receive faxes at (215) 735-3515 and include the hard copy in the DHL packets. Please include a brief note to RARE Center explaining the nature of the correspondence (e.g., scientific paper to be reviewed) so that we can document the service.

Cuban biologists may send letters addressed to US colleagues to:

Orlando Garrido, Scientific Advisor, RARE Center, Museo Nacional de Historia Natural, Capitolio Nacional, Habana, Cuba.

ASC and Cuba: A Request for Scientific Literature

Do you have scientific books or journal series that you no longer use and would like to donate for distribution to Cuba? The Association of Systematics Collections (ASC) is developing a program to exchange systematics and biodiversity information between North American institutions and Cuban institutions. Please contact the ASC office with the titles of books, journals, or reports in systematics/biodiversity (especially related to Caribbean biota) that you are willing to donate, and we will arrange to ship the materials to an appropriate institution in Cuba. For more information and to contribute contact: Elizabeth Hathaway, ASC, 730 11th Street, NW, Second Floor, Washington, D.C. 20001-4521, (202) 347-2850, fax: (202) 347-0072.

COLLECTING NEWS

On the True Meaning of "Sweat Bee" or - An Account of a Collecting Trip to Northern India

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Bees of the subgenus *Evylaeus* have long been my favorite subjects for intellectual pursuit. With brood cells often arranged in a cluster in a cavity and nests rarely much more than a foot deep, they require less effort in physical pursuit than the deeper nesting *Halictus* or the irritatingly narrow-burrowed *Dialictus*. All of the common Western European species have been studied, to some extent, as have most of the Eastern North American species. In Northern India (and adjacent Pakistan) quite a few species and several species groups occur for which no "social" data are available. Consequently, I decided to spend three months of 1990 (from March to May) in India, collecting specimens, trying to make superficial observations of sociality and obtaining samples for electrophoretic studies.

To guide my choice of collecting localities I had seen the collections of Nurse made around the turn of the century and those of Dr. Suzanne Batra from the late 1960's. Some potentially rewarding localities were inaccessible due to political difficulties. Nonetheless, I set out with the Himalayan foothills of Himachal Pradesh and Uttar Pradesh as primary targets.

Arriving in New Delhi at the convenient hour of 1a.m., I gathered bus schedule data and soon headed north to Simla, the capital of Himachal Pradesh, altitude 2000m. Many a rare *Evylaeus* bore "Simla" on the locality label and had been collected between March and May. When I arrived it was very cold. Huddling under six thick wool blankets it took me over half an hour to stop shivering and this was fairly soon after

sunset! I had not come with clothing equipped for such cold. On the following day it was warm enough to encourage a few bees to fly but 16km of walking failed to produce any of the *Evylaeus* I desired (indeed, the only halictids were a couple of *Seladonia* and *Sphecodes*) and the next day it snowed. So, I decided to descend to the nearest valley and went to the hot sulphur springs resort of Tattapani.

Tattapani, which is Hindi for "hot water" is a small place. The only potable, bottled fluids I could find were purchased from the "English wine shop", an odd name as all that they sold was whisky! The "tourist hut" where I was staying ran out of coffee after the second cup and had a choice of pea curry or pea and mushroom curry for dinner (on the third day they ran out of peas). Nonetheless, the manager was good enough to order in large quantities of soft drinks for me from a nearby larger village. This man is a strict vegetarian and devout Hindu. I wondered what he thought of me killing bees for fun and profit (well, expenses at least). He told me that it was OK to do these things as it was my job - though he pointed out that it might have long-term consequences for my karma. I stayed in Tattapani for four days - the last day involuntarily as the bus on which I was leaving broke down. On the last day I came across a dead vulture which I surveyed for carrion beetles (I guess this made me a tertiary detritivore). It was during these four days that I first started realising the true meaning of sweat bee: this was where I started regularly paying more for bottled (non-alcoholic) fluids than accommodation. One worn specimen of *L. (Evylaeus) simlaense* was discovered here, indicating, perhaps, that I should collect at higher altitude.

Next I moved on to Mandi and stayed at the Raj Mahal Hotel. This is a converted Rajah's palace, with superb, old furniture (I had an antique sword for a towel rack) and a bargain at the price - though the staff were somewhat surly. Here I dissected some red *Dialictus* from Tattapani by the light of an antique lamp which I had to hold upsidedown to throw enough light on the subjects. Surprisingly, I found the spermatheca in eight of the ten bees I cut up. Three long days of walking around Mandi produced very few bees and no *Evylaeus*. Indeed, there were so few bees that I enthusiastically jumped through a thorn bush fence for a mere *Bombus*. Bee safely in cyanide jar I started to wipe off the blood from my arms and legs when two citizens calmly asked me what on earth I was doing.

During one of my days in Mandi I experienced the Holi festival. As the guide book says "Holi is one of the most colourful Hindu festivals". This is because everyone spends the day throwing paint over everyone else. Now a white tourist stands out in India and a 6 ft 4 inch one stands out more than most especially when waving a bug net around. Now imagine the same conspicuous entomologist covered in paints of a wide variety of colours trying to collect unobserved in public gardens.

From Mandi it is only a few hours travel along the Beas River (appropriately pronounced bee-arse) to Kulu. Here I caught two species of *Evylaeus* on the first day (*simlaense* and *catileps*), but only in very small numbers and all were worn. So I went further up the Kulu valley to Naggar and stayed at the gorgeous Naggar Castle Hotel. Within the grounds of this

castle is the Jagto Pat temple. Legend has it that naggar was chosen as the home for all of the gods of the world who arrived in the form of a swarm of bees carrying a slab of rock from a nearby mountain. This piece of rock forms part of the temple and its dimensions are 6ft x 8ft x 6 inches. I wonder whether a huge migrating swarm of *Apis dorsata* could have been the impetus for this legend. A short way further up the mountainside from the caste I caught large numbers of what appeared to be *L. (E.) marginatum** all unworn and some obviously looking for nest sites. Several hours search failed to reveal any active nests. I also found some *L. (E.) simlaense* here. Later that evening a thunderstorm started which lasted for 20 hours and included a reasonable amount of early morning snow. This was the beginning of a series of enormous storms which eventually resulted in the Kulu valley receiving three times the normal monthly rainfall in March - a total of over 30cm! The road was washed away in places or made impassable by mud slides. At the first available opportunity I collected a sample of sp. nr. *marginatum* put them in a vacuum flask with two broken up popsicles and embarked upon a grueling 14 hour overnight bus journey to New Delhi.

Before I left for India I had written to some contacts at the Indian Agricultural Research Institute in New Delhi requesting some ultra-cold freezer space. This was duly provided and my colleagues there got used to having this eccentric visitor arrive early in the morning looking completely dishevelled and then promptly proceed to pour liquified popsicles down their sink before putting several sticky eppendorf tubes into their freezer. I owe a great debt to Drs. R.A. Pai and H.C. Bhansal.

I then went to the Uttar Pradesh hill station of Mussoorie at 2000m, a mere nine hour bus ride. This journey includes a spectacular climb from Dehra Dun at 600m over a distance of 30km which, because of the steepness of the gradient took several hours. As this is the type locality for *L. (E.) mussooriense*, I felt certain that I would find some of this species here. Most of the flowers around town were, like those in Simla and Kulu, frost damaged and so my collecting trips involved walking downhill. The fastest way down seemed to be to follow a small mountain stream. This turned out to be quite difficult and at one point I fell down a waterfall. Around Bhatta falls, immediately below Mussoorie, I found reasonable numbers of two *Seladonia* species, a few *Dialictus* and one *L. (E.) simlaense*. There then followed more rain, more snow and more shivering under wool blankets. After a few days of this weather I decided to try the Kulu valley again.

I arrived in Kulu at 6a.m. after 22 hours of bus travel across the foothills of the mountains. I had breakfast, booked into a hotel and set off for the *marginatum* site. After an interval of 14 days the bees had still not begun to forage - it had rained almost every day for the past two weeks! By the following morning four inches of snow had fallen - it was the 31st of March. I was fed up with being cold and wet and decided to go to the desert of Rajasthan. Unfortunately, en route I got laid up with a cold and damp-induced bronchial infection which kept me in bed for five days before I could proceed to Delhi.

From Delhi it was another overnight journey to Udaipur in southern Rajasthan. Here the average monthly rainfall in the

dry season is less than 5mm so I was fairly certain I would not get drenched. I stayed at the edge of the lake with beautiful views all around and a spectacular display of fruit bats just after sunset. The collecting in the large public gardens around town was quite good with several *Seladonia* species, and some *nomiines*. It was hot and thirsty work, I drank at least 5l of bottled water a day here.

From Udaipur I travelled to Mount Abu, Rajasthan's only hill station, at an altitude of 1200m. This is a beautiful spot and a favorite honeymoon retreat for Indian couples. Flame of the desert and jacaranda trees gave beautiful colour to the hills and several small streams from Nakki Lake led down the mountainside to give some lush green areas. Despite the altitude it was very hot here and for the first time I spent more on bottled water than on food and lodging combined - the true meaning of sweat bee was becoming clearer! Here I excavated my first Indian halictine nests - those of a *Lasioglossum* species with the unusual habit of placing its cells end to end. I also played at being a real tourist for an afternoon and went to the spectacular Jain temples at Dilwara well worth the 12km return walk even at the end of an exhausting day bee collecting - I thoroughly recommend this site to anyone visiting India. I also took a brief camel ride which with my high centre of gravity was a little nerve racking.

A few days later I collected another thermos full of halictids and suffered another overnight bus journey to New Delhi. It took two weeks for the bruises on my back to disappear after this "deluxe" bus ride!

I spent most of the rest of my time in India in Mussoorie where I found reasonable numbers of *L. simlaense* and *marginatum* (but found no nests of either of them), excavated two nests of *Halictus (Seladonia) vicinus* and collected specimens of additional halictines. A gut ailment kept me in bed in New Delhi for a week when I was expecting to return to the Kulu valley. The temperatures at the time were around 42°C and I had a fever associated with this ailment which peaked during a power failure which meant that the fan in my room did not work. Just as well I like warm weather.

I loved India, the people, the scenery, the culture and the heat (but not the cold and damp weather) and really hope to go back there for an extended trip some time in the future. Finding sweat bees there was much more difficult than I expected and finding nests was more difficult there than anywhere else I had ever attempted this most noble of activities. In contrast, I took a short vacation to Nova Scotia the following July and marked 300 halictine nests in two hours as opposed to finding about ten nests in India in three months! Nonetheless, there are clearly many interesting species here that are worthy of study, but perhaps next time I will try and travel by taxi and train rather than by foot and bus.

I will take this opportunity to express my gratitude to my colleagues at the Indian Agricultural Research Institute in New Delhi, the numerous other friendly people I met during my travels and also to Father A.W. Ebmer for identifying *Lasioglossum (Evylaeus) simlaense* and *catileps*.

* Although these specimens appear morphologically identical to *L. marginatum* from Europe and the Middle East, the frozen sample exhibited fixed differences at 14 out of 47 allozyme loci in comparison to European bees. Thus, it seems highly unlikely that the Indian and European bees are conspecific. See Blanchetot and Packer (Insect Molecular Biology, in press) for details. If anyone could collect some *L. marginatum* from the Middle East and freeze them for further electrophoretic studies I would be extremely grateful.

A Desert Waif on the Shores of the Gulf of Mexico

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In early October of 1991, George Eickwort, Ron McGinley and I were invited to join a Cross Expedition to the Alabama Gulf Coast coordinated by Richard Brown of the Mississippi State Entomological Museum. By that time of year, the weather is once again hospitable on the Gulf Coast, and a bloom of fall wildflowers colors the dunes. Indeed, the short stature and even spacing of the vegetation and of course sand reminds one of a desert habitat. So do some elements of the flora, such as the two species of *Polygonella* and various yellow comps, or the species of *Perdita* and hoped-for *Caupolicana*.

Among the bees we did collect was a surprise, a species of *Hesperapis* that resembled *H. carinata*. All other members of this genus occur far to the West, mostly in the deserts of the United States and Mexico. Roy Snelling, who has been revising the genus, believes this to be a new species.

Subsequent sampling by Linda Kervin and me reveals that this bee is restricted to a single species of *Balduina* (Asteraceae) which sometimes blankets the dunes with its orange-yellow flowers in late September. Although this floral host occurs inland where relictual dune areas exist, we have only seen the bee within a km or less of the coastline. Furthermore, the bee's latitudinal range appears to be bounded by the Apalachicola River and Mobile Bay, a mere 150 km that is largely developed with tourism with only sporadic waterfront under federal or state protection. Perhaps for this reason, the U.S. Fish and Wildlife Service has renewed modest support for research with this bee because of its rarity and the threatened habitats in which it flies.

The northern Gulf Coast, as well as some of the interior dune areas of the Florida peninsula, host other plant and animal species that represent taxa that are otherwise distributed in the western deserts of North America. To my knowledge, however, these affinities have never been formally summarized in a biogeographical study.

Hunting for a Glacial Relict Sweat Bee in Arizona and Utah.

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In August 1992 I went to Arizona and Utah with a range of objectives - i) to collect *Lasioglossum* (*Evylaeus*) *boreale* from the extreme south of its range, ii) to try and find *Mexalictus arizonensis* and perhaps even to find its nests, iii) to attend the International Workshop on non-*Apis* bees, sponsored by the U.S.D.S. at Logan, Utah, August 10-13 and iv) to spend some time with George Eickwort who was on sabbatical at the University of Arizona, Tucson.

I had seen some *L. boreale* from Arizona among the collections made by Lubomir Masner in 1990. With my terrible memory I could not recall the precise locality from whence the specimens came, but did remember that Mount Lemmon was one of the localities he had sampled. So, on August 1st, George and I went to Mt. Lemmon in search of *boreale* and *Mexalictus* - the latter definitely having been collected there in 1917. We collected in Marshall Gulch, near the settlement of Summerhaven at 7,500 ft and then at the summit at 9,150 ft. Neither of our desired species was found despite almost perfect weather.

The next day we went to Miller Canyon in the Huachuca mountains. The longest series of *M. arizonensis* had been collected here on the 7th of August 1974 at altitudes between 6 and 7,000 ft. Most of the mountain ranges we collected in during the week had roads going practically to the summit - just the kind of montane collecting conditions I like. Miller Canyon was different - we actually had to walk a long way up this one and this was very thirsty work. Various *Lasioglossum* s.str. and *Dialictus* were collected on the way up and there was some confusion in our minds as to whether *L. (D.) ruidosensis*, the largest and darkest of the latter, was *Mexalictus* - even with a pocket magnifying lens it is difficult to tell whether the apical wing veins were weak or strong! Back on the way down I saw a *Lasioglossum* s. str. and took a swipe at it. When I looked into my net I found two males that were obviously *Mexalictus* along with the *Lasioglossum*. These two specimens of *Mexalictus* were the only ones collected that day.

August the 3rd had been set aside for the intellectually exacting task of *Dialictus* nest digging. Because of the heat, we started at an uncivilised early hour. George, Axhel Munoz and I began excavating separate nests soon upon arrival at the site - just adjacent to the University of Arizona ranch. These *Dialictus* (an undescribed and probably undescribable species) were small, even for this taxon of insignificant small bees. We had to dig down several feet before any brood cells could be located. After over two hours of digging in the intense heat a loud whooshing sound was heard, one of us, who will remain nameless, had struck water. A plastic irrigation pipe had been breached by our digging activities and soon a large puddle formed. This attracted large numbers of aculeates and several

Polistes species entertained us by landing directly on the water surface to imbibe. George drove off to try to locate the owners of the water pipe to inform them of the accident. Meanwhile, Axhel and I filled in the hole, carried on excavating the remaining two nests with occasional breaks from the physical exertion to collect insects in the immediate vicinity. I was quite pleased to get reasonable numbers of the Palo Verde bug - OK, I know these are common - but not in Canada! Ethical duties discharged, George returned, one nest excavation was completed (the other lost) and we beat a hasty retreat.

The following day the three of us aimed for the highest point in southern Arizona - the Graham Mountains, some three hours drive away and necessitating another early start. As soon as we got above 9,000 ft it was clear that we were in a Rocky mountain type habitat, quite different from the peak of Mt. Lemmon. We stopped at the Shannon campground at around 10,000 ft. It was cool with only intermittent sunshine. Nonetheless, the first bee caught was an *Evylaeus* and of just the right habitus for *boreale*. Over the next hour a large sample of this species was collected, comprising females of both the overwintering and the overwintered generations and larger numbers of males. The weather deteriorated and attempts at collecting additional samples at high altitude elsewhere along the Graham Mountain range were not successful. Driving down the mountain we soon got out of the inclement weather. Upon my insistence we stopped to enable me to photograph a rattlesnake that was crossing the road. At this point the brakes on our rental car overheated. While waiting for them to cool down I caught a spectacular looking *Calliopsis* male with falcate wings, bright red markings on the abdomen, bright yellow legs and patches of white pubescence, a truly beautiful creature which George had not seen before. My enthusiasm as to the possibility of this being a new species was somewhat dampened when, upon describing its appearance to Mich at the Logan conference I was informed that he had described it over 20 years earlier - I should have guessed! On the way back to Tucson we drove into a sand storm at Wilcox, for me this was quite a new experience.

On the 5th I set off for Madera Canyon in the Santa Rita mountains in another search for *Mexalictus*, Lubo had caught one male here from the "Bog Springs Trail". From the nearest parking area it was a stiff hike up to this locality, but it was worth it as immediately behind the sign announcing "Bog Springs", at 6,000 ft, I found one male *Mexalictus*. Several more hours searching both here and further up at Kent Springs failed to reveal any more specimens. This was not altogether surprising as it was raining gently most of the time. The weather got worse as I descended the mountain and for much of the walk back it seemed as if I was dodging thunderbolts - quite scary.

On the 6th of August I headed southwest, deeper into the desert and collected along the Ajo Way. The August rains were somewhat late and there were not many flowers but I was rewarded with a nice series of *Protoxaea gloriosa* and a photograph of a road sign announcing that a certain stretch of the Ajo Way was cleared of garbage care of the "American Atheists Association, Tucson Chapter".

The next few days were spent driving north to Logan. The scenery was spectacular, especially the painted desert. And, unlike in the moister climates I am used to, there were no trees to block the views. We spent some time wandering around "Brian Head", near Cedar Breaks National Monument in southern Utah, which despite the altitude of 11,300 ft failed to produce any *L. boreale* and ecologically it certainly did not look right for the species.

After the conference I spent some time driving around Utah observing the scenery and collecting bees. *Lasioglossum boreale* was found in reasonably large numbers at high altitude in the Uinta range and *Lasioglossum (Evylaeus) comagenense* (maybe these bees are *niger*, maybe the two are conspecific - our studies currently in progress should tell us the answer to this) was found sympatrically. Both species were located predominantly in ageing dandelion flowerheads most of which were partly closed as a result of inclement weather - it was cold and cloudy most of the time.

Biogeographically, the arid southwest seems fascinating. *Mexalictus arizonensis* is certainly an odd bee to find in what is predominantly a desert region as it seems to be restricted to damp, cool forested areas. Several of the *Lasioglossum* s. str. species are also restricted to cooler areas at higher elevation whereas others - such as *sisymbrii* appear to be ubiquitous. Detailed genetic studies comparing population structures of the isolated montane species with those of more general occurrence would seem potentially very interesting. This is an area I certainly expect to visit again in the near future.

My thanks to George Eickwort for his generous help in organising this field trip, to Axhel Munoz for help in the field and to the personnel of the Logan Bee Lab for a wonderful workshop which I hope will be repeated in the near future.

RESEARCH NEWS

Bee Research in Mexico

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Mexico has one of the richest bee faunas in the world. About 1600 species have been described and 153 genera and 8 families are represented in its territory (1). Mexico is also the second exporter and the fourth producer of honey in the world (2). On the other hand, the cultivation of stingless bees is a very ancient activity in several regions of the country (1). Bees, then, are very important to this country in many aspects. However, surprisingly very few Mexican researchers and/or institutions are currently carrying out projects dealing with basic or applied aspects of bee biology.

I will try to summarize those permanent projects of which I have information:

1. The Programa Cooperativo sobre la Apifauna Mexicana (PCAM) is probably the research project best known to Melissa readers. Five expeditions have been completed (the most recent to Baja California) and reports of the first four have appeared in Melissa (3,4,5,6). The Mexican scientist directly involved with this project is also well known to many of the readers of Melissa. He is Dr. Ricardo Ayala, who works with the Universidad Nacional Autonoma de Mexico, at the Estacion de Biologia Chamela (Jalisco). Ricardo is the only Mexican taxonomist studying Apoidea. His Master's thesis was a revision of stingless bees of Mexico (7) and his Ph.D. Dissertation was a revision of Centridini (Anthophoridae), at the supra specific level (9).

2. The Universidad Autonoma de Yucatan (UADY) is a State University and has a Veterinary School where most of the bee research has been done in the past. This is a common situation in Mexico, where many Vet Schools take over Beekeeping courses and, when a research program dealing with bees is established, these schools carry it out. UADY just opened a Master of Science program on Management and Conservation of Tropical Natural Resources (10). This program comprises a section on Tropical Beekeeping, which trains the student to manage African Honey Bees and is also an introduction to meliponiculture. Research lines related to Apoidea include: (a) Development of technology to use native stingless bees, (b) Management and uses of honey bees in the tropics, and (c) Arthropods of economic importance in the Peninsula of Yucatan. Dr. Carlos Echazarreta is the person in charge of the program. Carlos worked with Dr. Robert Paxton on the reproductive biology of *Apis drones*. Another person working at UADY is Jorge Gonzalez A., who has cultivated stingless bees for many years and participated for a short time in a project from the U. of California (Riverside) one of whose goals was to establish a sustainable system of stingless bee's exploitation. Jorge, with three more people, organized a local association of Meliponiculturists and published a Bulletin called U T'AN YIK'EL KAB (Mayan for "a window into the native bees world") of which 6 issues appeared between January 1991 and October 1992.

3. The Centro de Investigaciones Ecologicas del Sureste (CIES) is a federal institution that has been working since 1974. In 1986 the CIES started research on Apoidea of the Soconusco region (Chiapas). Between 1986 and 1991 the scientist in charge was Ignacio Cuadriello A., a biologist trained in France at Dr. Roger Darchen's lab. He started several projects (11): Africanization of honey bee colonies in the region; regional bee flora; importance of bees as pollinators of crops (watermelon, cardamom, soybeans, cotton, mango, etc.); taxonomy of meliponines, meliponiculture and palynology of meliponine honeys. The CIES also keeps a collection of Apoidea (about 5500 specimens, 6 families and 49 genera identified).

4. The Centro de Investigaciones de Quintana Roo (CIQRO) is a research center in the State of Quintana Roo, one of the two Mexican states on the Caribbean. In 1985 a project on melliferous flora of the region was started by M. Sc. Rogel Villanueva. Partial results were presented at a National Bee-

keepers' Meeting in 1991 (12). At that moment a palynological Atlas was in preparation, but I have no further information on this project.

5. The Secretaria de Agricultura y Recursos Hidraulicos (SARH) is the Mexican counterpart of the United States Department of Agriculture. In 1984 a presidential decree declared the problem of Africanization of public interest and a national program for the control of African Bees (Programa Nacional para el Control de las Abejas Africanas; PNCAA) was established. In the initial phase the program dealt with setting up a bait hive network to capture and kill swarms. A few research projects were carried out in association with this program. In 1987 a cooperative program between SARH and USDA was started and several American universities participated doing research in different places in Mexico. The cooperative program ended in 1990. After that, the PNCAA has organized, together with the National Beekeepers Association (UNAPI), National Beekeepers' Seminars, which serve as a forum where most of the national research is presented. In 1994 the eighth Seminar will be held in San Luis Potosi.

6. The Instituto de Investigacion Apicola de Mexico (IIAM) is a private organization that has been functioning continuously since 1989. It was formed in Guadalajara by a group of beekeepers, and students from the Universidad de Guadalajara. Although their main interest is on beekeeping and economical use of *Apis mellifera*, the IIAM publishes the magazine *Apicultura Moderna*, which sporadically features articles on bees other than *Apis* and research results.

7. The Universidad de las Americas-Puebla (UDLAP) is a private college, where a program in Biology was opened in 1991. I have been working with UDLA-P since August 1993. During this time I surveyed the species of *Bombus* in the State of Puebla, and for next year I am proposing to carry out a study on diversity, abundance and seasonality of bees in the Valley of Tehuacan, a desertic area in the eastern part of the State of Puebla. I have been also collecting Apoidea in other localities in Puebla. I am in the process of identifying the specimens to the generic level and will need help with the specific determinations. I expect this information to be useful for people wanting to do research with bees in Mexico or just visiting. People needing more information on the subject can contact me at the address that appears below my name.

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Native Bees in Seventeenth Century Latin America

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Dr. Christopher K. Starr of the University of the West Indies in Trinidad has called my attention to a book by Samuel Purchas (1657) that summarizes the information then available on bees in the American tropics. Since it was not cited by Schwarz (1948) who reviewed a vast amount of material on the biology of meliponine bees and the history of our knowledge of them, I call attention to Purchas' summary here. It is available in the Library of Congress, Washington D. C.

This old book tells much of what was known in 1657 about the European honey bee, its biology, life history and anatomy (without illustrations) and about bee keeping, based partly on the author's observations and experience, with "meditations and observations, theological, and morall, upon the nature of bees," and with numerous marginal references indicating the sources of items outside the author's experience. "Politically flying-insects" of the book title means social flying insects, principally bees and wasps. There are chapters on wild (solitary) bees (two pages), wasps, hornets, humble-bees, grasshoppers (because some of them fly in swarms) and finally, Chapter 32 on American bees (pp. 203-207). The last concerns only tropical America and meliponine bees, except for comparative comments on European ("Spanish" or "English," depending on the source) bees, or simply "bees," meaning *Apis mellifera*. At one point European bees are said to have been formerly rare in the "Indies," but now in many places, common. Thus *Apis* had presumably been introduced, but no details as to where or when are provided. There is no mention of bees north of Mexico.

Bees are reported to be absent from Hispaniola, in contrast to the many kinds on the mainland. This situation is well known today, although another report, clearly an error, is of stingless bees the size of flies being common on Hispaniola.

Comments by various writers concern bees in such places as the following: Tucumán (Argentina), "Assumption in the River Platte" (Asunción, Paraguay), Brazil, Province of Guayaquil "not far from Quito" (Ecuador), "Carthagene" (=Cartagena, Colombia), "Isle of Cumana" (?Venezuela), and the "Island of Cozumel" (Yucatan, Mexico). Other localities on the River Plate (Plata), in Peru, and not far from Quito (Ecuador) are also mentioned.

The accounts by travelers are repetitious, brief, sometimes careless. They repeatedly reported on bees without stings, mostly the size of flies although some kinds were the size of gnats, or much smaller than flies, while others were larger than flies or even than European honey bees. Honey combs were reported with cells four times as large as those of European bees, even though bees were small; these were the storage pots of meliponines. Combs were reported in tree trunks, in branches (nests of dirt, presumably exposed nests), in roots near trees, in the ground, etc. Honey is reported from these sources, sometimes white, but often black; in some cases it "candies not, but is always liquid like oyl." A few tubular nest entrances are described.

Nearly all references can be attributed to *Trigona* in the broad sense of Schwarz (1948). At some localities several kinds were recognized. Larger bees that must have been *Melipona* were among many kinds in Brazil. The mention of stinging bees probably is a reference to wasps of the genus *Brachygastra* or possibly to *Oxytrigona*, meliponine bees that bite venom into the skin.

That some species do not limit their feeding to floral resources was clearly known for a Brazilian species. "They come in multitudes to the fire, . . . where they eat whatsoever they finde, especially they gnaw the upper parts of leathern doublets, and shooes. If wee negligently reserved hens or other food, in the morning, wee should have onely bones." Disappearance of flesh at night cannot be attributed to bees, but the now well-documented necrophagy of some species of *Trigona* seems to have been known.

There is no clear mention of maintenance of bee colonies or of any significant use of bees or bee products by native peoples. However, in writing of Cozumel, "which is near the coast of Jucatan," Purchas says "there are many Hives of Bees like those of Spain, but less, and much hony, and wax . . ." Probably this refers to *Melipona* colonies maintained by the Mayas.

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***Bombus hyperboreus* Schönherr in Labrador**

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While sorting through some undetermined *Bombus* at the Field Museum of Natural History (Chicago, IL), I discovered a female of the parasitic bumble bee *Bombus hyperboreus* Schönherr collected in Nain, Labrador on the Anatalak Bay by A. C. Weed as part of the Rawson-MacMillan Expedition. To the best of my knowledge this species has not been recorded from the mainland of eastern North America, as Milliron (1973) showed no localities south of Greenland and Baffin Island while Laverty and Harder (1988) don't include it in their list of species from eastern Canada. However, both publications include the host species *Bombus polaris* Curtis from Labrador, and a male in the series shares the same locality and date (19 August 1927), along with several other species.

Bombus hyperboreus is unusual in that, from what is known of its biology, in North America it produces no workers, and it and its host *B. polaris* inhabit virtually any ice-free land in the high arctic region. Its biology resembles that of *Psithyrus*, a genus of obligatory inquiline that likewise produce no workers but are morphologically distinct from *Bombus*.

It is hoped others will watch for additional records of *B. hyperboreus*, especially from northern Quebec and around the Hudson Bay.

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Biogeography and Phylogenetics of *Evylaeus* (Halictidae)

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My Masters project includes a biogeographical study of *Lasioglossum* (*Evylaeus*) *boreale** (family: Halictidae) and phylogenetic studies of the subgenus *Evylaeus*. The following is a brief description of these projects and a summary of my summer/92 collecting trips.

L. (E.) boreale was described by Svensson et al. (1977) from material collected in Abisko (northern Sweden), Mt. Taietsu, (Sapporo, Japan) and has since been reported from Inuvik (Northwest Territories, Canada) (Sakagami and Toda 1986), Mt. Washington (New Hampshire, USA) and the Rocky Mountains south to Arizona (Packer, unpublished data). Last summer I drove from Toronto to Mount Washington (New

Hampshire, U.S.A.) and to Inuvik to collect *L. (E.) boreale*. This fall I have been comparing specimens from Inuvik, Mt. Washington, the Uinta mountains (Utah, U.S.A.), and the Graham Mountains (Arizona, U.S.A.) biochemically using protein electrophoresis. The specimens from Utah and Arizona were collected by Dr. Laurence Packer (see a summary of Laurence's trip to Utah and Arizona elsewhere in this newsletter). *Lasioglossum* (*E.*) *boreale* probably followed the retreating Wisconsin ice sheet as it moved northwards around 15,000 years ago. If the montane populations were sequentially isolated as the ice sheets retreated, then the Inuvik and Arizona populations are likely to show the greatest level of differentiation. In 1993 I hope to be able to obtain specimens from Japan and Sweden as well as samples from the Rockies between Yukon and Utah.

For the phylogenetic component of my thesis, I propose to add five North American *Evylaeus* species to a phylogeny of Old World *Evylaeus* (Packer 1991). The resulting phylogeny will be used in a study of the evolution of social behaviour in *Evylaeus*.

Mt. Washington (6,288 feet above sea level) is the highest mountain in the Presidential Range which extends in a south-southwest direction from Gorham, New Hampshire. Approximately 7.5 square miles of continuous tundra exists in the Presidential Range in an area which includes the top of Mt. Washington. During a visit in June I caught several female *Evylaeus* in the "alpine garden" (approximately 5000 feet above sea level). Interestingly, or not, the highest wind speed ever recorded (231 mph) was recorded on the summit of Mt. Washington.

In July I drove to Yukon (six days on the road). At two sites in the vicinity of Whitehorse (Mt. McIntyre and Pilot Mountain) I caught several more female *Evylaeus*. On July 26 I caught approximately 50 male sweat bees near Dawson City (approximately 7 km up the unpaved Dempster highway) which I later identified as *L. (E.) comagenense* and *L. (E.) boreale*. In the town of Inuvik (approximately 750 km up the Dempster highway and three days north of Whitehorse) I found male *L. (E.) boreale* flying around, and walking on, a long yellow steel road barrier (meanwhile, Laurence was collecting the same species in southern Arizona). In four days I collected over 100 specimens. This road barrier was only metres from the Inuvik Research Station which provides free assistance (including accommodation) to licensed researchers. On the way back down the Dempster highway I collected another 50 *L. (E.) comagenense* at the km 7 site. On August 5, I began return trip to Toronto from Dawson City. This was followed by a short and unsuccessful trip to North Bay (Ontario) in search of *L. (E.) quebecense* which was in turn, followed by a one week, return trip to Mt. Washington where, on August 25, I caught 40 male and 22 female *L. (E.) boreale*.

Other halictids including *Sphecodes* spp., *Dialictus* spp., and *Halictus rubicundus* were collected during my travels and these were also preserved in liquid nitrogen. I also have a variety of other Hymenoptera on pins which were caught for interest, including *Hylaeus* spp., more *Dialictus* spp., and some megachilids and andrenids.

I drove over 22,000km in pursuit of this bee, all of it in an extended Bedford van which cost \$1,100!

Many thanks to a Northern Scientific Training Grant, the Science Institute of the Northwest Territories, Yukon Tourism (Heritage Branch), the Yukon Department of Renewable Resources, the Arctic Institute of North America, the Kluane National Park Reserve, Heidi Grant, Julie and Sylvia Frich, Dr. Richard Ring and Dr. Andrew Pullin.

* *L. (E.) boreale* may be conspecific with *L. dasiphorae* which was described from high altitudes in New Mexico and California by Cockerell in 1901.

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Schrottky Type's Mystery: Any Clues?

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Trying to recognize the identity of the plethora of South American names in the genus *Exomalopsis*, I got stuck with a problem: where are the types of the species described by Schrottky? Well, this is not surprising to anyone who has ever worked with taxonomy of Neotropical Hymenoptera. Kurt Schrottky (who frequently signed his papers as C.Schrottky) was a German (?) entomologist who worked for many years in Brazil, Argentina and Paraguay. Between 1901 and 1921 he published some 50 papers describing many genera and hundreds of species. He kept a large Hymenoptera collection at Puerto Bertoni, which was partially destroyed when revolutionary soldiers invaded his home.

The types of the species described by him while he was working in São Paulo are, for the most part, in the collection of the Museu de Zoologia da Universidade de São Paulo. I found some specimens of *Exomalopsis* identified by him among the bees of the Museo de La Plata, and insects collected by him are said to be at the Instituto Oswaldo Cruz, in Rio de Janeiro. Holotypes of *Exomalopsis fulvipennis*, *E. elephantopodis minor* and *E. ypirangensis* are at São Paulo; the types of *E. hiberna*, *E. melochiae*, *E. paraguayensis*, *E. rufipes* and *E. vernoniae*, however, are lost. There are specimens identified by Schrottky of *E. hiberna*, *E. elephantopodis*

and *E. vernoniae*, from or from near their type localities, that are good potential neotypes. However, there is some information suggesting that types of Schrottky may still be recovered.

It is interesting that, although Townes & Townes (1966) and Grissell (1979) have cited an obituary, published in 1938 by Sachtleben, none of them commented explicitly on an important piece of information given there: according to Sachtleben, the remaining bees of Schrottky's collection were acquired by someone called Hans Jacob, who lived in Hohenau, near Concepción, Paraguay.

Recently, I heard that part of Schrottky's collection has been kept in a Paraguayan bank and that it was recently transferred to a Paraguayan University or Museum.

It is extremely important that the collection maintained by Schrottky in Paraguay is found and studied, if any part of it still exists. I am, thus, trying to find people in that country who could give me any clue about it. Any information leading to such a person or to Schrottky's collection will be most welcomed!

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COLLECTION NEWS

Renovation Nearly Completed at the UMMZ

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After over a year of moving, demolition, construction, and renovation work, the Insect Division is almost back to a normal state. The Insect and Herpetology Divisions have been undergoing the phased renovation since March of 1993, and although there are still some rooms that have to be finished, those renovations are minor in comparison to what we've endured for over 14 months.

Our new alcohol range was completed in January, and we moved in over 70,000 vials and jars into the new space. That room has a nice work area, and a 6 ft. fume hood for large-volume work.

We moved back into our largest range in early May, and we were able to move all of the insect cases back in within 5 days. Of course, due to the nature of the move, none of the cases are in their original order, so we'll have to move nearly all of the drawers - luckily all of them are numbered sequentially within each order, so it won't be such a formidable task. The new

range has a full-length work area with about 6 workstations, lots of lighting, and will be an inviting place for us and for visitors to the collection to work.

The old alcohol range has been turned into a pinned range, and will house the Odonata, Neuropteroids, Hemiptera, and minor orders, as well as our Odonata library. That room also features a very nice work space, and I expect that we'll be finished moving into there by the middle of June.

Barry O'Connor, one of our curators, should be moving back into his renovated space by mid-June, and will welcome the move from his cramped quarters in the insect "live room". That room will have some minor renovations that will provide a better work area for graduate students and researchers. Other rooms will also have minor renovation work, and they ought to be done by July 1.

The National Science Foundation funded our collections enhancement grant, and we'll be putting in new insect cabinets and thousands of new drawers this summer and fall. The University is wiring the entire museum for ethernet, and every one of our ranges and offices will have ethernet connections. The College is providing new computers and networked printers, so we'll be in good shape this fall. A large Novell Netware server will be provided for the museums, but I expect that in the beginning, the Insect Division will be using an AppleShare server until we need to migrate specific services to the Netware server. We are evaluating several database projects, and we hope to have some definite plans in place by the end of the year.

It's been quite a year - and there have been many physical changes in the Insect Division. We are open for business - and we welcome your loan requests, searches, and visits. We have extensive holdings of Coleoptera, Diptera, Odonata (3000+ species), Orthoptera, Acari, and substantial holdings of Hymenoptera, Hemiptera, Neuroptera, Arachnida, and Lepidoptera.

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Michigan State University's Insect Collection

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The Insect Collection at Michigan State University contains several million specimens. There's some history I'm not going into here, but Dr. Roland Fischer did a lot to increase the holdings of the collection. We all know there was a period of time when specimens were all but impossible to get on loan from MSU. Whether this was due to a lack of funding or idiosyncrasies is no longer important. What is important at this time, is to let researchers who are unfamiliar with this collection know what is at MSU.

Dr. Fred Stehr and his band of merry entomologists have done much in the past several years to begin reorganizing the collection. Loans are again being sent out. Before I left (in January to start work as the Collection Manager at University of Colorado in Boulder) I did a "fast and dirty" inventory of the Hymenoptera in MSU's Insect Collection. Basically, I counted the number of Cornell drawers of each group, dividing them into two categories: determined and undetermined. It should be noted that most drawers of undermined material are packed to the point of near explosion. Drawers of determined material aren't quite that full. A table of the bees follows.

Michigan State Bee Collection (Cornell Drawers)		
	Determined	Undetermined
COLLETIDAE		
<i>Colletes</i>	3	2
Paracolletini	0	1
<i>Hylaeus</i>	4	1
OXAEIDAE	0	.5
ANDRENIDAE		
<i>Andrena</i>	18	9
Panurginae	0	1
other genera	<1 drawer each	
<i>Perdita</i>	4	0
<i>"Psaenythia"</i>	1	0
<i>Heterosarus</i>	1	0
HALICTIDAE		
Dufoureae	1	0
Nomiinae	1	0
Halictinae	37	8
MELITTIDAE	.5	.5
MEGACHILIDAE		
Lithurginae	.25	0
Megachilinae	0	2 (exotic)
Anthidiini	6	0
other genera	<1 drawer each	

Michigan State Bee Collection (cont.)

<i>Hoplitis</i>	5	0
<i>Osmia</i>	4	2
<i>Megachile</i>	8	4
<i>Coelioxys</i>	2	1
"ANTHOPHORIDAE"		
Nomadini	7	2
other tribes	0	22
Ceratinini	1	2
Xylocopini	2	3
APIDAE		
Bombinae	25	11
<i>Apis</i>	3	0
Euglossinae	0	.5
Meliponini	0	2.5

MSU is the Land Grant Institution in Michigan, and of course Michigan insects represent a good part of their holdings. However, there is a surprisingly large amount of material from the Western US, Mexico, Central and South America (Chile especially). Other parts of the world are represented much more irregularly, but it's still worth asking about.

Unfortunately, after two moves, some of the bees were found to be a bit disorganized a few years ago ("Anthophoridae" and Halictidae). Most of my time was spent returning bees Fischer had on loan from other institutions in order to make room in the cabinets for MSU's bees. As a result, much of MSU's material still needs work. The collection is fabulous, but needs some heavy duty grunt work, particularly in the Apidae. Anyone willing to sift through some extra material in order to locate specimens for their research will be duly rewarded (just ask Fernando Silveira at the University of Kansas).

Loan requests can be directed to Dr. Fred Stehr, Department of Entomology, 243 Natural Science Bldg., Michigan State University, East Lansing, Michigan, 48824-1115.

Evans' Old Field Bee Data Available

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We have recently completed transferring Francis Evans' records of the bee fauna of the E.S. George Reserve, from his notebooks to a computer database. These records span 40 years (1949-1990) of ecological research by Francis C. Evans at an old field (known as Evans' Old Field, or EOF) on the E.S. George Reserve, a square-mile preserve and research area in southeastern Michigan (Livingston Co.), owned by the University of Michigan and administered by the Museum of Zoology.

The database, in FileMaker Pro format, contains 4,059 records for 180 species of Apoidea. It provides the bee taxa, flower records, sex of bee, date of collection, type of activity, and other relevant information. All of the material has been checked or verified by specialists, and is housed in the UMMZ Insect Division.

This database has many potential uses - pollination studies, ecological relationships, faunistic surveys; and it may be the only long-term study of its kind. We will eventually provide the data via the Internet, and will be accessible as a Gopher or WorldWideWeb database. For now, users may request searches or copies of the datafiles (specify FM Pro, .dbf, DIF, SYLK, or tabbed text file) via email (mfobrien@umich.edu).

A goal is to eventually catalog all of the insect fauna of the E.S. George Reserve, and the bee list from the EOF area certainly gives us a start on such a project.

KANU Announces E-mail Access to Kansas Plant Database

Meredith A. Lane and R.L. McGregor
Herbarium, Department of Botany
2045 Constant Ave., Campus West
Lawrence, KS, USA
mlane@kuhub.cc.ukans.edu

The Kansas Plant Database, produced jointly by the R. L. McGregor Herbarium and the Kansas Biological Survey at the University of Kansas, contains 111,000 records of herbarium label data of vascular plants in Kansas. Vouchers of these specimens are housed at the R. L. McGregor Herbarium (KANU). The KPD will be available for interactive access in the future, but in the interim, queries may be directed via E-mail to ANU@KUHub.CC.UKANS.EDU.

Additional information about the database (fields, table structure, etc.) can be obtained by sending request for such information to ANU@KUHub.CC.UKANS.EDU.

Please include in your e-mail query the following: Your e-mail address, your institutional street address, a brief explanation of the use to which the information obtained from the Kansas Plant Database will be put, a statement that you will

properly attribute your data source in any publication that might result from your work, and your query. The R. L. McGregor Herbarium and the Kansas Biological Survey are committed to the ideal of scientific openness as long as endangered species or other sensitive taxa are in no way compromised.

During this initial stage of implementation, there may be a 24-hour to several-day delay between the submission of a query and the return of data because we are conducting quality control on a query-by-query basis as a check of our system.

The Kansas Plant Database comprises seven linked tables, maintained in a DOS environment using Paradox for Windows (Borland) as the database management system. Queries are performed using the query-by-example features of Paradox. Examples of regularly asked questions are: What is the distribution of a particular taxon within Kansas? How many taxa have been collected in a particular Kansas county? Which taxa have been reported in county A but not county B? What species were collected by a given collector during a given period? Etc.

Query replies will be returned as ASCII files via E-mail to your specified address, or as Paradox for Windows version 1.0 reports on disk, or as hard copy. Data returns are free of charge, except in the case of exceptionally large query results, in which case there may be a small handling fee.

CURRENT PROJECTS

Barry J. Donovan, Donovan Scientific Insect Research, Canterbury Agriculture and Science Centre, Gerald Street, Lincoln, Private Bag 4704, Christchurch, NEW ZEALAND [DonovanB@crop.cri.nz].--"In mid 1992 Government-funded bodies that undertook scientific research in New Zealand were disestablished, and most staff were re-organised into ten Crown Research Institutes. The former Department of Scientific and Industrial Research, the Technical branch of the Ministry of Agriculture and Fisheries, and the Forest Research Institute were disbanded, along with some smaller organisations, and most biological researchers were assigned to the Forest, Horticultural, Agricultural, Crop and Food, and Landcare, Crown Research Institutes. These Institutes are commercial companies, the shares of which are owned by the Government, representing the Crown (ie the Monarchy). Each Institute has a Board appointed by our Minister of Science and Minister of Finance, which, in turn, is responsible for choosing a Chief Executive, who, in his/her turn, hires the staff. As the names suggest, the CRIs are each aligned to a major agricultural or horticultural sector of the economy, or to the natural environment. The Department of Conservation remains intact.

The bulk of the funding for the Institutes is obtained from the Government-funded Foundation for Research, Science and Technology, through a competitive bidding process, but income can be earned from any source through normal commercial practices. Although the Institutes are owned by the

Government, they are independent entities whose primary objective is to be commercially successful (ie pay big dividends to the Government!).

What were the consequences of this revolution for researchers? Most of course transferred to the new Institutes, but many did not. Entomologists suffered particularly badly, as their fields of research were split among the CRIs, with many scientists and technicians being made redundant or taking "early enhanced retirement". My colleagues Rod Macfarlane who worked on bumble bees, Dan Pearson who had studied honey bee pollination of clovers in mountain pastures, and Ansley Ferguson who researched on kiwifruit pollination, all lost their jobs. I survived for four months in the Landcare CRI on the basis of my biological control of wasps research, but then was made redundant "because of a lack of funds".

So, I at once wrote up two bids to the Foundation, one for further work on wasp control, and another for the continuation of my revision of the native bees of New Zealand. Most fortunately for me I was lucky enough to win both bids, and what is more, both are funded for three years. I am now working as what is called here a sole trader, ie an independent worker. I hire office and laboratory space and all services from the Crop and Food CRI here on the Lincoln campus of the Canterbury Agriculture and Science Centre, where everything is available to me as long as I pay! I am free to undertake any research I like (the best type is of course that which I am both interested in, and which people are willing to pay me for).

My bid for the native bee revision is for one-third of my time per year, and at the moment (June) I am approaching the end of my first 12 months. To date 13 species revisions have been completed, including species descriptions, flower visiting records, notes on biology including nests sites, inked drawings of genitalia, and distribution maps. The native bees, of which there are about 35 species, will be completed in another two years, but I plan to bid for further funding to include the introduced bees, of which there are eight species that have been purposely introduced, and a couple which are adventive. If all goes well, the revision of the Apoidea of New Zealand will be printed in about 1998 as part of the Fauna of New Zealand series which is produced by Landcare Research.

A number of other researchers in different fields are now operating as I am. It is turning out that the changes we have gone through have not been all bad by any means. For the first time in my life I am my own boss, of which some of the greatest benefits are that I now attend only those meetings that are of direct relevance to me, and I can choose to follow any research path I like. The revolution in the way that science research is organised in New Zealand is being followed with much interest by bureaucrats in some other countries. Good luck!

D. Eisikowitch, Department of Botany, George S. Wise Faculty of Life Sciences, Tel Aviv University, University Campus, Ramat Aviv, Tel Aviv 69978, ISRAEL.--CURRENT PROJECT: (with Amir Michael, Tel Aviv University) Pollination ecology of Wild Almonds (*Amigdalus communis*) in Israel. HELP: Will need any additional information on localities

of Wild Almonds throughout the Mediterranean region, their blooming period, pollinators, etc. Every way of collaboration will be welcomed.

Michael Engel, Department of Entomology, 3126 Comstock Hall, Cornell University, Ithaca, New York 14853, USA (e-mail: me18@cornell.edu).--CURRENT PROJECTS: I am working on a molecular phylogeny of the Augochlorini as part of my dissertation research. I am also working on a combined molecular and morphological analysis of the Augochlorina complex. **HELP:** I can use any specimens of Augochlorina genera in 90-95% ethanol for DNA analysis. Especially specimens of the more uncommon genera from Brazil, Argentina, or Chile."

Julio Antonio Genaro, Curator of Hymenoptera, Museo Nacional de Historia Natural, Academia de Ciencias, Capitolio Nacional, Ciudad de la Habana, C.P. 10200, CUBA.--CURRENT PROJECTS: Thanks to the RARE Center for Tropical Conservation I had the opportunity to visit in May and June of 1994, some U.S. Museums, i.e., Academy of Natural Sciences of Philadelphia, AMNH, MCZ, USNM, American Entomological Institute and the Florida Department of Agriculture & Consumer Services (Gainesville). I was comparing Cuban specimens with other neotropical species and I am finishing revisions of Cuban *Coelioxys* (with two new species of the subgenera *Boreocoelioxys* and *Cyrtocoelioxys*), *Chalicodoma* and *Epeolini* (with two new species). I am indebted to Drs. Ron McGinley, Jerome Rozen, Jr., Arnold Menke and Karl Krombein for their advice and hospitality during my visit. I also thank the RARE's staff - John Guarnaccia, Jennifer Niese and Christine Psomiades for their generous kindness.

Noel Pabalan, Department of Biology, York University, 4700 Keele Street, North York, Ontario M3J 1P3, CANADA.--CURRENT PROJECTS: 1) Comparative morphology and histology of the ovaries and spermathecae of halictid and megachilid bees. 2) An investigation of the factors affecting ovarian development and resorption in halictine females. **COMMENTS:** These studies form the beginning of my Ph.D. research under the joint supervision of Drs. Ken Davey and Laurence Packer at York University.

Catherine Reed, Entomology Dept, 219 Hodson Hall, University of Minnesota, St. Paul MN 55108. Phone: 612-624-3423. E-mail reedx012@maroon.tc.umn.edu. **CURRENT PROJECTS AND HELP:** I am doing a major study on the effects of prairie burning and other management techniques on insects, at the request of prairie managers. I'd appreciate any studies, or even impressions, on the impact of burning, grazing and mowing on bees. Also, I'll be making a list of insects which are prairie obligates. Both studies will emphasize the northern great plains. I'm still thinking about the relationships between plant and bee species richness, and would like to be in touch with others who are studying this.

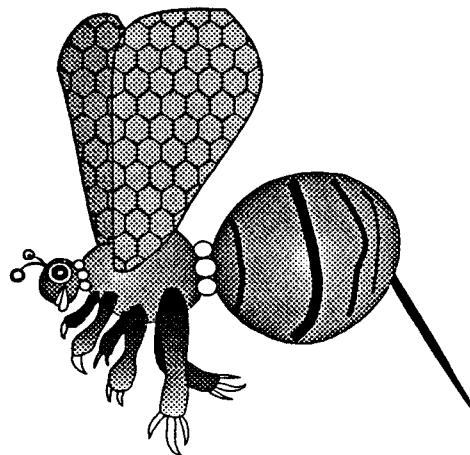
John Taylor, Department of Biology, York University, 4700 Keele Street, North York, Ontario M3J 1P3, CANADA.--CURRENT PROJECTS: 1) An electrophoretic analysis of population structure and biogeography of the glacial relict species *Lasioglossum (Evylaeus) boreale* (see accompanying collection notes by myself and Laurence Packer). 2) An

electrophoretic study of the phylogenetic relationships among some North American and European *Evylaeus* species.

HELP: My main study species is holarctic and is found in subarctic tundra and alpine montane localities. I have samples from Churchill, Manitoba; Inuvik, NWT; Yukon; the Uinta Mountains, Utah; the Graham Mountains, Arizona and Mount Washington, New Hampshire. I badly need additional specimens of *Evylaeus* from high altitude in the Rocky mountains or at high latitude from Norway across to Siberia and across Northern North America. Anyone who may be able to collect samples for me can be provided with a liquid nitrogen container by contacting me at Dept. Biology, York University, 4700 Keele St., N. York, ONT. M3J 1P3, CANADA. I can cover shipping charges and, perhaps, some contribution to travel costs if discussed sufficiently in advance.

María Fernanda Trucó Alemán, Museo Argentino de Cs. Naturales, "Bernardino Rivadavia", Av. Angel Gallardo 470, 1405 Buenos Aires, ARGENTINA.--CURRENT PROJECT: revision of the colletid genus *Brachyglossula* (Paracolletini). The project is in the stage of species sorting and preparation of illustrations. I am planning to complete the study with a key and a cladistic analysis of the group. I am working under the direction of Dr. Arturo Roig Alsina. **HELP:** need any additional *Brachyglossula* specimens for inclusion in my work.

Bill Weislo.--NEW ADDRESS: Smithsonian Tropical Research Institute, Unit 0948, APO AA 34002-0948 USA; or, STRI, Apartado 2072, Balboa, Republic of Panama. NEW FAX NUMBER: (507) 32-5978. NEW E-MAIL ADDRESS: strem123@sivm.si.edu. **CURRENT PROJECTS:** My most current project involves moving to Panama, where I will start a new job as a staff scientist in animal behavior at STRI. I plan to focus on halictid bees (although I will take advantage of especially interesting opportunities to work on less noble creatures). My general goal is to study the relationship between behavioral flexibility, especially learning, and evolutionary diversification. Other **CURRENT PROJECTS** are not too different from a previous issue of MELISSA, since several of those are still in progress. **HELP NEEDED:** Bryan Danforth (Entomology, Cornell University) and I are preparing an invited review for the Annual Review of Entomology on the evolutionary ecology of solitary bees. If anyone wants to send reprints of recent papers, it would be greatly appreciated, and YOUR important studies would not be overlooked!



ELECTRONIC MAIL NEWS

Bee Worker E-Mail Addresses

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This list was compiled with input and help from Rob Brooks, Sydney Cameron, Jo Cardale, Howell Daly, Bryan Danforth, George Eickwort, Laraine Ficken, Abraham Hefetz, Glynn Maynard, Beth Norden, Chris Plowright, Virginia Scott, Edward Southwick, Karen Strickler, Vince Tepedino, Robbin Thorp, Bill Wcislo, and Paul Williams. Many thanks to all for helping to pull this together. Please look over for corrections and please send in any additions you might come across. Updates will be included in future issues of MELISSA. Upon request I can send updates as an ASCII text file via e-mail. Thanks again.

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POLPAL- L: A Pollination Bulletin Board

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POLPAL-L is a electronic bulletin board for scientists and others interested in Pollination Biology, Palynology, and Plant Breeding Systems. It is intended to provide a forum for the exchange of information, news, and views of interest to subscribers. The bulletin board has been in operation for over a year and has subscribers world-wide. Exchanges to date have ranged from recipes for pollen germination, through palaeopalynology, floral biology and plant breeding systems, to concerns about the biophysics and meteorology of allergenic pollen and spore dispersal in the atmosphere.

To join, send a message to LISTSERV@UOGUELPH.CA with the text **SUBSCRIBE POLPAL-L YOUR REAL NAME** and you will automatically be enrolled. To post a message, the address is POLPAL-L@UOGUELPH.CA

Material for Bibliography on Bumblebee Rearing

Chris Plowright
 [from The Bumblebee List, 3 August 1994 - via the University of Ottawa; bombus@csi.uottawa.ca]

The Bombus List is being inundated with requests from people who want to join because they wish to learn how to rear bumblebees. This was not my main objective when I started the list, and although I appreciate that Internet lists have a "mind of their own" (which doesn't necessarily have any detectable relationship to the original intentions of the people who started them!), I am anxious not to let the Bombus List grow too large (I forecast to our system administrator that the

list would peak and remain constant at a level of about 50 subscribers--but we are now already at over 70).

On the other hand, I do also want to do something to satisfy the concerns of all the *Bombus*-rearing wannabes who clearly look to the Internet to provide them with useful information. My plan is to compile a bibliography of public domain articles on bumblebee rearing, and my problem is that I am not nearly up to date in this area (I think the most recent article that I read was that by Bilinski in 1976!). Subsequent to the development of a bumblebee rearing industry (in the late 1980's) it seems that there hasn't been much incentive for people to publish papers on *Bombus* rearing, but I have certainly missed what little has been published. There are also embarrassing gaps in my knowledge of parts of the earlier literature: for example, I am fairly sure that P.F. Roeseler (who, unknown to both of us, was doing his Ph.D. on bumblebees in Germany at the same time as I was doing mine in Canada--and we were working on very similar topics!) put out at least one paper on bumblebee rearing, but I have never seen it and do not have the citation. Given the huge influence that Roeseler has had on bumblebee rearing in Europe, this is a disgraceful incompetence on my part.

So could I ask, please, if any of you can contribute useful citations to this project? For example, perhaps one of our European subscribers could help with the Roeseler paper(s)? I am anxious to produce something useful, because although we will never get the commercial people to reveal their industrial secrets, there is still plenty of scope for helping people to raise bumblebee colonies on a small scale for research or general interest. So I will be most grateful for any help that I can get.

Contributions should be sent, please, not to the List but to me personally, at wright@csi.uottawa.ca (I will, of course, post the results on the Bombus List as soon as a draft has been compiled, so that I can solicit improvements and additions at that time).

Tips for E-mail Beginners

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Electronic Mail (= E-Mail) is becoming a primary means of communication in science, industry, and business. For those reluctant to enter the world of E-mail, take heart.... most systems are setup to make using E-mail fairly straightforward. The tips here are NOT designed to instruct you on the use of E-Mail; just to acquaint you with finding help and getting started.

Most colleges and universities are connected to BITNET or INTERNET, which are two of many possible ways to access the "Net". Some users have private accounts with commercial network services (e.g. COMPUSEVE, PRODIGY). Any of these interfaces usually allow connection with practically any-

one else using the same network services; NetNews, Government accesses, and a myriad of "bulletin boards" (BBSs).

Each user on a service has an "address" which consists of a "nodename" followed by an "address". There is usually an "at" sign (= @) between the nodename and address. Thus, ACADY@MIAVX3 would read "A CADY AT MIAMI VaX3. This is the standard syntax for a Bitnet address. Internet addresses are usually longer. For example, the above Bitnet address modified for Internet is ACADY@MIAVX3.MID.MUOHIO.EDU. Unfortunately, there is no consistent way to translate addresses from one network to another. This depends on naming conventions adopted by system operators at each local site. However, the final name of an Internet address tends to identify the institution (EDU, GOV, COM, ORG).

The best way to get going with E-mail is to contact your local system operator. Ask if you are connected to any of these major networks. You may have to install a special network circuit board and software into your personal computer. Also ask for explicit instructions on how to access the various networks. Once you get into "MAIL" on your system, the "Help" files there are available to help with specific commands.

Good luck with getting started! Give yourself time to learn how to use the system. Remember how fast and direct E-mail is, and how this tool opens a whole new world. Do not be afraid to ask other "netters" for assistance. Enjoy!

MELISSA MAILING LIST

Compiled by Ron McGinley
Smithsonian Institution

The MELISSA mailing list as of 23 August 1994 is presented below - this to help bee workers locate colleagues. While most individuals listed are bee specialists many are not. This is a dBASE file and a subset (554) of a much larger Directory (approximately 9,000 records). Most fields are self-explanatory but the following points should be noted. As an example, the entry for McGinley:

McGinley, Ronald J. - Department of Entomology, NHB mail stop 105, Smithsonian Institution, Washington, DC, 20560, USA. TEL: 202-357-2834. FAX: 202-786-2894. EMAIL: mnhen011@sivm.si.edu ORDER: HYM. INTERESTS: systematics. MAILINGS: SIReg Mel IntSocHym. Sph RJM 03/22/94.

The only "INTEREST" descriptor used is "systematics" - this because we anticipate sending out a detailed questionnaire for taxonomy types in the entire Directory. "MAILINGS" are simply the group mailing list codes for MELISSA, SPHECOS, etc. The final two fields indicate that McGinley (RJM) validated this record on March 22. If there is no evidence of validation this will appear as " / / ."

There are undoubtedly many errors/omissions in this listing for which I apologize in advance. However, distributing this information is probably the fastest way to improve the data-

base. Please send updates to McGinley (preferably via e-mail at mnhen011@sivm.si.edu). Many thanks.

Acquisitions Section - Department of Library Services, The Natural History Museum, Cromwell Road, London, SW7 5BD, UK. TEL.: ORDER: HYM, HOM. MAILINGS: Mel ChalForum Sym Scale MJM 03/17/94.

Director/Curator - Central Bee Research and Training Instit, Khadi and Village Industries Commission, 1153 Ganeshkhind Road, Pune, 411 016, INDIA. TEL.: MAILINGS: Mel IMU / / .

Director/Curator - Istituto di Entomologia Agraria, Università degli Studi, Via Amendola 165/A, Bari, 70126, ITALY. TEL.: MAILINGS: Mel IMU / / .

Director/Curator - Bibliotheek der Nederlandse Entomologische Vereniging Plantage Middenlaan 84, Amsterdam, 1018 DH, NETHERLANDS. TEL.: MAILINGS: Mel IMU / / .

Director/Curator - BIOSIS, U.K., Garforth House, 54 Micklegate, York, North Yorkshire, YO1 1LF, UK. TEL.: MAILINGS: Mel IMU / / .

Director/Curator - Royal Entomological Society of London, 41 Queen's Gate, London, SW7 5HU, UNITED KINGDOM. TEL.: MAILINGS: Mel IMU / / .

Director/Curator - American Entomological Institute, 3005 SW 56th Avenue, Gainesville, FL, USA. TEL: (904) 377-6458. EMAIL: Viren@UFFSC MAILINGS: Mel IMU / / .

Director/Curator - California Academy of Sciences, Golden Gate Park, San Francisco, CA, 94118, USA. TEL.: MAILINGS: Mel IMU / / .

Abbott, John C. - 1030 Dallas Dr. #623, Denton, TX, 76205, USA. TEL.: INTERESTS: systematics. MAILINGS: Mel ICNews MJM 04/18/94.

Abrahamovich, Alberto H. - Division Entomologia, Museo de La Plata (UNLP), Paseo del Bosque s/n, La Plata, Buenos Aires, 1900, ARGENTINA. TEL: 21-8805;21-8217;21-9066;3-1925 inter. 55. INTERESTS: systematics. MAILINGS: Mel IMU / / .

Achterberg, Kees van - Ryksmuseum van Natuurlijke Historie, Postbus 9517, 2300 RA Leiden, THE NETHERLANDS. TEL.: ORDER: HYM. MAILINGS: Mel ICNews IntSocHym. IchNews Sph Sym RWC / / .

Ackerman, James D. - Department of Biology, University of Puerto Rico, Rio Piedras, 00931, PUERTO RICO. TEL.: MAILINGS: Mel IMU / / .

Agren, Lennart K. - Uppsala Universitets, Ekologiska Forskningsstation, Olands Skogsby 6280, S-386 00 Farjestaden, SWEDEN. TEL: 0485/383 56. EMAIL: largen@semex51 ORDER: HYM. MAILINGS: Mel IntSocHym. Sph RWC / / .

Aguilar, Joao B. V. - Departamento de Ecologia Geral, Instituto de Biociencias, USP, 05.508, Sao Paulo, SP, BRAZIL. TEL.: MAILINGS: Mel IMU / / .

Alayon Garcia, Giraldo - Grupo en Direcc. Nac. Flora y Fauna, Apartado Postal #20, San Antonio de los Baños, La Habana, 32500, CUBA. TEL: 2815. INTERESTS: systematics. MAILINGS: Mel ICNews IMU / / .

Alcock, John - Department of Zoology, Arizona State University, Tempe, AZ, 85287, USA. TEL: 602-965-7304. MAILINGS: Mel TSU RWC / / .

Alexander, Byron A. - University of Kansas, Snow Entomological Museum, Snow Hall, Lawrence, KS, 66045, USA. TEL: 913-864-4610. FAX: 913-864-5321. EMAIL: byron@kuhub.cc.ukans.edu ORDER: HYME. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews IntSocHym. Sph RJM 05/20/94.

Allen, Mark F. - Entomology Department, Rothamsted Experimental Station, Harpenden, Hertfordshire, AL5 2JQ, UK. TEL: 05827-63133. MAILINGS: Mel IMU / / .

Almeida, Maria C. de - Departamento de Zoologia, IBBMA - UNESP, Rubiao Junior, Botucatu, SP, 18600, BRAZIL. TEL.: MAILINGS: Mel RJM 12/16/91.

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Amiet, Felix - Bezirkslehrer, Forstrasse 7, CH-4500 Solothurn, SWITZERLAND. TEL: 065 23 12 31. ORDER: HYM. MAILINGS: Mel IntSocHym. MJM 12/16/91.

Amos, Bonnie B. - Department of Biology, Angelo State University, San Angelo, TX, 76909, USA. TEL: 915-942-2189. INTERESTS: systematics. MAILINGS: Mel MJM 12/16/91.

Anderson, Denis L. - DSIR, Entomology Division, Mt. Albert Research Centre, Private Bag, Auckland, NEW ZEALAND. TEL: 09-893-660. MAILINGS: Mel RJM 12/16/91.

Anderson, Gregory J. - Biological Sciences Group U-43, University of Connecticut, Storrs, CT, 06268, USA. TEL.: MAILINGS: Mel RJM 12/16/91.

Andersson, Hugo S. A. - Zoological Institute, Department of Systematics, Helgonavagen 3, S-223 62 Lund, SWEDEN. TEL: 046-109334. ORDER: HYM. MAILINGS: Mel Sph Sym Dipt RWC / / .

Archer, Michael E. - Department of Biology, University College of Ripon & York, St. John, Lord Mayor's Walk, York YO3 7EX, ENGLAND. TEL.: ORDER: HYM. MAILINGS: SIREg Mel IntSocHym. Sph RJM 12/03/92.

Arduser, Michael S. - Missouri Dept. of Conservation, St. Louis Metro Office, 11715 Cragwood Road, Kirkwood, MO, 63122, USA. TEL: 314-821-1571. ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel IntSocHym. Sph RJM 08/10/94.

Armbruster, W. Scott - Department of Biology and Wildlife, and Institute of Arctic Biology, University of Alaska, Fairbanks, AK, 99775-0180, USA. TEL: (907) 474-7161. EMAIL: FFWSA@aurora.alaska.edu ORDER: DIPT. MAILINGS: Mel Dipt IMU / / .

Asensio de la Sierra, Enrique - Jefe del Servicio de Investigación Agrar, Apartado 172, Valladolid, 47080, SPAIN. TEL: 83.353897 83.333022. INTERESTS: systematics. MAILINGS: Mel IMU / / .

Ayala-Barajas, Ricardo - Estacion de Biologia Chamela, UNAM, Apartado Postal 21, San Patricio, Jalisco, 48980, MEXICO. TEL.: EMAIL: barajas@unamvml.dgsca.unam.mx INTERESTS: systematics. MAILINGS: Mel RJM 05/20/94.

Ayasse, Manfred - Institut für Zoologie, Abteilung für Evolutionsbiologie, Althanstrasse 14, Wein A-1090, AUSTRIA. TEL.: EMAIL: A8731DAR@helios.edvz.univie.ac.at ORDER: HYM. MAILINGS: Mel RJM 02/11/93.

Baker, Donald B. - c/o International Inst. of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, ENGLAND. TEL.: ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel Sph RJM 12/16/91.

Balbuena Vidal, Ramon - CIES, Area Agroecologica, Apartado Postal 36, Tapachula, Chiapas, 30700, MEXICO. TEL: 962-50085. MAILINGS: Mel RJM 12/16/91.

Baldovski, Gunter - Liebigstrasse 6, Grolitz, D - 02828, GERMANY. TEL.: ORDER: HYM. MAILINGS: Mel IntSocHym. RJM 06/03/94.

Ball, Brenda V. - Entomology Department, Rothamsted Experimental Station, Harpenden, Hertfordshire, AL5 2JQ, UK. TEL: 05827 63133. MAILINGS: Mel RJM 12/16/91.

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- Banschbach, Valerie - Department of Zoology, University of Vermont, Burlington, VT, 05405, USA. TEL.: EMAIL: V_BANSCHBACH@UVMVAX.UVM.EDU MAILINGS: Mel RJM 04/07/93.
- Barile, G.F. - WAS at: University of the Philippines, at Los Banos College, Laguna, PHILIPPINES. TEL.: ORDER: HYM. MAILINGS: Mel RJM 09/10/92. [NEED NEW ADDRESS]
- Barrows, Edward M. - Department of Biology, Georgetown University, Washington, DC, 20057, USA. TEL: 202-687-5841. ORDER: HYME. MAILINGS: SIREg Mel ICNews SIEntNews Sph RWC / / .
- Bartreau, Tad - P.O. Box 317, Herberton, Queensland 4872, AUSTRALIA. TEL.: ORDER: HYM. MAILINGS: Mel RJM 02/19/93.
- Batra, Suzanne - Bee Research Laboratory, Bldg. 476 BARC-East, 10300 Baltimore Ave., Beltsville, MD, 20705-2350, USA. TEL: (301) 344-2384. ORDER: HYM. MAILINGS: SIREg Mel Sph RWC / / .
- Bego, Luci Rolandi - Departamento de Ecologia Genal, Instituto de Biociencias, Universidade de Sao Paulo, CEP, Sao Paulo, SP, 11.461, BRAZIL. TEL.: ORDER: HYM. MAILINGS: Mel RJM 09/10/92.
- Beig, Darwin - Instituto de Biociencias, UNESP - Campus de Rio Claro, Cx. Postal 178, 13500 Rio Claro, SP, BRAZIL. TEL.: MAILINGS: Mel RJM 12/16/91.
- Berg, Oistein - Jorstadveien 39, N-1360 Nesbru, NORWAY. TEL.: MAILINGS: Mel Sph RJM 06/30/94.
- Blagoveschenskaya, Nina N. - Division of Zoology, Ulyanovsky Pedagogical Institute, Ulyanovsk, 432700, USSR. TEL.: MAILINGS: Mel RJM 12/16/91.
- Blochtein, Betina - Universitat Tubingen, Institut fur Biologie III (Zoologie), Lehrstuhl fur Entwicklungsphysiologie, Auf der Morgenstelle 28, D 7400 Tubingen 1, GERMANY. TEL.: ORDER: HYM. MAILINGS: Mel RJM 08/04/92.
- Bogatyrov, Nikolaj R. - Biological Institute of Siberian Branch, of the Academy of Sciences, Laboratory of Insect Ecology, ul. Frunze, 11, 630091, Novosibirsk, 91, RUSSIA. TEL: 29-11-48; 25-38-00. MAILINGS: Mel RJM 10/06/93.
- Bohart, George E. - Bee Biology & Systematics Laboratory, USDA/ARS, Utah State University, Logan, UT, 84322, USA. TEL.: ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel IntSocHym. IchNews RWC / / .
- Bolten, Alan - Department of Zoology, Bartram Hall, University of Florida, Gainesville, FL, 32611, USA. TEL.: MAILINGS: Mel RJM 12/16/91.
- Bonelli, Bruno - Via Avisio 13, 38033 Cavalese (Trento), ITALY. TEL: 0462-31174. ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel IntSocHym. Sph RJM 12/16/91.
- Bonilla, Maria Argenis - Apartado Aereo 77038, Bogota, 2 D.E., COLOMBIA. TEL: 2738950. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel IntSocHym. RJM 12/16/91.
- Boongird, Somnuk - Bee Research, Entomology & Zoology Division, Department of Agriculture, Chatuchak, THAILAND. TEL: 02-5797579 02-3743363. FAX: (662) 374-3363. ORDER: HYM. MAILINGS: Mel RJM 02/24/93.
- Borg-Karlson, Anna-Karin - Ecological Station of Uppsala University, Olands Skogsby 6280, Farjestaden, S-38600, SWEDEN. TEL.: MAILINGS: Mel RJM 12/16/91.
- Bouseman, John K. - Illinois Natural History Survey, Center for Economic Entomology, 607 E. Peabody Drive, Champaign, IL, 61820, USA. TEL.: ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel IntSocHym. SELNews ESA 01/01/92.
- Brambila, Julieta - Department of Entomology & Nematology, 3101 McCarty Hall, University of Florida, Gainesville, FL, 32611, USA. TEL: (904)377-6458. ORDER: HYM. MAILINGS: SIREg Mel IchNews RJM 12/16/91.
- Bravo Q., Freddy - Dep. de Biologia, Universidad Catolica, Apartado 2184, Quito, ECUADOR. TEL.: ORDER: HYM. MAILINGS: Mel Sph RJM 12/16/91.
- Brechtel, Fritz - Staatliches Museum fur Naturkunde, Erbprinzenstr. 13, Postfach 62 09, D-7500 Karlsruhe 1, GERMANY. TEL.: ORDER: HYM. MAILINGS: Mel RJM 10/06/93.
- Breed, Michael D. - EPO Biology, University of Colorado, Boulder, CO, 80309-0334, USA. TEL.: EMAIL: Breed_M@Cubldr.colorado.EDU MAILINGS: Mel RJM 12/16/91.
- Broemeling, Derek K. - 3691 W. Black Canyon Highway, Emmett, ID, 83617, USA. TEL.: ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel RJM 12/16/91.
- Brooks, Robert W. - Snow Entomological Museum, Snow Hall, University of Kansas, Lawrence, KS, 66045-2106, USA. TEL: 913-864-4538. EMAIL: ksem@kuhub.cc.ukans.edu ORDER: HYME. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews IntSocHym. Sph TSU RJM 05/20/94.
- Brothers, Denis J. - Department of Zoology and Entomology, University of Natal, P.O. Box 375, Pietermaritzburg, 3200, SOUTH AFRICA. TEL.: EMAIL: brothers@zoology.unp.ac.za ORDER: HYME. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews IntSocHym. Sph RJM 12/04/92.
- Bruneau, Anne - L. H. Bailey Hortorium, 467 Mann Library, Cornell University, Ithaca, NY, 14853, USA. TEL: (607) 255-7829. MAILINGS: Mel RJM 12/16/91.
- Buchmann, Stephen L. - USDA-ARS, Carl Hayden Bee Research Center, 2000 East Allen Road, Tucson, AZ, 85721, USA. TEL: (602) 629-6327. EMAIL: buchmann@ccit.arizona.edu ORDER: HYME. INTERESTS: systematics. MAILINGS: Mel RJM 11/24/92.
- Burgett, Michael - Department of Entomology, Cordley Hall 2046, Oregon State University, Corvallis, Oregon, 97331-2907, USA. TEL: 503-737-4733. FAX: 503-737-3479. EMAIL: Internet: entoffice@ENT.ORST.EDU MAILINGS: Mel RJM 03/03/93.
- Burquez, Alberto - Apartado Postal 70-275, Centro de Ecologia, Unam, Mexico, DF, MEXICO. TEL: 550-5215 ext 2487. EMAIL: montijo@unamvm1.dgsca.unam.mx MAILINGS: Mel IMU / / .
- Burschbach, Valerie S. - University of Miami, Dept. of Biology, Coral Gables, FL, 33124, USA. TEL: (305) 284-4272. MAILINGS: Mel IMU / / .
- Camargo, Joao M.F. de - Departamento de Biologia, Faculdade de Filosofia Ciencias e Letras de Ribeirao Preto, USP, Ribeirao Preto, SP, 14.100, BRAZIL. TEL.: EMAIL: jmfcdama@cat.cce.usp.br ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel RJM 12/16/91.
- Cameron, Sydney A. - Department of Entomology, 632 Science-Engineering, University of Arkansas, Fayetteville, AR, 72701, USA. TEL: 501-575-5349 501-444-8938. FAX: 501-575-4010. EMAIL: scameron@uafsysb.uark.edu ORDER: HYME. MAILINGS: Mel ICNews IntSocHym. RJM 11/24/92.
- Camillo, Evandro - Departamento de Biologia, Facultad de Filosofia, Ciencias e Letras de Ribeirao Preto, USP, Ribeirao Preto, SP, 14.049, BRAZIL. TEL: 016-634-6255 R:35. ORDER: HYM. MAILINGS: Mel RJM 12/16/91.

- Cane, James H. - Dept. of Zoology-Entomology, Auburn University, Auburn, AL, 36849, USA. TEL: 205-826-5006. EMAIL: jcane@ag.auburn.edu ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews IntSocHym. Sph RJM 06/28/94.
- Carapia R, Vicente - Depto. de Parasitologia, Universidad Autonoma Agraria, "Antonio Narro", Buenavista, Saltillo, Coahuila, MEXICO. TEL.: MAILINGS: Mel RJM 12/16/91.
- Cardale, Josephine C. - CSIRO, Div of Entomology, P.O. Box 1700, Canberra, ACT, 2601, AUSTRALIA. TEL: 062-464911. EMAIL: jocc@ento.csiro.au ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel ICNews IntSocHym. Sph RJM 06/28/94.
- Caron, Dewey - Dept. of Entomology & Applied Ecology, University of Delaware, Newark, DE, 19716, USA. TEL: 302-451-2526. ORDER: HYM. MAILINGS: Mel Sph RWC / / .
- Castrejon-Gomez, Victor-Rogelio - Curtidoys No. 14, Barrio de Santiago, Yautepec, Morelos, MEXICO. TEL: 4-13-41. MAILINGS: Mel RJM 12/16/91.
- Castro, Leopoldo - Sanz Gadea 9, E-44002 Teruel, SPAIN. TEL: 974-603398. ORDER: HYM. MAILINGS: Mel IntSocHym. Sph MJM 04/14/94.
- Cederberg, Bjorn - Mora Folkhogskola, Skeriol, S-792 00 Mora, SWEDEN. TEL: 0250/16918. ORDER: HYM. MAILINGS: Mel IchNews RJM 12/16/91.
- Celary, Waldemar - Inst. Systematics & Experimental Zoology, Polish Academy of Sciences, ul. Slawkowska 17, Cracow, 31-016, POLAND. TEL: 22-70-66 ext. 297. MAILINGS: Mel RJM 12/16/91.
- Cervancia, C.R. - Institute of Biological Sciences, University of the Philippines, at Los Banos College, Laguna, PHILIPPINES. TEL.: ORDER: HYM. MAILINGS: Mel RJM 09/10/92.
- Cetkovic, Aleksandar S. - Kumodraska 60, Beograd, 11000, YUGOSLAVIA. TEL: (011) 491327. ORDER: HYM. MAILINGS: Mel IntSocHym. IchNews Sph RJM 12/16/91.
- Chan Teck, Stephen Leong - Agricultural Research Centre, Semon-gok, P.O. Box 977, Kuching, Sarawak, 93720, MALAYSIA. TEL: 082-611171. MAILINGS: Mel IMU / / .
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- Chauvin, Remy - Le Chateau, Ivoy le Pre, 18380, FRANCE. TEL: 48-58-91-72. MAILINGS: Mel IMU / / .
- Chavarria, Gabriella - MCZ, 26 Oxford St., Harvard University, Cambridge, MA, 02138, USA. TEL.: EMAIL: g_chavarria@nocmsmgw.harvard.edu ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel RJM 06/02/94.
- Chijate Nez, Patricia Catal - Ignacio Zaragoza #42, Tulyehaulco Pueblo, Mexico 16700, MEXICO. TEL.: MAILINGS: Mel IMU / / .
- Chinajariyawong, Anuchit - Department of Pest Management, Faculty of Natural Resources, Prince of Songkla University, Hat Yai 90110, THAILAND. TEL.: ORDER: HYM. MAILINGS: Mel RJM 02/24/93.
- Clark, Linda - Department of Botany and Microbiology, University of Oklahoma, Norman, OK, 73019, USA. TEL: 405-325-4321. MAILINGS: Mel IMU / / .
- Collins, Anita M. - USDA-ARS-SARL Honey Bee Research Unit, 2413 East Highway 83, Weslaco, TX, 78596, USA. TEL: (512) 98-3159. MAILINGS: Mel RJM 04/18/93.
- Collison, Clarence H. - Entomology Extension, Department of Entomology, 106 Patterson Building, The Pennsylvania State University, University Park, PA, 16802, USA. TEL: 814-865-4621 Ext. 20. MAILINGS: Mel IMU / / .
- Colln, Klaus - Zoologisches Institut der Univers. Koln, Lehrstuhl fur experimentelle Morphol., Weyertal 119, 5000 Koln 41, GERMANY. TEL.: ORDER: HYM. MAILINGS: Mel RJM 01/01/91.
- Cooper, Kenneth W. - Department of Biology, University of California, Riverside, CA, 92521-0427, USA. TEL: 714-787-3608. ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel IntSocHym. Sph Sym MJM 04/14/94.
- Corbet, Sarah A. - Dept. of Applied Biology, Pembroke Street, Cambridge, England, CB2 3DX, UK. TEL: 0223-336600. ORDER: HYM. MAILINGS: Mel Sph RWC / / .
- Cordero, Carlos Rafael - Centro de Ecologia, Universidad Nacional, Autonoma de Mexico, Apartado Postal 70-2, C.P. 04510, Mexico, DF, MEXICO. TEL: 5-50-52-15 ext 2480. MAILINGS: Mel IMU / / .
- Correia, Maria de A. - Laboratorio de Ecologia, Instituto de Ciencias Biomedicas, Largo do Prof. Abel Salazar, 2,4000, Porto, PORTUGAL. TEL.: MAILINGS: Mel IMU / / .
- Coville, Rollin E. - 6201 Tehama Ave, Richmond, CA, 94804, USA. TEL: 415-525-7959. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel Sph ESA 01/01/92.
- Crespi, Bernard J. - School of Biological Science, P.O. Box 1, University of New South Wale, Kensington, NSW, 2033, AUSTRALIA. TEL.: MAILINGS: Mel IMU / / .
- Crewe, Robin M. - Department of Zoology, University of the Witwatersrand, P.O. Wits, SOUTH AFRICA. TEL: (011) 716-2260. ORDER: HYM. MAILINGS: Mel IntSocHym. RJM 12/16/91.
- Cross, Jr., Earle A. - Department of Biology, University of Alabama, P.O. Box 1927, Tuscaloosa, AL, 35486, USA. TEL: 205-348-1823/348-1824. ORDER: ACAR. MAILINGS: Mel Sph TSU Bishop IMU / / .
- Crozier, R. H. - School of Biological Science, University of New South Wales, P.O. Box 1, Kensington, New South Wales 2033, Kensington, NSW, 2033, AUSTRALIA. TEL: 61-2/ 697-2011. EMAIL: ROSS USAGE.CSD.UNSW.OZ@MUNMARI.OZ MAILINGS: Mel IMU / / .
- Cruz-Landim, Carminda da - Depta. de Biologia, UNESP-Campus de Rio Claro, Rio Claro, SP, 13500, BRASIL. TEL.: ORDER: HYM. MAILINGS: Mel IntSocHym. RWC / / .
- Cuadriello, Ignacio - Centro de Investigaciones Ecologicas del Sureste, Area Agroecologica, Apartado Postal 36, Tapacula, Chiapas, 30700, MEXICO. TEL: 962-5-00-85. MAILINGS: Mel IMU / / .
- Cure, Jose Ricardo - Museu de Entomologia, Departamento de Biologia Animal, Universidade Federal do Vicosa, Vicosa, MG, 36.570, BRAZIL. TEL: 041-89-2535. INTERESTS: systematics. MAILINGS: Mel ICNews MJM 07/31/92.
- D'Albore, Giancarlo R. - Instituto di Entomologia Agraria, Universita degli Studi di Perugia, Borgo XX Giugno, Perugia, 06100, ITALY. TEL: 075-33018. MAILINGS: Mel IMU / / .
- Dafni, Amots - Institute of Evolution, University of Haifa, Haifa, 31999, ISRAEL. TEL: 04-240382. EMAIL: RABI 301 HAI-FAUVIM MAILINGS: Mel IMU / / .
- Daly, Howell V. - Department of Entomological Sciences, 201 Wellman Hall, University of California, Berkeley, CA, 94720, USA. TEL.: FAX: 510-642-9018. EMAIL: hvdaly@nature.berkeley.edu ORDER: HYME. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews IntSocHym. Sph RJM 06/28/94.
- Danforth, Bryan N. - Department of Entomology, Comstock Hall, Cornell University, Ithaca, NY, 14853, USA. TEL: 607-255-5708.

- EMAIL: bnd1@cornell.edu ORDER: HYME. INTERESTS: systematics. MAILINGS: Mel TSU RJM 01/21/93.
- Danka, Robert George - ARS, USDA Honey bee Breeding, Genetics and Physiology Laboratory, 1157 Ben Hur Road, Baton Rouge, LA, 70820-5502, USA. TEL: 504-766-6064. MAILINGS: Mel IMU / / .
- Dathe, Holger H. - Deutsches Entomologisches Institut, Postfach 100238, Eberswalde, D-16202, GERMANY. TEL: (0 33 34) 22936. FAX: (0 33 34) 212379. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel IntSocHym. Sph RJM 05/16/94.
- De Jong, David - Faculdade de Medicina, Universidade de Sao Paulo, Ribeiro Preto, SP, 14.049, BRAZIL. TEL: 016-634-3686. EMAIL: genebee@sol.fmrp.usp.br MAILINGS: Mel IMU / / .
- De Wael, Lutgart - State Research Station for Nematology and Entomology, Van Gansberghelaan 96, Herelbeke, B-9220, BELGIUM. TEL: 91-52-20-85. MAILINGS: Mel RJM 12/16/91.
- Demajo, Miroslav - Institute of Nuclear Sciences, Dept. 090, POB 522, Beograd, 11001, YUGOSLAVIA. TEL: 011-4440-871-303. MAILINGS: Mel IMU / / .
- Dent Acosta, Sara Jean - Biology Department, U.P.R. - RUM, Mayaguez, 00709-5000, PUERTO RICO. TEL: 832-4040 ext. 3017. MAILINGS: Mel RJM 12/16/91.
- de Ruijter, Arie - Ambrosiusshoeve, Ambrosiusweg 1, Hivarenbeek, 5081 NV, NETHERLANDS. TEL: 013-425888. MAILINGS: Mel IMU / / .
- Dewan, Syed Md. - Bangladesh Inst. of Apiculture, Street No. 1, House No. 8, Shyamoli, Dhaka, 7, BANGLADESH. TEL: 311585. MAILINGS: Mel RJM 12/16/91.
- Deyrup, Mark A. - Archbold Biological Station, P.O. Box 2057, Lake Placid, FL, 33852, USA. TEL: 813-465-2571. ORDER: DIPT. INTERESTS: systematics. MAILINGS: Mel ICNews IntSocHym. IchNews Sym Dipt ESA 01/01/92.
- Dibble, Alison C. - Department of Plant Biology and Pathology, Deering Hall, University of Maine, Orono, Maine, 04469-5722, USA. TEL: . EMAIL: IO71193@MAINE.maine.edu MAILINGS: Mel RJM 07/09/93.
- Dietz, Alfred - Department of Entomology, University of Georgia, Athens, GA, 30602, USA. TEL: 404-542-8711. MAILINGS: Mel IMU / / .
- Dingemans-Bakels, Fokeline N. - Dienst KCO, Natuurhistorisch Museum, Postbus 882, 6200 AW Maastricht, THE NETHERLANDS. TEL: 043-292222. FAX: 043-292171. ORDER: HYM. MAILINGS: Mel IntSocHym. MJM 09/27/91.
- Dixon, Clifton - Department of Geography and Planning, Johnson Hall, Memphis State University, Memphis, TN, 38152, USA. TEL: . MAILINGS: Mel RJM 12/16/91.
- Doane, Winifred W. - Department of Zoology, Arizona State University, Tempe, AZ, 85287, USA. TEL: 602-965-3571. MAILINGS: Mel IMU / / .
- Dobson, Heidi E. M. - Department of Biology, Whitman College, Walla Walla, WA, 99362, USA. TEL: 509-527-5225. FAX: 509-527-5904. ORDER: HYM. MAILINGS: Mel IntSocHym. RJM 09/17/93.
- Dollin, Anne Elizabeth - P.O. Box 74, North Richmond, NSW, 2754, AUSTRALIA. TEL: 02 6318022. ORDER: HYME. INTERESTS: systematics. MAILINGS: Mel RJM 12/16/91.
- Donovan, Barry J. - Donovan Scientific Insect Research, Canterbury Agriculture & Science Centre, Gerald Street, Lincoln, Private Bag 4704, Christchurch, NEW ZEALAND. TEL: . EMAIL: DonovanB@crop.cri.nz ORDER: HYME. INTERESTS: systematics. MAILINGS: Mel ICNews IntSocHym. Sph Bishop RJM 06/28/94.
- Dorr, Laurence J. - Department of Botany, MRC 166, National Museum of Natural History, Washington, DC, 20560, USA. TEL: . ORDER: HYME. INTERESTS: systematics. MAILINGS: Mel RJM 11/28/92.
- Dressler, Robert L. - Department of Natural Sciences, Florida State Museum, University of Florida, Gainesville, FL, 32611, USA. TEL: 904-392-5934; 392-1767. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel IntSocHym. RJM 12/16/91.
- Du Toit, Adriaan Pieter - Upicultural Unit, Plant Protection Research Institute, Private Bag X134, Pretoria, 0001, SOUTH AFRICA. TEL: 012-434725. MAILINGS: Mel IMU / / .
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- Dumouchel, Louise - Biosystematics Research Centre, K. W. Neatby Building, C.E.F., Ottawa, Ontario, CANADA. TEL: 613-996-1665 ext. 7310. ORDER: HYME. INTERESTS: systematics. MAILINGS: Mel ICNews IMU / / .
- Eardley, Connal D. - Plant Protection Research Institute, Private Bag X134, Pretoria, 0001, SOUTH AFRICA. TEL: 012-285140 x226. FAX: 012-325 6998. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel ICNews Sph RJM 12/16/92.
- Ebmer, P. Andreas W. - Kirchenstrasse 9, Puchenu, A-4040, AUSTRIA. TEL: 0732-22-10-44. ORDER: HYME. INTERESTS: systematics. MAILINGS: Mel ICNews IMU / / .
- Edwards, Michael - Lea-Side, Carron Lane 171, Midhurst, Sussex, GU29 9LB, England. TEL: MIDHURST 3785. ORDER: DIPT. INTERESTS: systematics. MAILINGS: Mel ICNews Sph Dipt FCT / / .
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- Eisikowitch, D. - Department of Botany, Tel Aviv University, Tel Aviv 69978, ISRAEL. TEL: 0340849. EMAIL: EISIK@TAUNOS ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel RJM 12/17/92.
- Eise, George R. - Department of Entomology, The Natural History Museum, Cromwell Road, London, SW7 5BD, UNITED KINGDOM. TEL: . EMAIL: gre@nhm.ac.uk ORDER: HYME. INTERESTS: systematics. MAILINGS: Mel ICNews Sph Dipt RJM 06/28/94.
- Engel, Michael S. - Department of Entomology, Cornell University, Ithaca, New York, 14853, USA. TEL: . EMAIL: me18@cornell.edu INTERESTS: systematics. MAILINGS: Mel RJM 05/20/94.
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- Esmaili, Morteza - College of Agriculture, Tehran University, Karaj, 31584, IRAN. TEL: . ORDER: HYM. MAILINGS: Mel RJM 09/10/92.
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- Everaert, Catalina - Vito Alessio Roldes #193, ol Florida Mexico D.F., delegacion Alvaro Obregon, C.P. 01050, MEXICO. TEL: 595-8496 or 5547408. MAILINGS: Mel IMU / / .
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- Fonta, Caroline - INRA-CNRS UA1190, Bures-Sur-Yvette, 91660, FRANCE. TEL: (1) 69-07-56-76. ORDER: HYM. MAILINGS: Mel RJM 12/16/91.
- Fowler, Harold G. - Instituto de Biociencias, UNESP, 13500 Rio Claro, SP, BRASIL. TEL: 159-24-2588. ORDER: HYM. MAILINGS: Mel IntSocHym. Sph TSU RJM 12/16/91.
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- Fritz, Manfredo A. - Casilla Correo 539, 4400 Salta, ARGENTINA. TEL: 087-931023. ORDER: HYM. INTERESTS: systematics. MAILINGS: SIReg Mel ChalForum IchNews Sph Sym IMU / / .
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- Genaro, Julio Antonio - Museo Nacional de Historia Natural, Academia de Ciencias, Capitolio Nacional, Ciudad de la Habana, 10200, CUBA. TEL: 63-2589. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel ICNews Sph RJM 05/24/94.
- Gerlach, Gunter - Institut für Systematische Botanik und Pflanzengeographie, Universität Heidelberg, Im Neuenheimer Feld 328, Heidelberg 1, 6900, GERMANY. TEL.: MAILINGS: Mel RJM 12/16/91.
- Gerling, Dan - Tel Aviv University, Department of Zoology, Tel Aviv 69978, Tel Aviv, ISRAEL. TEL: 03-420808. EMAIL:DD06@TAUNOS ORDER: HYM. MAILINGS: SIReg Mel ChalForum IntSocHym. RJM 12/16/91.
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- Goldworthy, T.R. - Dept. 157-1, 15347 County Line Road, Odessa, FL, 33556-3870, USA. TEL: 813-920-4477. ORDER: HYM. MAILINGS: Mel RJM 04/29/93.
- Gonzalez, Jorge Manuel - Edif. Don Luis, Apto. 501, Piso 5, Esquina Horcones, El Conde, Caracas, DF, 1010, VENEZUELA. TEL: 02-5716925. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel Sph RJM 01/01/88.
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- Goodwin, Robert Mark - Ruakuna Apicultural Research & Advisory, Ministry of Agriculture and Fisheries, Ruakuna Agriculture Centre Private Bag, Hamilton, NEW ZEALAND. TEL: (071) 62-839. MAILINGS: Mel RJM 01/01/88.
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- Goukon, Katuo - Biological Laboratory, Tohoku Gakuin University, 1-3-1-Tsuchitai, Sendai 980, JAPAN. TEL: 0222-64-6408. ORDER: HYM. MAILINGS: Mel RJM 01/01/86.
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- Greenwood, David Roger - Biotechnology Division, Dept. of Scientific & Industrial Res., DSIR, Private Bag, Palmerston North, NOT DELIVERED/NEW ADDRESS???, NEW ZEALAND. TEL.: ORDER: HYM. MAILINGS: Mel RJM 01/01/88.
- Greiler, Hans-Joachim - Fachgebiet Agrarökologie, Geort-August-Universität, Waldweg 26, D-37073 Göttingen, GERMANY. TEL.: MAILINGS: Mel RJM 06/30/94.
- Grissell, E. Eric - Systematic Entomology Laboratory, c/o U. S. National Museum NHB 168, Washington, DC, 20560, USA. TEL: 202-382-1781 (202) 382-1781. ORDER: HYME. INTERESTS: systematics. MAILINGS: SIREg Mel ChalForum IntSocHym. Sph RJM 11/28/92.
- Griswold, Terry L. - USDA Bee & Systematic Laboratory, Department of Entomology, Utah State University, Logan, UT, 84322-5310, USA. TEL.: EMAIL:andrena@cc.usu.edu ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews Sph RJM 06/28/94.
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- Gusenleitner, Fritz - Department of Entomology, Oberösterreichisches Landesmuseum, Museumstr. 14, A-4020 Linz, AUSTRIA. TEL: 0732-274482-38. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel Sph MJM 01/01/88.
- Hackwell, Glenn A. - Department of Biological Sciences, California State University, Stanislaus, Turlock, CA, 95380, USA. TEL: 209-667-3481. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel IntSocHym. RWC / / .
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- Heard, Timothy A. - Department of Entomology, University of Queensland, St. Lucia, Queensland, 4067, AUSTRALIA. TEL: 04 3773651. ORDER: HYM. MAILINGS: Mel IntSocHym. RWC / / .
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- Hellmich II, Richard L. - Honey Bee Breeding Genetics and Physiological Research, 1157 Ben Hur Road, Baton Rouge, LA, 70820, USA. TEL: 504-766-6064 MAILINGS: Mel IMU / / .
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- Heras, Carmen - Depart. de Biologia Animal (Zoologi), Facultad de Biologia, Universidad de Salamanca, Salamanca, 37071, SPAIN. TEL: 923-219575. INTERESTS: systematics. MAILINGS: Mel IMU / / .
- Hernandez, Luis Roberto - Department de Investigaciones, Museo Nacional de Historia Natural, Ciudad de la Habana, CUBA. TEL.: ORDER: LEPI, HYME. INTERESTS: systematics. MAILINGS: Mel ICNews MJM 05/24/94.
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- Hirashima, Yoshihiro - Miyazaki Municipal University, 1-1-2 Funatsuka, Miyazaki, JAPAN. TEL: 0985-20-2000. FAX:0985-24-1913. ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews IntSocHym. Sph Bishop RJM 09/17/93.
- Hohmann, Herbert - Übersee-Museum, Dienstgebäude, Bahnhofplatz 13, 2800 Bremen 1, GERMANY. TEL: 0421-171347 hm. 0421-654147. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel Sph RWC / / .
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- King, Judith - Department of Entomology, University of Queensland, St. Lucia, Queensland, 4067, AUSTRALIA. TEL.: ORDER: HYM. INTERESTS: systematics. MAILINGS: SIReg Mel IntSocHym. MJM 01/01/86.
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- Klahn, Jeff E. - Dept. of Biology, Univ. of Iowa, Iowa City, IA, 52240, USA. TEL.: ORDER: HYM. MAILINGS: Mel Sph RWC / / .
- Kleinert-Giovannini, Astrid - Departamento de Ecologia Geral, Instituto de Biociencias-USP, Rua Do Matao, 321, Travessa 14, Sao Paulo, SP, 05.508, BRAZIL. TEL: 011-813-4151; 2102122 R/244. MAILINGS: Mel MJM 01/01/88.
- Knerer, Gerd - Department of Zoology, University of Toronto, 25 Harbord Street, Toronto, Ontario, M5S 1A1, CANADA. TEL: 416-978-8769. ORDER: HYM. MAILINGS: Mel Sym MJM 01/01/86.
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- Kofler, Alois - Bundeskonvikt Lienz, Maximilianstrasse 3, A-9900 Lienz, Osttirol, AUSTRIA. TEL: 04852-3344. ORDER: HYM. MAILINGS: Mel IntSocHym. Sph RJM 07/09/93.
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- Kukuk, Penelope F. - Dept. of Biological Sciences, University of Montana, Missoula, MT, 59812, USA. TEL.: EMAIL:bi_pk@selway.umt.edu ORDER: HYM. MAILINGS: SIREg Mel IntSocHym. ESA 01/01/92.
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- La Roche, Francisco - Marina 17.4, 38002 Sta. Cruz de Tenerife, Islas Canarias, SPAIN. TEL.: ORDER: HYM. MAILINGS: Mel Sph TPN 01/01/92.
- LaBerge, Wallace E. - Section of Faunistics, Illinois Natural History Survey, Champaign, IL, 61820, USA. TEL: 217-244-2151. EMAIL:wlaberge@denr1.igis.uiuc.edu ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews IntSocHym. RJM 05/20/94.
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- Lamas, Gerardo - Museo de Historia Natural, Dpto. Entomologia, Apdo 14034 Lima 14, Lima, PERU. TEL: 71-0117. ORDER: LEPI. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews IMU / / .
- Lanham, Url - Museum - Henderson Building, Campus Box 218, University of Colorado at Boulder, Boulder, CO, 80309-0218, USA. TEL.: ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel Sph RJM 02/11/93.
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- Larsson, Folke K. - Dept. of Zoology, University of Uppsala, Box 561, S-751 22 Uppsala, SWEDEN. TEL: 46-18182634. ORDER: HYM. MAILINGS: Mel Sph RWC / / .
- Larsson, Hans - Swedish Univ. of Agricultural Sciences, Dept. of Plant and Forest Protection, Box 44, S-230 53 Alnarp, SWEDEN. TEL: [0413/40251]. ORDER: HYM. MAILINGS: Mel Sph RWC / / .
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- Legg, Gerald - The Booth Museum of Natural History, Dyke Road, Brighton, BN1 5AA, UNITED KINGDOM. TEL.: MAILINGS: Mel IMU / / .
- Leksawasdi, Paitoon - Biology Department, Faculty of Science, Chiang Mai University, Chiang Mai, 50002, THAILAND. TEL: Thailand 053-222468 ext. 32. ORDER: HYM. MAILINGS: Mel IntSocHym. MJM 01/01/88.
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- Levin, M. D. - USDA, ARS Carl Hayden Bee Research Center, 2000 E. Allen Road, Tucson, AZ, 85719, USA. TEL: 602-629-6329. MAILINGS: Mel IMU / / .
- Leys, Remko - Utrechtseweg 305, DeBilt, 3731 GA, NETHERLANDS. TEL: 030-764658. INTERESTS: systematics. MAILINGS: Mel IMU / / .
- Library, International Bee Research Association, 18 North Road, Cardiff, CFI 3DY, UNITED KINGDOM. TEL: 0222 372409. MAILINGS: Mel RJM 05/16/94.
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- Linsley, E. Gorton - Dolores Apts #9, 1235 Solano Avenue, Albany, CA, 94706, USA. TEL: 510-525-7047. ORDER: HYM. COLE. INTERESTS: systematics. MAILINGS: Mel IntSocHym. RJM 02/11/93.
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- Lupton, David W. - Library, Serials Department, Colorado State University, Fort Collins, CO, 80523, USA. TEL.: ORDER: HYM. MAILINGS: Mel Sph Sym MJM 01/01/88.
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- Maeta, Yasuo - Laboratory of Insect Management, Faculty of Agriculture, Shimane University, Matsue, 690, JAPAN. TEL: 0852-21-7100. MAILINGS: Mel IMU / / .
- Malaipan, Savitree - Department of Entomology, Faculty of Agriculture, Kasetsart University, Bangkok 10900, THAILAND. TEL: 579-3720 525-2459. ORDER: HYM. MAILINGS: Mel RJM 02/24/93.
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- Mangum, Wyatt - 1014 Gorman St., Raleigh, NC, 27606, USA. TEL: 919-515-3140. ORDER: HYM. MAILINGS: Mel RJM 05/13/92.
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- Masteller, Edward C. - Pennsylvania State University, Behrend College, Station Road, Erie, PA, 16563, USA. TEL: (814) 898-6404. EMAIL: E11@PSUVM INTERESTS: systematics. MAILINGS: SIREg Mel MJM 01/01/88.
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- Medina Camacho, Margarita - Calle Hidalgo No. 4, Pueblo Tulyehualco Del Xochimilco, DF, 16700, MEXICO. TEL.: MAILINGS: Mel IMU / / .
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- Michener, Charles D. - Snow Entomological Museum, Snow Hall, University of Kansas, Lawrence, KS, 66045-2119, USA. TEL: 913-864-4610. FAX: 913-864-5321. EMAIL: byron@kuhub. cc. ukans.edu [via Byron Alexander] ORDER: HYME. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews IntSocHym. Sph RJM 05/24/94.
- Miliczky, Eugene R. - 1440 Roza Drive, Zillah, WA, 98953, USA. TEL.: MAILINGS: Mel ESA 01/01/92.
- Miller, Russell B. - Department of Entomology, Peabody Museum, Yale University, New Haven, CT, 06511, USA. TEL: (413) 539-9544. ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel IntSocHym. RJM 01/01/88.
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- Muller, Andreas - Geissshaldenweg 12, CH - 8200 Schaffhausen, SWITZERLAND. TEL.: ORDER: HYM. MAILINGS: Mel RJM 09/17/93.
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- Neff, John L. - Central Texas Melittological Institute, 7307 Running Rope, Austin, TX, 78731, USA. TEL: 512-345-7219. EMAIL:boce735@utxvm.bitnet ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews IntSocHym. RJM 11/24/92.
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- Nilsson, Goran E. - Banergatan 5A, S-752 37 Uppsala, SWEDEN. TEL: 18182615. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel IntSocHym. Sph RWC / / .
- Nilsson, L. Anders - The Swedish Natural Science Research, Council, Institute of Systematic Botany, Uppsala University, P.O. Box 541, U-751 21 Uppsala, SWEDEN. TEL: 018-182777. MAILINGS: SIREg Mel IMU / / .
- Norden, Beth B. - Dept. of Entomology, Smithsonian Inst., NHB-165, Washington, DC, 20560, USA. TEL: 202-357-1821 202-357-2604. EMAIL:mnhen079@sivm.si.edu ORDER: HYM. MAILINGS: Mel Sph RJM 06/28/94.
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- Osten, Till - Staatl. Museum fuer Naturkunde, Rosenstein 1, Stuttgart 1, D-70190, GERMANY. TEL: (0711) 8 93 60 0711-89-36-219. ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel ICNews IntSocHym. Sph MJM 05/13/92.
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- Rodriguez Gonzalez, Gregono - Ciudad Sabagun Hidalgo, Calle 18-20-A, Colonia IMBS, MEXICO. TEL: 91596 307 57. MAILINGS: Mel IMU / / .
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- Spessa, Allan C. - Department of Zoology, La Trobe University, Melbourne, AUSTRALIA. TEL.: EMAIL:zooas@zoo.latrobe.edu.au ORDER: HYM. MAILINGS: Mel RJM 05/28/92.
- Starr, Christopher K. - Department of Zoology, The University of the West Indies, St. Augustine, 30602, TRINIDAD & TOBAGO. TEL: 66-31364. ORDER: HYM. INTERESTS: systematics. MAILINGS: SIReg Mel ICNews IntSocHym. Sph IMU / / .
- Steffan, August Wilhelm - Fachrichtung Zoologie, FB Naturwissenschaften II, Bergische Universität (GHS), Wuppertal 1, D-5600, GERMANY. TEL: 0202-4392497 office, 0202-611767 priv.. INTERESTS: systematics. MAILINGS: Mel IMU / / .
- Steiner, Kim E. - National Botanic Gardens, Kirstenbosch, Private Bag X7, Claremont, 7735, SOUTH AFRICA. TEL: 021-77166 ext. 59. MAILINGS: Mel IMU / / .
- Steinmann, Erwin - Montalinstrasse 15, CHUR, CH-7000, SWITZERLAND. TEL: Switzerland 081-27-29-63. MAILINGS: Mel IMU / / .
- Stephen, William P. - Department of Entomology, Oregon State University, Corvallis, OR, 97330, USA. TEL: 503-737-5512. EMAIL:stephenb@BCC.OST.EDU ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel ESA 01/01/92.
- Stern, David Lawrence - EEB, Biology Dept, Princeton University, Princeton, NJ, 08544, USA. TEL.: MAILINGS: Mel IMU / / .
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- Storey, R. I. - Department of Primary Industries, P.O. Box 1054, Mareeba, 4880, AUSTRALIA. TEL: 070-921555. MAILINGS: Mel IMU / / .
- Strickler, Karen - College of Agriculture, Parma Research and Extension Center, 29603 U of I Lane, Parma, Idaho, 83660, USA. TEL.: EMAIL:kstrickl@ag.uidaho.edu ORDER: HYM. MAILINGS: Mel RJM 04/29/94.
- Sugden, Evan A. - Community Research Service, Atwood Research Facility, Kentucky State University, Frankfort, KY, 40601, USA. TEL: 502-227-6351. FAX:502-227-6381. EMAIL:whatsasugden@delphi.com ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel ICNews IntSocHym. RJM 02/04/94.
- Sullivan, Janet R. - Biological Sciences Group, Box U-43, University of Connecticut, Storrs, CT, 06268, USA. TEL: 603-862-2060. MAILINGS: Mel TSU RWC / / .
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- Takahashi, Hideo - Motohachioji-machi 1-285-2-2-1, Hachioji-shi, Tokyo, JAPAN. TEL.: MAILINGS: Mel RJM 01/05/94.
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- Tasei, Jean Noel - Laboratoire de Zoologie INRA, Lusignan, 86600, FRANCE. TEL: 49-55-60-00. MAILINGS: Mel IMU / / .
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- Tejada, Luis O. - Instituto Tecnológico, Monterrey Tech., Monterrey, Nuevo Leon, 64849, MEXICO. TEL.: ORDER: HYM. MAILINGS: Mel ChalForum Sph SELNews Dipt IMU / / .
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- Tepedino, Vincent J. - USDA-ARS Bee Biology & Systematics Lab., Utah State University, UMC 5310, Logan, UT, 84322, USA. TEL: 801-750-2559. EMAIL:andrena@cc.usu.edu ORDER: HYM. MAILINGS: SIReg Mel ChalForum Sph RJM 06/28/94.
- Teras, Ilkka Olavi - Dept. of Zoology, Univ. of Helsinki, P. Rautatiekatu 13, SF-00100 Helsinki, FINLAND. TEL: 358-0-402746. ORDER: HYM. MAILINGS: Mel Sph RWC / / .
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- Traverse, Alfred - Deike 435, Pennsylvania State University, University Park, PA, 16802, USA. TEL: 814-863-3419. MAILINGS: Mel IMU / / .
- Trucco Alemán, María Fernanda - Museo Argentino de Cs. Naturales, "Bernardino Rivadavia", Av. Angel Gallardo 470, Buenos Aires, 1405, ARGENTINA. TEL.: ORDER: HYM. INTERESTS: systematics. MAILINGS: Mel RJM 03/30/94.
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- Venturieri, Giorgio - Trav. 9 de Janeiro, 590/703, Belem, Para, 66.000, BRAZIL. TEL.: MAILINGS: Mel IMU / / .
- Vergara, Carlos H. - Universidad de las Americas, Departamento de Química y Biología, Santa Catarina Martir, C.P. 72820 Cholula, Puebla, MEXICO. TEL.: EMAIL: cvergara@udlapvms.pue.udlap.mx MAILINGS: Mel RJM 10/22/93.
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- Webster, Tom - Community Research Service, Kentucky State University, Frankfort, KY, 40601. TEL: 502-227-6351. ORDER: HYM. MAILINGS: Mel RJM 04/06/92.
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- Whitehead, Vincent B. - Department of Entomology, South African Museum, P.O. Box 61, Cape Town, 8000, SOUTH AFRICA. TEL: 021-24-3330 522559 SAMUS. FAX: 021-24-6716. ORDER: HYM. INTERESTS: systematics. MAILINGS: SIREg Mel ICNews RJM 02/03/93.
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- Wille, Alvaro - Departamento de Entomologia, Facultad de Agronomia, Universidad de Costa Rica, Ciudad Universitaria, COSTA RICA. TEL: 25-60-14. ORDER: HYM. MAILINGS: Mel IntSocHym. RWC / / .
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Wilson, Edward O. - Museum of Comparative Zoology, Harvard Univ. Entomology Dept., 26 Oxford Street, Cambridge, MA, 02138, USA. TEL.: ORDER: HYME. INTERESTS: systematics. MAILINGS: Mel ICNews IntSocHym. Sph RJM 12/04/92.

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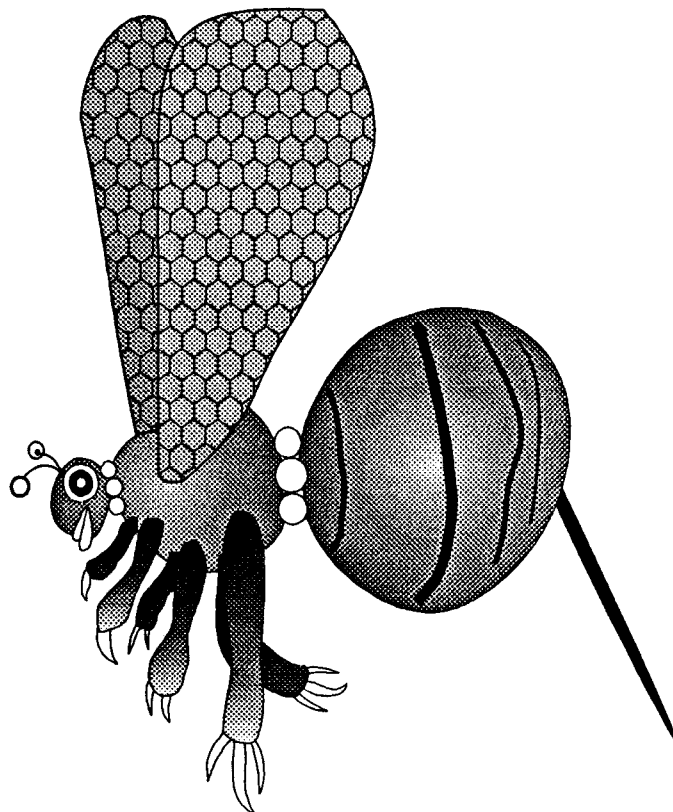
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MELISSA COMMUNICATIONS

Please send communications for distribution to Ron McGinley at the address listed on the mast-head of this issue. Documents sent via e-mail are greatly appreciated because they can be easily downloaded to WordPerfect and ultimately transferred to Ventura. That number is mnhen011@sivm.si.edu.

Among other items, MELISSA-9 will include corrections/additions to the Bee Directory presented in this issue as well as the usual Recent Literature section.

Please help MELISSA stay alive by sending in your informal bee news.



New Bee Discussion Group?

Ron McGinley
Smithsonian Institution

On 30 August 1994, I sent the following message about the possibility of setting up a new bee discussion group to 40 colleagues. Twenty positive responses were received and five came in on the negative side (I think two of the negatives didn't understand that MELISSA hardcopy would be continued as well). After looking over my original message and the preliminary responses presented below, send in your vote to <mnhen011@slvm.sl.edu>.

Fellow bee workers: With each distribution of MELISSA I am continually asked about the possibility of putting it up on the Internet. I have been hesitant because there already are bee discussion groups on the Net - while these are excellent resources, they focus primarily on *Apis* and *Bombus*. DO YOU THINK HAVING A "NON-APIS" DISCUSSION GROUP WOULD BE WORTHWHILE? I would continue to produce the MELISSA hardcopy, but the discussion group could deal with items in a more timely fashion - plus, it would provide some fodder for hardcopy distribution. I personally envision this as a low activity mailing group, best used for quick questions/answers, e.g., "does anyone know where Dr. X has moved to? - does anyone have specimens of X?" I would love to be able to send out a message saying "MELISSA hardcopy is going out next month, forward contributions as soon as possible." PLEASE LET ME KNOW YOUR OPINION ON THIS. With enough interest I will ask our computer people to form a mailing group. Thanks!

Positives:

I like this idea of a non-*Apis* (mostly) discussion group very much. This would be a much speedier way of fostering communication amongst melittologists around the world. Most people are getting online these days. The only bee discussion group I participate in is Plowright's on *Bombus*. That one is too narrow to suit my eclectic bee/pollination tastes... Form a "real bee" mailing group!! Who knows, in a few years it could grow into something really cool like a client on the World Wide Web !!!! Now, that would be exciting..... Thanks for e-mailing me with these exciting prospects.

It is my opinion that an e-mail bulletin board devoted to bees other than *Apis* and *Bombus* would be the greatest thing since sliced bread and the scopa. I do subscribe to the *Bombus* list, primarily for the pollination information. As an inflammatory suggestion, why not call the bulletin board REALBEES, analogous to the REAL CHEESE logo that the American Dairy-men's Assoc. uses? Ho, what furor that action might wreak!

You know what I'll always say about such things - SIGN ME UP! I don't think that there's necessarily a lot of evidence that people share an awful lot on these newsgroups regarding their work, but in terms of asking for help with questions, location of specimens, and so forth, it would be nice to have someplace where a LOT of bee folks would see it at one time. Myself, I see no reason not to include SPHECOS-oriented folks into the

fold, to increase the size of the user base (and bees, after all, are Sphecoids). I've noticed that the utility of a group tends to increase with a broader definition, but only up to a point. In this case, the general interests of wasp workers are not likely to generate a lot of stuff bee folks would be annoyed by, and vice-versa, whereas that might not be the case if this were the social insect group, the pollination group, or the *Bombus* group. Most of the traffic is likely to be regarding behavior, systematics, and so forth, so the users differ primarily in taxa of interest, not topics of interest. What you should give some more serious consideration to is a WWW site, which could serve as MELISSA archives, and a repository for other such things, like the Hymenoptera Catalog, the PCAM Database, and other large-scale resources. Now THAT would be a real step forward. It's only a matter of time before someone does it, the Smithsonian is a logical choice. Think about it.

If you send it over internet, there are some of us who can make our own hardcopy if you want to save some mailing expenses (although graphics won't transfer easily to all subscribers. Why not call it the "Pollen Bee" discussion group. Suzanne Batra and I have been suggesting that term since the Non-*Apis* meetings in Logan, since non-*Apis* defines the vast majority of bees in negative terms. Pollen bee focuses on the pollination role of bees, and on their need for pollen to reproduce, and while honeybees also pollinate and collect pollen, they have been selected to collect much more nectar than other bees. The term was originally suggested by James Thomson at the Logan meeting. (Admittedly, not everyone liked the term. Vince Tepedino suggested several alternatives to me: gentle bees, free bees, busy bees, pliant bees, glory bees ...). I think that Suzanne has a paper in one of the honeybee journals suggesting the term. There have been several times this past summer when I would have liked to contact a number of pollen bee people at once to brain storm about studies of *M. rotundata* behavior, or to ask about bee IDs, but there was no easy vehicle for doing so.

Yes I think an internet non-*Apis* bee discussion group would be nice. I currently do not subscribe to Polpal or *Bombus* because there's too much "uninteresting" stuff I'd have to wade through. And, face it, if you subscribe to enough lists you end up spending your entire day at the computer - mostly hitting the delete button. I can see occasionally using it to ask informal questions that I want a quick response to. But PLEASE don't get rid of the hardcopy MELISSA. I'm not sure how much action this discussion group would actually generate. Might be worth trying it, and if there's not enough activity - then drop it. How much work would it be for you???

The idea of having MELISSA on the net sounds very interesting. I think it will be especially useful for people like me, working in a place where snail mail is very inefficient and relatively expensive. I'd vote yes to the idea.

In response to your last e-mail regarding MELISSA on-line. I think it would be nice to have an electronic MELISSA version. It will be a nice way for bee researchers to keep in touch with one another and communicate more directly and more frequently with one another (all depending on how often they use

their e-mail, of course). Well, that is my vote for what it is worth.

I just read your e-mail about the network discussion group, I think this is a great idea, but I also like the hardcopy, I don't check my e-mail very often.

Yes, I think an e-mail discussion group for non-*Apis* and non-*Bombus* researchers would fill an important gap, in addition to hardcopies of MELISSA.

Regarding melissoid communications electronically - I guess this is the shape of the future, though my email takes up enough of my time already - so my comment - A begrudging yes!

Yes, am interested in an "other bee" new network. but, do not know how often I would use it. Let's try.

Sounds good to me, if you have the time. Yes, definitely, that is!

I'm for it, as long as it isn't inundated by applied pollination messages/responses.

I would be interested in receiving MELISSA and a non-*Apis* discussion group.

The non-*Apis* network is an excellent idea. Please count me in.

I believe it would be an excellent idea and would love to see MELISSA offered in this manner.

Good idea!

I support the idea of a bee discussion group.

I think it is a great idea and would be an active contributor.

Not in the habit of reading bulletin boards, but if you put MELISSA up on the Internet I just might start doing so. I wouldn't push you to do this, but probably would use it if you do.

Negatives:

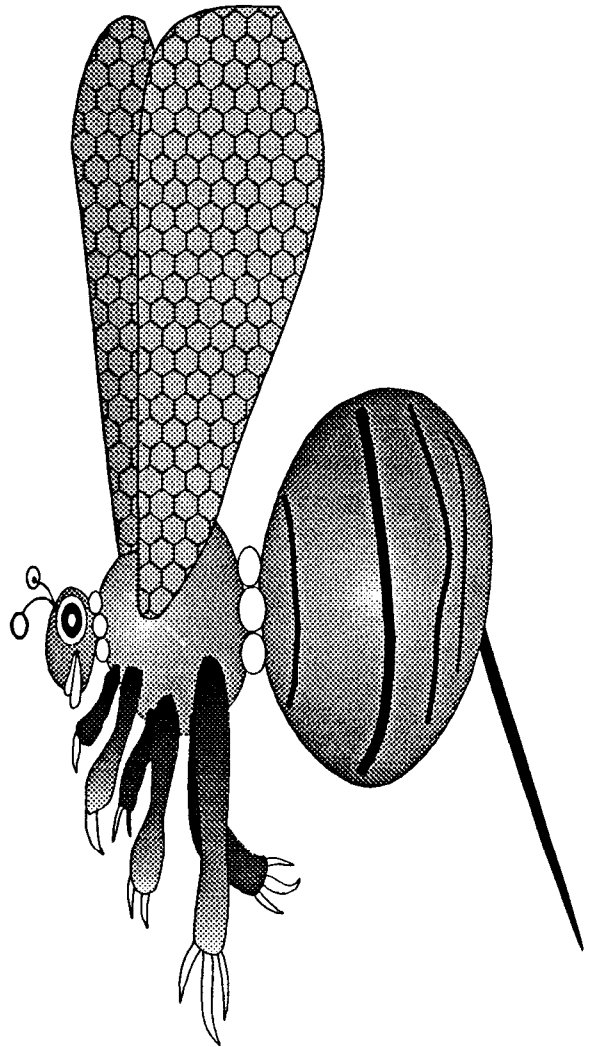
It's all I can do to keep up (or better, try to keep up) with the groups that we already subscribe to. I have mixed feelings about putting MELI on e-mail for the purpose of electronic communication. On the other hand I think it would be valuable to distribute MELISSA BY e-mail instead of hard copy to those who are connected to the net. And there is no doubt that there are times when it is nice to be able to go out over the net for advise. But frequently the net (for other groups anyway) tends to get clogged with posts that might be best sent directly to a particular scientist. So, after all this vacillating I guess I'd come down (just barely) on the no side. But if you decided to form one I'm sure we'd subscribe! "Dr. X" feels the same way 'bout it.

I talked to "Dr. Z" this morning and he agrees with what I wrote yesterday (When I told him of a possible non-*Apis* non-*Bombus* bee network he closed his eyes, leaned back in his chair, and gently shook his head). It would be great to distribute MELISSA but do we really need it?

Wow Ron.....as much time as I spend in cyberspace, I don't think I'd like the idea of MELISSA on Net. The reason is I have this real deep-seated need to curl up on the sofa with

MELISSA on paper and browse through it the way I want to, when I want to. I think if you put it on Net I would also like to still get hardcopy too. Besides, I don't keep my email forever so if I wanted to refer back to something later I'd have to be downloading it. Just one (admittedly strange) person's opinion.

I prefer receiving MELISSA as hardcopy.



Apoid Molecular Systematics Survey

More and more, molecular data are being used in the study of apoids. Quite a bit of work has been done with *Apis* and some with *Bombus*. A scattered but growing number of studies are dealing with "non-*Apis*" bees. Over lunch recently, Richard Rust and I (McGinley) agreed it would be helpful to know about these projects, where labs are set up, what approaches are being pursued, etc. The following list of questions was pulled together based on input from Rust, Sydney Cameron, Bryan Danforth and Michael Engel. **If interested, please forward information to Ron McGinley (Smithsonian via snail-mail or at mnhen011@slvm.si.edu).** A summary will be presented in the next issue of MELISSA. **NOTE:** this is intended to cover ALL bees, including apids.

Responses:

1. What general questions are you working on: population structure, parentage analysis, relatedness, phylogenetic systematics, etc. and what taxa are involved?

2. What techniques are you using, such as RAPD, multilocus fingerprinting, sequencing, microsatellites, etc.?

- 2a. For fingerprinting: Are you doing single or multilocus fingerprinting? What probes are you using? What restriction enzymes are you using? Are you finding sufficient genetic variation for the question you are investigating?

- 2b. For microsatellites: what types of loci are you identifying (dimers, trimers, tetramers....) and what probes did you use to screen the library with. How many loci have you identified? How many alleles are there per locus?

- 2c. For sequencing: what genes are you sequencing? Are these nuclear or mitochondrial? Are you gathering data from introns or exons or both? What primers are you using?

3. Are you willing to share primers and or probes?

4. Do you need help obtaining specimens? Which ones and how should they be preserved?

5. What papers do you have in press or in prep?