

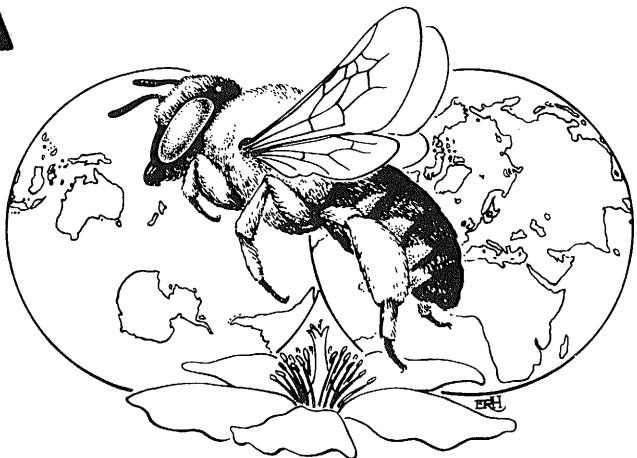
MELISSA

The Melittologist's Newsletter

Editors:

Ronald J. McGinley
Department of Entomology
Smithsonian Institution, NHB-105
Washington, D.C. 20560

Charles D. Michener
Entomological Museum, Snow Hall
University of Kansas
Lawrence, Kansas 66045



Number 1 - February, 1986

Editorial Comments

The success of Arnold Menke's Sphecos (A Forum for Aculeate Wasp Researchers) has made it obvious that biologists working with bees need a similar outlet for informal research communication. We hope that Melissa will help fill this gap. Like other similar newsletters it will include general news items, individual news reports, collection and collecting reports and recent literature listings. Because Apicultural Abstracts does an excellent job of reviewing recently published bee articles, the literature listings in Melissa will emphasize information on manuscripts in press or review. Melissa will be distributed once or twice a year depending on the amount of support we receive from our colleagues around the world. An International Directory of Bee Biologists will be distributed in March 1986 with updates and additions provided in future newsletters. The directory will include complete addresses, telephone numbers, summary of individual research interests and listing of research keywords that can be computer searched. Also included will be a listing of those systematists who are willing to identify specified bee taxa.

This first newsletter and the directory are based on the responses received from 339 workers in 47 countries (547 questionnaires were sent out). Due to the large number of individual contributions we had to limit coverage of such items as collection reports and field work summaries which we hope to present more extensively in future issues. We also had to limit coverage of information relating to the more practical aspects of Apis biology.

We hope to distribute the second issue of Melissa in September 1986 so please send in any newsworthy items by August. Our emphasis in Melissa No. 2 will be on collection reports (many of you who expressed a willingness to provide brief descriptions of bee collections under your supervision will be contacted).

Many thanks for your support of Melissa No. 1. Also, thanks to Arnold Menke for providing advice and for talking us into this endeavor in the first place, Elaine R.S. Hodges for providing the Melissa logo, and Beth B. Norden for assisting in proofreading. The Smithsonian Institution pays for all duplicating and mailing fees.

General News Items

PROGRAMA COOPERATIVO SOBRE LA APIFAUNA MEXICANA (PCAM)

Cooperative Program on the Mexican Apifauna

Between 25 September to 9 October 1985, the following biologists met at the Estación de Biología Chemela (UNAM) in Jalisco, Mexico to discuss the possibilities for long term cooperative studies on the Mexican bee fauna: R. Ayala, S. Bullock, T. Griswold, W. LaBerge, J. Labougle, R. McGinley, C. Michener, F. Parker, R. Roberts, D. Roubik, and J. Rozen. The following six bee workers expressed a strong desire to participate in long term studies of Mexican bees but were not able to attend the organizational meeting: S. Batra, H. Daly, G. Eickwort, R. Murillo, R. Snelling, and R. Thorp. After semiformal discussions on September 30 and October 1, the participants agreed that long term studies of the Mexican apifauna would be highly desirable. As a result, a cooperative program was proposed that would: 1) promote the study of Mexican bees by encouraging cooperative efforts by researchers in Mexico and other countries and by providing a communication network among interested bee workers and pollination ecologists; 2) promote research on Mexican bees by locating and securing sources of funding; 3) promote the training of Mexican bee specialists through cooperative research activities, enhancement of Mexican bee collections and by training/exchange programs with institutions in the United States.

The immediate goal of PCAM is the production of a document describing and justifying the program. This document will include information on many of the agenda items discussed, e.g., priority areas for survey work, review of Mexican field stations and museums, systematic status of Mexican bee taxa, and priorities for ecological research (particularly how this relates to pollination and the movement of the Africanized bee). This document will provide the basis for several funding proposals (proposals to NSF and the Smithsonian are now in preparation). Nearly complete is an illustrated generic key to the bees of Mexico which should promote the study of bees by workers in Mexico. The long term goal is the publication of The Bees of Mexico between 1995 and 2000. This publication would bring together and summarize the individual and group research efforts that hopefully will be completed during the next decade.

Minutes of the organizational meeting in Chamelea are available upon request from Ron McGinley. Melittologists, botanists and pollination ecologists seriously interested in the program should contact one of the PCAM participants and explicitly state their research interests in Mexico.

FEDERAL REGULATION THREATENS TAXONOMIC RESEARCH ON BEES

By Radclyffe B. Roberts

Students of bee systematics are not generally aware of a regulation promulgated in the Federal Register on June 10, 1985, 50(111):24171-24174. The regulation is aimed at protecting the honey bee industry from "exotic bee diseases and parasites and thereby to prevent damage to crops and other plants that depend upon bees for pollination." This is not an unreasonable objective, but one aspect of the regulation, if enforced, would virtually put an end to systematic research by North American students of the Apoidea. The regulation specifically forbids the, "importation of dead bees of any genus." The term 'bee' is specifically interpreted to mean, "any member of the superfamily Apoidea."

This regulation was first proposed on May 14, 1984. During the period allowed for comment only one comment was relevant to systematics. The commenter asked that entomologists be allowed to import dead bees of any genus

without a permit, if immersed in alcohol and imported for the purpose of importing specimens. This requested change was denied.

At present, the only way to bring specimens of bees into the United States is to meet the following conditions: "1) Imported by the U.S. Department of Agriculture for experimental or scientific purposes; 2) Imported at the plant Germplasm Quarantine Center, Building 320, Beltsville Agricultural Research Center East, Beltsville, MD 20705, or at a port of entry designated by an asterisk in 319.37-14(b); 3) Imported pursuant to a department permit issued for such article and kept on file at the port of entry; 4) Imported under conditions specified on the departmental permit and found by the Deputy Administrator to be adequate to prevent the introduction into the United States plant pests, i.e., conditions of treatment, processing, shipment, disposal; and 5) Imported with a department tag or label securely attached to the outside of the container or securely attached to the article itself if not in a container, and with such a tag or label bearing the name of the person to whom the permit is issued." Material coming into the United States which is not in compliance with the above will be seized, destroyed or otherwise disposed of.

Even though you may restrict your work to taxa indigenous to the U.S., there is a good probability you borrow types from museums abroad. It would be embarrassing, to say the least, to have the types destroyed at the border by customs officials.

To obtain a permit to import bees, write Philip J. Lima, APHIS, USDA, Room 628 Federal Building, 6505 Belcrest Road, Hyattsville, MD 20782 and ask for PPQ FORM 526 and package labels PPQ FORM 548. In filling out PPQ FORM 526, I indicated that I wished to import an infinite number of Apoidea of the world in all life history stages (dead and dried or preserved in alcohol) in an indefinite number of shipments for the indefinite future through "various" ports of entry by air mail or in baggage for the purpose of taxonomic research. My request was patently and intentionally ludicrous in view of the very specific questions asked on the form. My none too subtle answers (comments) to the questions on the form notwithstanding, the form was promptly approved and returned to me along with the appropriate package stickers.

What does all of this prove? Firstly, the APHIS officials are not out to end systematic research on bees. Secondly, the existing regulation was ill conceived and impractical. Thirdly, you had best be in compliance with the regulations lest you have valuable material confiscated or destroyed; though it is unlikely that there is a single U.S. Customs official who would know a bee from a wasp. When you write Mr. Lima requesting PPQ FORM 526, please reveal to him your thoughts upon the appropriateness of this regulation.

Collection Report

THE SOUTH AFRICAN NATIONAL COLLECTION OF INSECTS APOIDEA COLLECTION by C.D. Eardley

The National Collection of Insects (NCI) came into being in 1925 when Dr. K. Munro took charge of the small insect collection of the then Division of Entomology of the Department of Agriculture in Pretoria. Since this period the NCI has grown to become one of the largest and finest insect collections in Africa. In the past, attention was devoted mainly to groups such as the termites, fruit flies, parasitic wasps, scale insects, thrips and others, of which the NCI has exceptionally good collections. The bees, however, were largely neglected until recent years when Dr. R. Watmough undertook to study the population dynamics of the large carpenter bees, and built up a collection

of about 2000 specimens of these bees, and I joined the staff as a bee systematist. Earlier this year Mr. H. Empey, who is well known for his work on the African species of Cerceris (Sphecidae), donated his collection of about 3500 bees to the NCI. Mr. Empey's anthidiine and allodapine bees were studied by Profs. J.J. Pasteels and C.D. Michener, respectively, and consequently contains both authentically determined material and several paratypes. To date the NCI contains about 20,000 specimens of Apoidea and a considerable amount of attention is being given to the expansion of this collection.

Correspondence concerning this collection should be directed to Mr. C.D. Eardley, National Collection of Insects, Plant Protection Research Institute, Private Bag X134, Pretoria, 0001, South Africa.

Field Reports

RECORD OF Hylaeus and Braunsapis UTILIZING OLD Sceliphron MUD CELLS By Robert W. Matthews

In early June 1984 Ian D. Naumann (CSIRO, Canberra) and I spent a week in the Kakadu National park east of Darwin in Australia's Northern Territory. We were there to study a primitively social sphecid wasp, Arpactophilus n. sp., that "rents" old Sceliphron laetum (Smith) mud cells. Kakadu is an area of extensive rock outcroppings which have numerous examples of aboriginal art on the protected faces. These same faces are favored nest sites of Sceliphron, and their mud cells abundantly dot the walls and overhangs, where they appear to persist for many years. A diverse guild of secondary "renting" species utilize these old cells for nests, and Naumann has compiled an extensive list of these bees and wasps together with biological notes [The biology of mud nesting Hymenoptera (and their Associates) and Isoptera in rock shelters of the Kakadu region, Northern Territory, In The Rock Art Sites of Kakadu National Park - Some Preliminary Research Findings for their Conservation and Management, Special Publication 10 of the Australian National Parks and Wildlife Service, compiled by D. Gillespie, 1983].

During this trip we concentrated our efforts at the Nourlangie Rock site. In the process of examining numerous mud cells we turned up single nests of two species of bees belonging to groups that are not generally known to utilize mud cells for nest sites. Terry Houston of the Western Australian Museum identified them as an apparently undescribed species of Braunsapis (Anthophoridae: Ceratinini) and a new species of Hylaeus (Prosopisteron) (Colletidae). Houston (in litt., 3 October 1984) states that use of mud cells for nesting is known for a few other Hylaeus spp., but observations are unpublished; mud nesting is unknown for Braunsapis, which normally nest in tunnels in dead stems, twigs, logs, etc. Michener (in litt., 27 November 1984) concurs, and adds that an introduced species of Hylaeus in the U.S.A. nests in abandoned halictid cells in earth banks, and says that he would not be surprised to find them in mud nests here. He further notes that Brauns did report in South Africa that some allodapines nest in holes in earth banks, but that he had been unable to verify those reports during his studies there.

The specimens referred to above are deposited in the CSIRO collection in Canberra. If anyone knows of other records of mud nesting by other members of these genera I would be pleased to learn of them.

BEE COLLECTING IN MADAGASCAR

By Robert W. Brooks

I was in Madagascar from October 14 to December 5, 1984. Collecting was confined to Antananarivo, the capital of Madagascar, at the Parc de Tsimbazaza from October 17-31, 1984. I was working in cooperation with Dr. Larry Dorr of the Missouri Botanical Garden. Our wait in the capital was due to the time consuming process of having a vehicle clear customs after being shipped from Japan. Travel is difficult in Madagascar as there are no vehicles to rent. Once the rainy season starts in December, all of the roads leading north or northwest are impassable. There are planes to the major cities and taxi brousses (large van-like buses which can only travel in the dry season to the north) which can get from the capital to the destination along the two or three major roads in the country. If one is adventuresome, one can rent an ox cart. It is quite possible, though much less convenient, to collect or do field work in Madagascar without a vehicle. The roads are very poor leading to the south and north and an average of 15 mph (24 (kmph) is usual.

Bee collecting by temperate or tropical standards in Madagascar is poor as it was at the Parc de Tsimbazaza and is in all of the central plateau and eastern coastal rainforest. All that I saw at Tsimbazaza was Nomia scutellaris (approx. 10 specimens), Thyreus quintifasciata (1 specimen), Amegilla antimena (approx. 6), Xylocopa calens (the most widespread and common madagascaran bee), Pachymelus mirelephas (1 specimen), Halictus (Seladonia) prob. jucundus (3 specimens), Megachile sp. (15 specimens), and Eupetersia sp. (1 specimen). During this time I dug a single nest of Amegilla antimena. From November 1-5 we spent our time at Andasibe (Perinet). There is a reserve of undisturbed rainforest east of Antananarivo there and reached by a six-hour train ride. The train continues another six hours to the main eastern port at Tamatave. The rainforest here is depauperate of bees. Four days collecting yielded about 20 bees, all of which were nonetheless interesting, such as: Thrinchostoma, Megachile, Eupetersia, Halictus (Seladonia), and Xylocopa.

After returning to the Parc and remaining a few days, I headed south with Dr. Alison Richard, a primatologist at Yale who has spent 13 years on and off studying lemurs. After a three-day driving ordeal south along the central plateau (some areas looked like Arizona), across the plains of Ihousy (similar to Kansas), and then descending to the dry coastal savanna, we rested a couple of days at Toliara (Tulear). We then drove to the Beza Mahafaly Special Reserve which was established largely by the efforts of Dr. Richard and funding by the World Wildlife Fund. It is primieval gallery forest (Tamarindus, Grewia, Uncarina, Dombeya, etc.) and Didiera-Alluaudia forest. The best time to collect aculeates in Madagascar is from October to December and so I was there when bees were most active. During my ten-day stay I ran two malaise traps. Malaise trapping is very effective, and I would highly recommend their use in great numbers. Many species of bees were caught which I had not seen. I studied the nesting biology of four species of Megachile, a Tetralonia, a Nomiodes, a Halictus, a Nomia, and Trigona madecassa. This special reserve is an excellent place to study any xerophilic aculeate and would be an excellent comparison to the gallery forest at Berenty (reserve near Fort Dauphin).

After returning to the capital by air from Toliara, I came down with chloroquine-resistant falciparum malaria. Vivax and falciparum are both in Madagascar. The coastal zones have chloroquine-resistant strains whereas the

strains inland on the central plateau are still treatable with chloroquine. After recovering, I made one short trip to Mandraka and collected in the rain forest there and then returned to the states two weeks early for medical attention.

One must allow at least two weeks or more to obtain collecting permits and a week to get exit permits for specimens. These permits cannot be obtained without cooperation between the University at Antananarivo or the Parc de Tsimbazaza Entomology Section or d'Eaux et Forets (water and forest, a type of environmental protection agency). Joint scientific investigation is stressed by the malagasy officials. A good check point for many English speaking scientists (English is rarely spoken; French is spoken by 50-90% of the malagasy in the large cities but in the countryside usually only malagasy is spoken) is the American Culture Center (Kathy Tormey is currently there). Dr. Alison Richard, an anthropologist at Yale with 13 years of experience in Madagascar and her husband, Dr. Robert Dewar, an archaeologist with the University of Connecticut, are together the best source of general information about Madagascar. Cooperation through the Parc de Tsimbazaza came through Dr. Voara Randrianasolo, the Parc's director with a Ph.D. from Indiana University, as well as Mr. Evarist Randrianasolo (no relation), who is the chairman of the Entomology Department. They can be helpful in supplying advice and local assistance. The collection and travel permits are obtained through the Office of Scientific Research under the direction of Madame Bert Rakotosamimanana in the Ministry of Higher Education. This office can extend visas and is the source for exit permits for the scientist and his specimens. Scientists with no prior association with this office probably must seek permits from the Department of d'Eaux et Forets which is reputed to be slow and sometimes arbitrary where permits are concerned.

I would encourage expedient scientific exploration of the unique Madagascaran environs. The arid south and eastern coastal rainforests are almost gone and are disappearing at an alarming rate. There are no known endemic families of insects but 30% endemicity at the generic level and from 90-100% at the specific is commonly found. Much of this fauna is unique but some is relictual and is important for biogeographical and evolutionary studies. Charles Michener and I are interested in revising the bees of Madagascar and studying their biology. We would be anxious to study any malgasy bee material available.

Individual News Items

This section is divided into the following five subsections: General, Meliponinae, Bombus, Apis and Pollination. All users may wish to go over the first, since projects in the specialized fields often appear as part of the activity of a person listed in the General category.

GENERAL BEE BIOLOGY AND SYSTEMATICS

Lennart Ågren (Ecological Station of Uppsala University, Olands Skogsby 6280, S-386 00 Farjestaden, SWEDEN). CURRENT PROJECTS: "Ultrastructure of Bombus antennal receptors. Receptor physiology of Andrena. Similarities in pilosity between Ophrys and its pollinators."

Giraldo Alayón García (Jefe de Grupo en Direcc. Nac. Flora y Fauna, Apartado Postal #20, San Antonio de los Baños, La Habana, CUBA). CURRENT PROJECTS: "Biogeography of Cuban bees." HELP: "I need some specimens and literature."

Byron Alexander (Department of Entomology, Comstock Hall, Cornell University, Ithaca, New York 14853, U.S.A.). CURRENT PROJECTS: "Phylogenetic analysis of subgenera of Nomada; comparative morphology of reproductive tract of female nomadines."

Michael Arduser (Department of Biology, University of Missouri-St. Louis, 8001 Natural Bridge Road, St. Louis, Missouri 63121, U.S.A.). CURRENT PROJECTS: "1) Characterization, relationships, and distribution of subgenera and species groups of Nearctic Sphecodes; planning to revise the Nearctic species, as well as clarify/hypothesize relationships among the subgenera/spp. groups of Sphecodes at the world level; 2) Osmia of the eastern US and eastern Canada; 3) bees of the Ozark area and the Great Lakes area; 4) overwintering site selection in halictines." HELP: "Locations of Sphecodes types (non-North American spp.) and Eupetersia types."

W. Scott Armbruster (Department of Biology, Fisheries and Wildlife and Institute of Arctic Biology, University of Alaska, Fairbanks, Alaska 99775-0180, U.S.A.). CURRENT PROJECTS: "1) Biogeography and systematics of the bee fauna of Alaska; 2) Bee pollination of Dalechampia (Euphorbiaceae); 3) Pollination of Clusia (Guttiferae); 4) Resin collection and use by bees." HELP: "Determinations of bees of families Megachilidae, Halictidae, Andrenidae, Anthophoridae, Colletidae from Alaska." GENERAL: Made "annual collecting trip in interior Alaska, especially in steppe habitats on south-facing bluffs and in open floodplain habitats. We're coming up with lots of new records of solitary bees in Alaska. More details should be available later on."

Enrique Asensio de la Sierra (Agricultural Research Service, Apartado 733, 47080 Valladolid, SPAIN). CURRENT PROJECTS: "Pollination of orchards by wild bees (Osmia cornuta and related species); control of parasites of Megachile rotundata in Spain; pollination patterns of sunflower and colza; general knowledge of the Spanish bee fauna." HELP: "Identifications, especially of parasites belonging to families and orders other than Apoidea."

Ricardo Ayala-Barajas (Estación de Biología Chamela, UNAM, Apartado Postal 21, 48980 San Patricio, Jalisco, MÉXICO). CURRENT PROJECTS: "1) Fauna de abejas de la Estación de Biología Chamela, UNAM. 2) Biología de Diadasia knabiana Cockerell. 3) Biología de Xylocopa mexicanorum Cockerell. 4) El género Deltoptila en México." HELP: "Identificación de especímenes; literatura en general sobre taxonomía y biología."

D.B. Baker (St. John's College, Oxford OX1 3JP, UNITED KINGDOM). CURRENT PROJECTS: "Revision of type material of F. Smith; generic revision of Old World bees; completing revision of several anthophorine genera." HELP: "Lists of desiderata available; Ckll. 'Descriptions and records...' (Ann. Mag. Nat. Hist.)." GENERAL: "Some years residence and collecting SW Asia, more recently Malaysia; have numerous proxy collectors, especially in SW Asia and India."

Edward M. Barrows (Department of Biology, Georgetown University, 37th and O Streets N.W., Washington, D.C. 20057, U.S.A.). CURRENT PROJECTS: "Fine structure of Dufour's glands of Osmia cornifrons. Mate choice in Colletes thoracicus."

Suzanne W.T. Batra (Systematic Entomology Laboratory, Building 476, Beltsville Agricultural Research Center, USDA, Beltsville, Maryland 20705, U.S.A.). CURRENT PROJECTS: "Biosystematics of North American Dialictus, Andrena, Colletes spp., especially pollinators of crops." Identification of Africanized honeybees. HELP: "Need samples (ca. 50 bees each, including drones, queen if possible) of preserved African (Apis mellifera scutellata), Africanized (Latin America) and various races of European honeybees to calibrate instruments for identification service."

Luci Rolandi Bego (Dept. Ecologia, Instituto de Biociências, Universidade de São Paulo, CEP - 11461 - São Paulo (SP), BRASIL). CURRENT PROJECTS: "Ecology of bees; biology of Halictidae; behaviour (Halictidae and Meliponinae)." HELP: Literature and identifications. GENERAL: "We have now a small collection of bees from São Paulo and other areas."

Darwin Beig (Dept. de Biologia, Instituto de Biociências, UNESP - Campus de Rio Claro, Cx. Postal 178, 13500 - Rio Claro, SP, BRASIL). CURRENT PROJECTS: "Social regulation in bees: study of the interrelations between ambiental effects, endocrine system activity and development of ovaries and glandular system in worker bees." HELP: need reprints.

Nina N. Blagoveschenskaya (Division of Zoology, Ulyanovsky Pedagogical Institute, Ulyanovsk, 432700, U.S.S.R.). CURRENT PROJECTS: "Field investigations and processing of collected material; textbook on 'The Ecology of Wild Solitary Bees and their Protection' is ready for publication." HELP: "Need new apoid publications." GENERAL: "Every year I take part in expeditions relating to a program concerned with the formation of protected territories, where I study natural colonies of bees and their biological interrelationships."

Padre Bruno Bonelli (Italian National Academy of Entomology, Via Avisio II, 38033 Cavalese (Trento), ITALY). GENERAL: "My last field trip (five years ago) was to Bolivia where I collected a number of Anthophoridae; they as yet have not been identified."

Derek K. Broemeling (Bee Biology & Systematics Lab, Utah State University, Logan, Utah 84322-5310, U.S.A.). CURRENT PROJECTS: "Revisions of Nomada subgenera Nomadita =Callinomada and Pachynomada." HELP: "Specimens of Callinomada, Pachynomada and similar forms."

Robert W. Brooks (Entomological Museum, Snow Hall, University of Kansas, Lawrence, Kansas 66045, U.S.A.). CURRENT PROJECTS: "Revision of the Anthophorini worldwide; revision of the Nomadinae and various halictid groups." HELP: "I would like to see any hairy-eyed halictids from high altitudes in the New World tropics including Mexico, the continental divide in Central America and the Andes and adjoining mountain ranges in South America. Any Deltoptila (Anthophoridae, Habropodini) that anyone has would be appreciated to be loaned to me for study."

Denis J. Brothers (Department of Entomology, University of Natal, P.O. Box 375, Pietermaritzburg, 3200 SOUTH AFRICA). CURRENT PROJECTS: "Biology and morphological adaptations of Rediviva species in Southern Africa (Melittidae)."

Stephen L. Buchmann (USDA-ARS, Carl Hayden Bee Research Center, 2000 East Allen Road, Tucson, Arizona 85721, U.S.A.). CURRENT PROJECTS: "1) Comparative pollination efficiency of Solanum bee pollinators. 2) Determination of mg N/bee or pollen grains needed to make a bee and kilos of pollen needed per

hectare by solitary bees and honey bees in S. Arizona vs. Neotropics. 3) Nutritional ecology of Melipona and Trigona (with D.W. Roubik). 4) Ecology of the vulture bee (Trigona hypogea) with D.W. Roubik. 5) Metabolic fate of floral volatiles sequestered by euglossines. 6) Thermoregulatory physiology of bees (Xylocopa, Apis, Centris). 7) Comparative pollination efficiency of Apis vs. native bees as pollinators using the Spears pollination efficiency index. 8) Floral biology and chemical ecology of oil-collecting bees (Centris, Epicharis) on tropical plant genera (Aspicarpa, Janusia, Krameria, Malpighia, Mascagnia). 9) Metabolic conversion efficiency of turning food nitrogen and other foodstuffs (e.g., lipids, starch) into bee body nitrogen. 10) Nesting biology of Diadasia & Centris." HELP: "Need data on floral sonication (buzz pollination) by any bees on flowers having both poricidal and non-porous anther dehiscence. Need data on dry weights of bees and dry wts. of pollen provisions for as many solitary bee taxa as possible. Need pollen loads from solitary bees containing starchy pollen and feces from immatures that fed on starchy pollen." GENERAL: "Recently spent two weeks in highlands of Chiapas doing some general collecting. Highlight of trip was visiting Simojovel and Totolapa and buying crude unpolished amber directly from the miners. Am interested in anyone with extensive collections of amber containing bees (especially non-stingless bees older than Miocene). Will soon be buying kilogram lots of amber from both Simojovel and Totolapa on a regular basis. Willing to trade and sell amber with other collectors."

Evandro Camillo (Department of Biology, Facultad de Filosofia, Ciências e Letras de Ribeirão Preto, USP, 14,100, Ribeirão Preto, São Paulo, BRASIL). CURRENT PROJECTS: 1) The nesting biology and behavior of Xylocopa frontalis, X. grisescens and X. suspecta. 2) food niche of Bombus atratus and B. morio. 3) Bionomical aspects of Lithurgus corumbae and L. nuberi."

James H. Cane (Department of Zoology/Entomology, Auburn University, Auburn, Alabama 36849, U.S.A.). CURRENT PROJECTS: 1) Pollination ecology of Lespedeza cuneata (Fabaceae) and pollen-harvesting efficiency of its apoid visitors. 2) Pollination of Vaccinium ashei by wild bees. 3) Oligolecty, pollen-harvesting and pollination efficiencies of visiting wild bees at Solanum eleagnifolium (with Steve Buchmann). 4) Chemosystematics of the Anthophoridae. 5) Ecology vs. phylogeny for explaining the taxonomic distributions of Dufour's gland lipids of bees." HELP: "Need soil textures and moistures of substrate of ground-nesting bees. Tips on establishing and maintaining Dialictus versatus and Megachile concinna. Identities of bees collected foraging at native Lespedeza."

Dewey M. Caron (Department of Entomology and Applied Ecology, University of Delaware, Newark, Delaware 19717, U.S.A.). CURRENT PROJECTS: "Pollination of cucurbits; Apoidea of Delaware and mid Atlantic states; Africanized honey bee in Central America."

Kenneth W. Cooper (Department of Biology, University of California, Riverside, California 92521, U.S.A.). CURRENT PROJECTS: "Intersexuality: frequency in natural populations; interactions of megachilids and Lotus; nesting algorithms."

Rollin E. Coville (Division of Entomology and Parasitology, 201 Wellman Hall, University of California, Berkeley, California 94720, U.S.A.). CURRENT PROJECT: "Behavior and ecology of Centris (Anthophoridae)."

Robin Crewe (Department of Zoology, University of the Witwatersrand, 1 Jan

Smuts Ave., Johannesburg, 2001 SOUTH AFRICA). CURRENT PROJECTS: "1) Investigation of the pheromones of Apis m. capensis and A. m. scutellata. 2) Investigation of social structure and laying worker production in Apis m. capensis (with M. Allsopp). 3) Studies on pheromones and nest architecture of Trigona. 4) Studies of social structure in allopatrine bees (with C.A. Gordon)."

Earle A. Cross (Department of Biology, University of Alabama, Tuscaloosa, Alabama 35486, U.S.A.). CURRENT PROJECTS: "Nesting biology of Andrena flexa; hopefully I will be able to finish this in 1986."

R.H. Crozier (School of Zoology, University of New South Wales, P.O. Box 1, Kensington, New South Wales, AUSTRALIA 2033). CURRENT PROJECTS: "Relatedness and population structure in ants and bees." HELP: "I am always interested in collaborative efforts on social insect biology."

Carminda da Cruz-Landim (Departamento de Biologia, Instituto de Biociências de Rio Claro, Universidade Estadual Paulista Julio de Mesquita Filho, 13.500 Rio Claro, São Paulo, BRASIL). CURRENT PROJECTS: "Studies on tergal glands of Meliponinae; studies on apoid ovagenesis and spermatogenesis; studies on digestive tract ultrastructure." HELP: Identifications of Meliponinae.

José Ricardo Cure (Departamento de Zoologia, Universidade Federal do Paraná, Caixa Postal 3034, 80.000 Curitiba, Paraná, BRASIL). CURRENT PROJECTS: "Community ecology of bees of Paraná State, southern Brasil; halictid systematics (revision of Pseudagapostemon)."

Giancarlo Ricciardelli D'Albore (Instituto di Entomologia Agraria, Università degli Studi di Perugia, Borgo XX Giugno, 06100 Perugia, ITALY). CURRENT PROJECTS: "Bombus in central Italy (ethology, foraging, pollination); pollination of Carthamus, Brassica, Capsicum, Hedysarum, Solanum, Medicago."

Howell V. Daly (Department of Entomological Sciences, University of California, Berkeley, California 94720, U.S.A.). CURRENT PROJECTS: "Revision of Ceratina and allies in Africa, Madagascar, and Central America. Morphometric techniques for identifying Africanized honey bees." GENERAL: Daly calls attention to another new newsletter, "Africanized Bee News" vol.1, no. 1, Sept. 18, 1985, published by the Division of Plant Industry, California Department of Food and Agriculture, 1220 N Street, Sacramento, California 95814 U.S.A. (mostly written in English).

Holger H. Dathe (Akademie der Wissenschaften der DDR, Forschungsstelle für Wirbeltierforschung (im Tierpark Berlin), DDR - 1136 Berlin, Am Tierpark 125, EAST GERMANY). CURRENT PROJECT: "Hylaeus fauna of Mongolia."

Mark Deyrup (Archbold Biological Station, P.O. Box 2057, Lake Placid, Florida 33852, U.S.A.). CURRENT PROJECTS: "1) Inventory of bees at ABS (65 spp. to date), list available. 2) Biogeographic relationships of bee fauna of ABS. 3) Seasonal flight patterns and relative abundance from year to year of certain species (18 spp.) taken regularly in Malaise traps in sand pine scrub. 4) Slowly accumulating pollination records. 5) Notes on Caupolicana electa at ABS." HELP: "I am interested in joint projects, such as comparing fauna from different sites or areas (e.g., pine barrens vs. Florida scrub) or differences in seasonality between ABS bees and same species farther north." GENERAL: "Summary of ABS bee fauna: generally depauperate, in spite of infinite supply of deep sand for burrows. Andrena and Colletes only represented by a few species each, probably because there are no massive floral productions to support specialist species. A few scattered flowers

throughout the year may support a relatively small generalist bee fauna."

Fokeline N. Dingemans-Bakels (Natuurhistorisch Museum, Bosquetplein 7, 6211 KJ Maastricht, THE NETHERLANDS). CURRENT PROJECTS: Survey of the bee fauna of Surinam. HELP: "May need help in identifying certain groups of local bees, e.g. halictids. Also need reprints on the Western Hemisphere fauna."

Clifton Dixon (Department of Geography, Texas A & M University, College Station, Texas 77843-3147, U.S.A.). CURRENT PROJECTS: "Currently I am investigating the role of bees in the agricultural ecology of Mixtec, Nahua, and Tlapaneo Indians of the southern sierras of Mexico. It appears that beekeeping has been very important to Indian agriculture (even before the introduction of Apis to the New World) and that some forms of agriculture couldn't exist without the pollination activities of Apis and meliponines." HELP: "Any literature on stingless bees and stingless beekeeping would be helpful." GENERAL: "I am constantly collecting in various regions of Mexico and recently spent 2 months collecting in many parts of Costa Rica. I will be collecting in Mexico and Central America for many years to come. In this area I am constantly in contact with biologists and frequently I come across those obscure articles and items of interest to American researchers. Most of the work is in Spanish and I would be glad to keep my eyes open for anything special that they may be looking for."

Heidi E.M. Dobson (Department of Botany, University of California, Berkeley, California 94720, U.S.A.). CURRENT PROJECTS: "Possible role of pollen odor in host plant recognition by newly emerged oligoleptic bees. Completed Ph.D: chemically analyzed lipids in pollen coat of 60 angiosperm species and found that the lipid composition varies between species and includes volatiles. Performed choice preference tests on Colletes fulgidus longiplumosus (Stephen) and found that newly emerged bees show preference in feeding responses to volatiles (odors) of the pollen, pollen coat lipids, and flowers of the species from which their pollen provisions (in larval nest cells) were collected." HELP: "Need to locate nesting sites of oligoleptic bees - in particular, I need to obtain at least 30-50 nest cells of a single species in order to perform choice tests on newly emerged bees (in laboratory)."

Barry Donovan (Entomology Division, D.S.I.R. Lincoln, Private Bag, Christchurch, NEW ZEALAND). CURRENT PROJECTS: "Propagation of the introduced Megachile rotundata and Nomia melanderi for lucerne pollination. Taxonomy and flower relationships of native bees of New Zealand and New Caledonia. Pollination of kiwifruit with solitary bees. Trap-nesting bumble bees and native Hylaeus. Description of native chalk brood fungi." HELP: "Data on species that are manageable for specific crops." GENERAL: Recent field trips: "three several-week long visits to New Caledonia specifically to collect native bees."

Laurence J. Dorr (Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, U.S.A.). CURRENT PROJECTS: "Nesting biology of sympatric Megachilidae in Colorado (field work 1980)." HELP: "Specimen identifications of Rocky Mountain Osmia and parasitic Anthophoridae."

Richard Duffield (Department of Zoology, 415 College Street, N.W., Howard University, Washington, D.C. 20059, U.S.A.). HELP: "Chemical analysis of glandular extracts by gas chromatography-mass spectroscopy."

Connal Eardley (Plant Protection Research Institute, Private Bag X134, 0001 Pretoria, SOUTH AFRICA). CURRENT PROJECTS: "1) Revision of the southern

African Anthophorini. 2) Compilation of a Catalogue of the Bees of Subsaharan Africa, including Indian Ocean Islands. This will most probably be published in sections with priority given to groups that have been recently revised (suggestions welcome)." HELP: "1) Loan of southern African Anthophorini. 2) Help in the acquisition of rare literature on Afrotropical bees." GENERAL: "Field work confined, almost exclusively to South Africa and South West Africa. I have some trips planned for this summer and will write a detailed account at the end of our summer, April or May."

P. Andreas W. Ebner (Konsulent fur Wissenschaft der öö. Landesregierung, Kirchenstrasse 9, A-4040 Puchenau bei Linz, AUSTRIA). CURRENT PROJECTS: "Illustrierte Bestimmungstabellen der Halictus und Lasioglossum Europas." GENERAL: Recent field trips: "Gebirge Südeuropas."

George C. Eickwort (Department of Entomology, Cornell University, Ithaca, New York 14853, U.S.A.). CURRENT PROJECTS: "Revision of the Halictidae of the Caribbean; revision of Dialictus of North America; comparative nesting biology of Dialictus." HELP: "Would like to receive Halictidae from the West Indies (excluding Trinidad)." GENERAL: "Collected Apoidea from Bahamas (San Salvador), Puerto Rico, Dominican Republic, and Jamaica in Summer 1985; collected Apoidea from Rocky Mountain Biological Lab and surrounding area, Colorado, summers 1983-84."

George R. Else (Department of Entomology, British Museum (Natural History), Cromwell Road, London SW7 5BD, UNITED KINGDOM). CURRENT PROJECT: "I am currently engaged on the preparation of a Royal Entomological Handbook for the identification of British and Irish bees (262 species, including 9 recorded from the Channel Islands but not elsewhere in the British Isles). My interests are, however, worldwide." GENERAL: Recent collecting trips for aculeate Hymenoptera in Southern Morocco, Tunisia, Greece, and N.E. Sulawesi as a participant in Project Wallace.

Stellan Erlandsson (Section of Entomology, Swedesh Museum of Natural History, Box 50007, S-104 05 Stockholm, SWEDEN). CURRENT PROJECT: "Fauna Entomologica Scandinavica: Family Colletidae." HELP: "In the museum we have an old collection of American bees captured about 100 years ago by Belfrage. We need species lists for identificaiton."

James R. Estes (Department of Botany and Microbiology, University of Oklahoma, Norman, Oklahoma 73019, U.S.A.). CURRENT PROJECTS: "Coevolution of pollinators and predators of Pyrrhopappus (Asteraceae: Lactuceae). Interaction of anthophilous bees on Aphanostephus skirrhobasis (Asteraceae: Astereae). Biology of Hemihalictus and Andrena verecunda complex." HELP: Identifications. GENERAL: Jim notes that "The Lloyd Shinners collection of anthophilous insects is now at the Dallas Museum of Natural History [Texas]."

Francis C. Evans (Division of Biological Sciences, University of Michigan, Ann Arbor, Michigan 48109-1079, U.S.A.). CURRENT PROJECT: "I have been making an inventory of the bee fauna of an old field in southern Michigan (the Edwin S. George Reserve, Livingston County), recording dates when each species is flying and what species of flower is being visited. My interest is to see how the floral resources of the field are partitioned among the 170 bee species taken so far." HELP: "Identification (confirmation) of species collected (much of this has been done, but assistance with Nomada, Epeorus, and Osmia spp. would be very helpful). Literature on nesting sites is also needed."

Howard E. Evans (Department of Entomology, Colorado State University, Fort Collins, Colorado 80523, U.S.A.). CURRENT PROJECT: "Monograph of the behavior

and natural history of beewolves (Sphecidae: Philanthus)."
HELP: "Need help with identification of prey, mostly Halictidae."

Fan Jian-guo (Department of Insect Taxonomy and Faunistics, Institute of Zoology, Academia Sinica, 7 Zhongguancun Lu, Haitien, Beijing, CHINA). CURRENT PROJECTS: "Systematics and biology of Halictidae." HELP: "Exchange of specimens, specimen identification and literature exchange." GENERAL: "I have been taking part in the investigation of Hengduan and Hainlin Mountain Range (1984-1985)."

Gordon W. Frankie (Department of Entomological Sciences, University of California, Berkeley, California 94720, U.S.A.). CURRENT PROJECTS: "Chemical ecology and population biology of Centris bees in the dry forest of Costa Rica. Mating behavior of Centris bees in the field and in laboratory cages at Berkeley." HELP: "Would like to know who is actively working on anthophorid bee biology and behavior, specifically on Centris, Epicharis, Mesocheira, Mesoplia and Xylocopa." GENERAL: "Make annual trip to Costa Rica for three months to study and collect (vouchers only) Centris bees (about 15 species) in dry forest habitat and in coastal habitats. Just beginning to work on Epicharis and megachilid bees as well in the Costa Rican dry forest."

Amnon Freidberg (Department of Zoology, Tel-Aviv University, Tel-Aviv 69978, ISRAEL). CURRENT PROJECT: "Integration of the Tel-Aviv University and the Bytinski-Salz collections; taken together probably the largest collection in the Near East (details of this collection will be given in the near future)." HELP: "Identifications of many taxa."

Carlos A. Gardfalo (Department of Biology, Faculdade de Filosofia, Ciências, e Letras de Ribeirão Preto - USP, 14.100 Ribeirão Preto - SP, BRASIL). CURRENT PROJECTS: "1) The nesting biology and behavior of Euglossa cordata and Eulaema nigrita. 2) Bionomical aspects of Lithurgus corumbae and L. huberi."

Dan Gerling (Department of Zoology, Tel-Aviv University, Tel-Aviv 69978, ISRAEL). CURRENT PROJECTS: "Behavior of Xylocopa sulcatipes, X. pubescens and X. iris." HELP: "Any information about xylocopids would be welcome."

Friedrich W. Gess (Department of Entomology and Arachnology, Albany Museum, Grahamstown 6140, SOUTH AFRICA). GENERAL: During late September and early October, Sarah Gess and I spent two weeks in Namaqualand, western Cape Province, primarily in pursuit of nesting masarid wasps. However, as is our usual practice, we also kept a look out for any nesting and foraging bees and carried out general collecting."

Charlotte A.M. Gordon (Zoology Department, University of Witwatersrand, 1 Jan Smuts Avenue, Johannesburg 2001, SOUTH AFRICA). CURRENT PROJECTS: "Ph.D. study of nesting biology of several allodapine bee species, with emphasis on comparing more and less social habits." HELP: Confirmation of allodapine identifications. GENERAL: "Most of my collecting is done in the area around Pietermaritzburg, Natal, South Africa."

David M. Gordon (Department of Entomology, University of California, Davis, California 95616, U.S.A.). CURRENT PROJECTS: "Ecology, mating behavior of feral honeybees; nesting biology of Emphoropsis sp.(Anthophoridae); recently completed M.A. Thesis on the Ecology of Bees from Coastal Dunes, Humboldt County, California."

Gerhard K. Gottsberger (Botanisches Institut I der Justus-Liebig-Universität, Senckenbergstrasse 17-25, D-6300 Giessen, WEST GERMANY). CURRENT PROJECTS: "Bee pollination and behavior in the Amazon region (together with J.M.F. de Camargo) and in the cerrado region of the Brazilian Central Plateau."

Katuo Goukon (Biological Laboratory, Tohoku Gakuin University, 1-3-1 Tsuchitōi, Sendai 980, JAPAN). CURRENT PROJECT: "Life history and nesting habits of Hylaeus spp."

Henri Goulet (Biosystematics Research Institute, Agriculture Canada, Ottawa, Ontario, CANADA K1A 0C6). CURRENT PROJECT: "Curation of bees (excluding Bombus) in the Canadian National Collection." HELP: "Through Canacoll grants we hope to have all miscellaneous collections (not extensive anymore thanks to McGinley and Brooks) down to genus, a level at which the material becomes immediately available for bee students." GENERAL: "In 1985 bees were mainly collected from Alaska, Yukon and the Ottawa region. We will soon receive large samples from S. Africa."

Terry Griswold (USDA Bee Biology & Systematics Laboratory, Utah State University, UMC 53, Logan, Utah 84322-5310, U.S.A.). CURRENT PROJECTS: "1) Catalog of the Megachilidae of the World. 2) Generic revision of the Osmiini (Osmia s.l. and Heriades s.l.). 3) Faunal study of the San Rafael Desert, Utah. 4) Revision of Archeriades. 5) Revision of "bright metallic" species of Osmia (Monilosmia) (with R. Rust and G. Bohart). 6) Revision of Micralictoides (with G. Bohart)." GENERAL: Terry has a "new position as entomologist with the USDA Bee Biology & Systematics Laboratory at Logan" and he is "responsible for identifications of pollinating insects."

Fritz Gusenleitner (Department of Entomology, Oberösterreichisches Landesmuseum, Museumstr. 14, A-4020, Linz, AUSTRIA). CURRENT PROJECT: "Bees of Austria." HELP: "Exchange of literature and bees."

Glenn A. Hackwell (Department of Biological Sciences, California State University, Stanislaus, Turlock, California 95380, U.S.A. [209-667-3481]). CURRENT PROJECTS: "Biology and nesting behavior of Panurginus." HELP: Identifications.

V. Haeseler (FB 7 Universität Oldenburg, Ammerländer-Heerstrasse 67-69, D-2900 Oldenburg, WEST GERMANY). CURRENT PROJECTS: "Colonization of new habitats (Frisian Islands) by Apoidea; ecology of species in coastal regions."

Abraham Hefetz (Department of Zoology, Tel-Aviv University, Ramat Aviv, 69978, ISRAEL). CURRENT PROJECTS: "Exocrine products of bees; chemical basis for nestmate/kin recognition; evolution of glands and their products in bees. HELP: "Any samples of glandular exudates or extracts especially of Dufour's and mandibular glands."

H.R. Hepburn (Department of Physiology, University of the Witwatersrand, Medical School, York Road, Parktown 2193, Johannesburg, SOUTH AFRICA). CURRENT PROJECTS: "1) A characterization of the material properties of the honeybee nest from the secretion of wax scales to the maturation of very old combs. 2) The quantification of the way in which incoming nectar stimulates the synthesis and secretion of wax and of comb building (honeybees). 3) The cellular biology of wax synthesis and transport (honeybees)." HELP: "I would be extremely keen to receive the wax-based nests of any species of bees and particularly so of bumble bees. To this end, I would happily collect certain wild bees for others in exchange." GENERAL: "I recently donated a smallish collection (about 3 museum drawers) of sundry southern African bees to Prof.

Michener. Perhaps specialists might like to know that they exist at Snow Museum." Also, "it is rather annoying to see the promiscuous growth in the use of the designation Apis mellifera scutellata for the bee adansonii in the absence of a full and proper treatment of this problem by a professional taxonomist. Any takers? Those of us who are not trained systematists clearly wish to have the problem resolved."

Yoshihiro Hirashima (Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, 812 JAPAN). CURRENT PROJECT: "Bees of Papua New Guinea." GENERAL: "Field trips to Papua New Guinea in 1982 and 1984 for bees."

Terry Houston (Western Australian Museum, Francis Street, Perth, WESTERN AUSTRALIA 6000). CURRENT PROJECTS: "1) Revision of Australian Hylaeus (subgenus Pseudhylaeus). 2) Revision of Stenotritidae. 3) Bionomics of Ctenocolletes (Stenotritidae) and some symbiotic acarid mites. 4) Trace fossils of bees." HELP: "A copy of Tarlton Rayment's 'A Cluster of Bees' (Endeavour Press: Sydney) is sought for purchase." GENERAL: "From 1978 to 1985 my collecting has been restricted to Western Australia (all areas except the Kimberley Division)."

Shuichi Ikudome (Laboratory of Biology, Kagoshima Women's Junior College, 1-59-1, Murasakibaru, Kagoshima 890, JAPAN). CURRENT PROJECTS: 1) Revision of Hylaeus of Japan and Oriental Region; 2) cladistic analysis of the carpenter bees in the Northern Ryukyus; 3) pollination of kiwi fruits. GENERAL: Recent field trip to "northern Ryukyus (Takara-retto) to collect Hylaeus and Xylocopa in particular."

Tamiji Inoue (Entomological Laboratory, College of Agriculture, Kyoto University, Kyoto 606, JAPAN). CURRENT PROJECTS: "Sumatra Nature Project; Ecology of stingless bees and honey bees." HELP: "Literature of traditional apiculture in South-east Asia."

Daniel H. Janzen (Department of Biology, University of Pennsylvania, Philadelphia, Pennsylvania 19104, U.S.A.). CURRENT PROJECTS: "Obtain correct names and reference collection for the bees of Santa Rosa National Park, Costa Rica. Bees as flower visitors within Santa Rosa National Park." HELP: "Determinations of Costa Rican dry forest bees." GENERAL: "I live in Santa Rosa National Park about half of each year, and am willing to discuss ways in which I may help bee biologists to come to know this area better. The area is roughly representative of the Pacific coastal dry forest lowlands of Central America." P.S.: "I have not died (but the mail in and out of Costa Rica can be slow)."

Lars-Åke Janzon (Swedish Museum of Natural History, Box 50007, S-104 05 Stockholm, SWEDEN). CURRENT PROJECT: "Mating systems of the carpenter bee Xylocopa flavorufa (with Bo G. Svensson)."

Michael Johnson (Department of Biological Sciences, DePauw University, Greencastle, Indiana 46135, U.S.A.). CURRENT PROJECTS: "Relationship between cell size and provision mass and the sex produced by females of Ceratina calcarata. Rearing of megachilids and andrenids collected from nests from last summer." HELP: Confirmation of identifications.

R.P. Kapil (Haryana Agricultural University, Hissar-125004, INDIA). CURRENT PROJECTS: "Management and conservation of megachilid bees for alfalfa crop pollination; all-India Coordinated Research Project on honeybees; analysis of factors responsible in bee-flower relationships." HELP: Identifications, literature, and information on conferences, symposia being

held in various parts of the world on various aspects of bees."

Markku Käpylä (Department of Biology, University of Jyväskylä, SF-40100 Jyväskylä 10, FINLAND). CURRENT PROJECT: "Flower preferences of Hylaeus species in Finland." HELP: "Exchange of papers."

Lynn S. Kimsey (Department of Entomology, University of California, Davis, California 95616, U.S.A.). CURRENT PROJECTS: "1) The functional morphology of nectar-feeding in Euglossini; 2) phylogenetic relationships of the euglossine genera; 3) biology of Euglossa imperialis and Eulaema meriana; 4) male euglossine population dynamics."

Judith King (Department of Entomology, University of Queensland, St. Lucia, Brisbane, 4067 AUSTRALIA). CURRENT PROJECT: "Completing Ph.D. on systematics of Chalicodoma sensu Michener in Australia. January 1986 starting a project of the suitability of some Australian Megachilidae as crop pollinators."

Gerd Knerer (Zoology Department, University of Toronto, 25 Harbord Street, Toronto, Ontario, CANADA, M5S 1A1). CURRENT PROJECTS: "Rearing variety of halictine species in the laboratory under different physical conditions to study caste determination, sex ratio and social interaction among nest mates."

Fatima do Rosario Naschenveng Knoll (Departamento de Ecologia Geral, Instituto de Biociências - USP, 05.508 - São Paulo - SP. BRASIL). CURRENT PROJECTS: "1) Relative abundance, phenology and flower preferences of bees on the São Paulo University Campus; 2) preliminary report on Euglossini bees in a subtropical environment (Estação Ecologica da Jureia)." HELP: Identifications.

Alois Kofler (Maximilianstrasse 15, A-9900 Lienz, Osttirol, AUSTRIA). CURRENT PROJECT: "Faunistik der Apoidea Osttirols." HELP: Identifications.

Kristjan Kristjansson (The Royal Veterinary and Agricultural University, Kagså Kollegiet 193, 2730 Herlev, DENMARK). CURRENT PROJECTS: "Field and greenhouse experiments with Osmia species as pollinators in orchards and of fruit plants (mainly working with Osmia rufa L.)." HELP: "If possible, exchange of cocoons with those who are working with Osmia species."

Miloje Krunic (Institute of Zoology, Faculty of Science, University of Belgrade, Studentski trg 16, 11000 Belgrade, YUGOSLAVIA). CURRENT PROJECTS: "Megachilidae domestication for alfalfa pollination; effects of smeltery smokes on the honey bee and its products." HELP: Identifications.

Penelope F. Kukuk (Department of Entomology, Cornell University, Ithaca, New York 14853, U.S.A.). CURRENT PROJECTS: "1) Electrophoretic studies of the evolution of eusociality in Lasioglossum (Dialictus) zephyrus; 2) preliminary examination of the role of macrocephalic males in the nests of Lasioglossum erythrurum; 3) paryotyping of halictine bees." HELP: "Any information on Lasioglossum erythrurum (species group) taxonomy would be very useful."

Wallace E. LaBerge (State Natural History Survey Division, 607 E. Peabody, Champaign, Illinois 61820, U.S.A.). CURRENT PROJECTS: Revisions of "Andrena of the Western Hemisphere, Anthidium of North America, Tetraloniella of North America."

Sebastião Laroca (Departamento de Zoologia, UFPR, Caixa Postal 19.020, 80.000 Curitiba, Paraná, BRASIL). CURRENT PROJECTS: "Wild bee biocoenotics of restricted areas in Eastern Parana (South Brasil)."

Folke K. Larsson (Lillakersuagen 49, S-18159 Lidingo, SWEDEN). CURRENT PROJECTS: "Mate choice and sexual selection in natural populations; gregarious nesting behaviour in solitary species; natal area fidelity in solitary species; bee ecology [primarily on colletids]." HELP: "Literature on solitary bees in the South Pacific."

Jean Leclercq (Zoologie Générale et Faunistique, Fac. Gembloux, rue de Bois-de-Breux, 190, B 4500 Liège, BELGIUM). CURRENT PROJECT: "Collecting, mapping distributional data, problems of vulnerable and threatened species." HELP: "Records for the data bank of the Gembloux section of the European Invertebrate Survey (at least lists of correctly determined specimens with locality and year)." GENERAL COMMENT: "To deserve the quality of "international" a newsletter as proposed as well as any other "international" initiative should make sure that people are really free to speak or write in the language of their choice. That is not the case when we are told that "we will gladly accept material written in any language but encourage you to submit documents in English...". The journals "Insectes Sociaux" and "Apidologie" are obviously models which I fear will not be easily imitated by American colleagues because the latter do not understand that to force scientists in the way of 'English the unique language of Science' is to shock colleagues who are respectable, worthy and broad-minded even if they are not the majority of the scientists in today's world." [These are excellent points and are well taken; however, we emphasize that we are in no way attempting to "force scientists in the way of English..." and again point out that documents in any language are gladly accepted [note the entries for Ricardo Ayala and P.A.W. Ebmer]. We should explore the possibilities of editorial help from our colleagues around the world.--Eds.]

B.A. Lefeber (Brother Virgilius) (Brusselstraat 38, 6211 PG Maastricht, THE NETHERLANDS). CURRENT PROJECTS: Current research is on wasps. HELP: "Identification of Halictus, Lasioglossum and Sphecodes species."

Remko Leys (Utrechtseweg 305, 3731 GA DeBilt, THE NETHERLANDS). CURRENT PROJECTS: "Investigation of the nesting biology of the communal parasocial Andrena ferox Smith with following subjects: population dynamics, kinship of bees in colonies and association with Nomada, etc.; preparing a key for the identification of the Andrenidae of the Netherlands and surrounding areas." GENERAL: "Several thousands of apoids and other Aculeata collected in Algeria (1978, 1981, 1983), Krete (1985), Spain (1985) and Ecuador (1983)."

E. Gorton Linsley (Department of Entomological Sciences, 201 Wellman Hall, University of California, Berkeley, California 94720, U.S.A.). CURRENT PROJECTS: "Bee pollinators of southwestern trees and shrubs; competitors of bees for pollen and nectar of Kallstroemia grandiflora. Competitors of bees for pollen and nectar of Helianthus. Site differences among pollinators of Grindelia campestris in Sierra Nevada and central valley of California."

Maria de Lourdes Maciel de Almeida Correia (Laboratorio de Ecologia, Instituto de Ciências Biomédicas, Largo do Prof. Abel Salazar, 2, 4000 Porto, PORTUGAL). CURRENT PROJECTS: "Survey of the native wild bee fauna of Portugal with goal of determining best pollinators for Trifolium and Medicago [selection of Bombus species as Trifolium pollinator and selection of Megachile (two species) and Osmia (three species) as Medicago pollinators]." HELP: Literature and identifications. GENERAL: "Collecting trips are made on a weekly basis to northwestern Portugal."

Yasuo Maeta (Laboratory of Insect Management, Faculty of Agriculture, Shimane University, Matsue 690, JAPAN). CURRENT PROJECTS: "Management of wild

bees; social behavior of *Xylocopinae*."

Tatjana Pavlovna Marikowskaja (Institute of Zoology AN Kaz SSR, Akademgorodok, Alma-Ata 480032, U.S.S.R.). CURRENT PROJECTS: "The faunistics, biology, ecology of bees in Kazakhstan; systematics of Anthophorinae." HELP: "I'm interested in obtaining translations of some papers in Japanese and Chinese."

Robert W. Matthews (Department of Entomology, University of Georgia, Athens, Georgia 30602, U.S.A.). CURRENT PROJECT AND HELP NEEDED: "I am doing comparative studies of Melittobia parasitic wasps (Chalcidoidea). Various species are common parasites of various bee and wasp species. I am eager to obtain cultures of any taken in twig nests of Ceratina, megachilids, or colletids. Also one species reportedly infests nests of Bombus. So far it is known only from the type series from Vermont. All species are gregarious ectoparasites and diapause as prepupae in cells or cocoons of the host. Please send any live Melittobia-infested cells to me. I can provide identifications in return."

Ronald J. McGinley (Department of Entomology, Smithsonian Institution, NHB-105, Washington, D.C. 20560, U.S.A.). CURRENT PROJECTS: Revision of New World Evylaeus (monograph of New World Lasioglossum s.s. should be out as a Smithsonian Contribution by June); biology and systematics of Pararhoplites from Pakistan (with J.G. Rozen; manuscript in prep.); preparation of figures for an illustrated key to the bee genera of Mexico (with C.D. Michener); production of bee newsletter; preparation of proposal for funding of the Mexican bee project (PCAM). HELP: Information for the next newsletter.

Maria Luiza S. Mello (Department of Cell Biology, Institute of Biology - UNICAMP, 13100 Campinas (SP), BRASIL). CURRENT PROJECTS: "Change in DNA contents with aging; chemistry and stereoarrangement of cocoon components; DNA-protein complexes in spermatozoa." HELP: "Dry cocoons of bumblebees from temperate zones."

Randolf Menzel (Freie Universitat Berlin, Institut fur Tierphysiologie, D-1000 Berlin 33, WEST GERMANY). CURRENT PROJECTS: "Physiology and behavior of learning; color vision, including species comparisons and floral adaptations; search strategy." HELP: "Identification of species from Brasil." GENERAL: Recent work on a "comparative study of Apis, Bombus and Melipona species on color vision and photoreceptor properties in European and South American species in Brasil 1983, 1984."

Sammie J. Merritt (Department of Entomology, Texas A & M University, College Station, Texas 77843, U.S.A.). CURRENT PROJECT: "Identification of solitary bees in the Texas A & M Entomology Collection." HELP: Literature and identifications (especially Meliponinae).

Adam Messer (Department of Entomology, Cornell University, Ithaca, New York 14853, U.S.A.). CURRENT PROJECT: "Biological properties of resins of the plant family Dipterocarpaceae used in nest construction." GENERAL: Recent field work in Indonesia, Papua New Guinea, Malaysia.

Charles D. Michener (Entomological Museum, Snow Hall, University of Kansas, Lawrence, Kansas 66045, U.S.A.). CURRENT PROJECT: "Classification of all bees, to the subgenus level. The investigation is evolutionary and phylogenetic as well as taxonomic, and should result in a worldwide treatment."

Terry D. Miller (Department of Entomology, Washington State University, Pullman, Washington 99165, U.S.A.). CURRENT PROJECTS: "Compiling a species list of bees in Idaho and bee-plant relationships along the Snake River breaks." HELP: Identifications. GENERAL: "Spent three weeks collecting in southern Utah through southeastern Arizona and I have plenty of bees."

J.S. Moure (Departamento de Zoologia, Universidade Federal do Paraná, Caixa Postal 3034, 80.000 Curitiba, Paraná, BRASIL). CURRENT PROJECTS: "Ending a practical revision of the South American Bombini and Euglossini; working on the Catalog of the Meliponinae of the World." HELP: Padre Moure needs literature in order to finish his Catalogue of the Meliponinae bees. He writes "with the Brazilian recession, research is becoming impossible. No scientific magazine subscriptions have been renewed since the end of the last decade to the present. Our Bulletin of Zoology was stopped and DUSENIA has no funds to go on!" GENERAL: "The Department is collaborating on the Insect Survey of Northwestern Brasil, but the program goes very slowly and irregularly. The staff of the Department started a very ambitious Center of Identification of Phytophagous Insects. The present staff working on insect identification has a force of 19 people, and the Museum of Entomology "Prof. Pe. J. S. Moure" has about 1,500,000 specimens of which 174,000 are Lepidoptera (mostly Rhopalocera) and 500,000 Hymenoptera (mostly Neotropical bees). The policy of our CONSELHO NACIONAL DE DESENVOLVIMENTO CIENTIFICO E TECHNOLOGICA (CNPq = National Research Council) is trying to concentrate collections in the main Museums and is buying private collections mostly of butterflies. The great majority of the unpinned PLAUMANN COLLECTION was incorporated in our Museum. Our unpinned collection has about a half million specimens, and we now have four technicians for pinning and one to care for the air conditioning, labelling, etc., and a field collector, presently in the State of Espírito Santo. Unfortunately this staff is supported by special grants handled every year through a tremendous amount of paper work!"

John L. Neff (Central Texas Melittological Institute, 7307 Running Rope, Austin, Texas 78731, U.S.A.). CURRENT PROJECTS: "Biology and phylogeny of oil-collecting Anthophoridae, morphology and host switches in oil-collecting Anthophoridae (Centris and Tapinotaspis); pollination of Krameria, Dinemandra, Dinemagonum, Nierembergia; determinants of provisioning rates in solitary bees (many bees appear not to be food limited - what does limit fecundity?); biology of Texas bees; Penapis in Peru; checklist of bees of central Texas." HELP: "Looking for unpublished records of provisioning rates (# cells constructed and provisioned per day, duration of provision trips, cell construction-provisioning sequences on consecutive days, indications of pollen/nectar limitation, measures of absolute fecundity). Will be looking for specimens of Tapinotaspis s. lat. starting March, 1986." GENERAL: "Two month trip to northern Argentina planned for Jan-Feb 1986 looking primarily at oil-producing flora and associated bees (Centris and Tapinotaspis) of high (2500-3500m) grassland of Sierras Calchaquies (Tucuman and Catamarca)."

Beth B. Norden (Department of Entomology, Smithsonian Institution, NHB-105, Washington, D.C. 20560, U.S.A.). CURRENT PROJECTS: "1) Investigation of Ceratina calcarata and C. dupla taxonomic confusion; 2) manuscript preparation for Cucumis melo L. pollination project; 3) continued observation of Anthophora abrupta male territoriality; 4) thermoregulation in relation to nest architecture in ground nesting bees (particularly turret builders); 5)

audio communications by gregarious nesting females." HELP: "Equipment that might be loaned? (Audio recording drums)."

Josué A. Núñez (University of Buenos Aires, Calcagno 642, 1609 Boulogne, Buenos Aires, ARGENTINA). CURRENT PROJECTS: "Behavioural physiology of insects: foraging behaviour and behavioural ecology of foraging bees."

Mark F. O'Brien (Museum of Zoology, University of Michigan, Ann Arbor, Michigan 48109, U.S.A.). GENERAL: "We have finally reacquired our Apoidea collection from Michigan State, leaving only our Michigan Megachilidae to be returned. As the collection has also expanded due to recent activity by wasp people, there is a growing accumulation of unworked bees. Some Malaysian bees are probably some of the more notable accessions. We invite workers to write for material."

Ellen Ordway (Division of Science and Mathematics, University of Minnesota, Morris, Minnesota 56267, U.S.A.). CURRENT PROJECTS: "Pollination biology in tall grass prairies; biology of Diadasia; biology and behavior of native bees."

Christopher O'Toole (Hope Entomological Collections, University Museum, Oxford OX1 3PW, UNITED KINGDOM). CURRENT PROJECTS: "Keys to the genera of bees occurring in Israel; Colletes of Israel; biosystematics of the succinctus and cunicularius species groups of Colletes; the endophallus in male bees." HELP: "Would like to see unidentified material of Colletes from the Middle East." GENERAL: "Spent March-April 1984 collecting bees in Israel. Clearly an underexplored fauna. Spent some time on preliminary organizing of main bee collection in Dept. of Zoology, University of Tel-Aviv. Another field trip to Israel planned for Spring 1986, during which time I intend to spend more time collecting in the deserts and around the Dead Sea. Also, intend to make more field observations on cave-nesting populations of Andrena vetula. Will send detailed accounts of both Israel trips next year. Spent July and part of August 1984 in U.S., making a film with Oxford Scientific Films on bees (The Birth of the Bees, not our title, but that imposed by Channel 4 TV in Britain.) Eventually, this film will be shown on PBS TV in the States by WNET NY. Filming based at Bee Lab., Logan, Utah, where we had a great time and much help and hospitality from Frank Parker, Terry and Rhonda Griswold, Vince Tepedino, Phil Torchio and Ned Bohart. Managed to fit in collecting in Utah, Nevada and later in Pennsylvania. Boy, what a fauna! Here we still haven't recovered from the Pleistocene. Detailed account to follow." Final note: "In return for named voucher specimens, Dr. Amots Dafni, pollination biologist from the Institute of Evolution, University of Haifa, Israel, is supplying us with excellent material of Israeli bees for our collection. This is going to be a long-term arrangement."

Laurence Packer (Ramsay Wright Zoological Laboratories, University of Toronto, 25 Harbord Street, Toronto, Ontario M5S 1A1, CANADA). CURRENT PROJECTS: "Social organization of Halictus ligatus (subtropical and temperate populations); ergonomics of Lasioglossum (Evylaeus) cinctipes; taxonomy and morphometrics of Old World "carinate" Evylaeus; systematics of Halictus; halictid chromosome numbers." HELP: "Identified or unidentified Evylaeus from the Old World, particularly from under collected areas." GENERAL: Recent field work in "southern Mexico, Dec. 1984 - Feb. 1985 and Cape Breton Nova Scotia (in progress)."

Guido Pagliano (Universita Agraria-Torino, Corso Corsica 6, I 10134 Torino, ITALY). CURRENT PROJECT: Preparing a checklist of Italian Apoidea.

Frank D. Parker (Bee Biology & Systematics Laboratory, USDA-ARS, 261 NRB, Utah State University, Logan, Utah 84322-5310, U.S.A.). CURRENT PROJECTS: "Alfalfa and sunflower pollination (importing new alfalfa pollinators from Egypt and India). Trap nesting studies in U.S., Europe, Central America and Mexico. San Rafael Desert (Utah) - continuing survey of bees in this area noted for endemic plants and bees." HELP: "Nesting sites of gregarious species (ground or xylophilous) worldwide to study potentials as candidate pollinators."

Hannes F. Paulus (Institut fur Biologie I (Zoologie), Albertstrasse 21a, D-7800 Frerburg im Breisgau, WEST GERMANY). "Comparative morphology of the mouthparts; learning behaviour in female seeking behaviour."

Yuriy A. Pesenko (Zoological Institute, Academy of Sciences of the U.S.S.R., University Embankment 1, Lenengrad, 199164, U.S.S.R.). CURRENT PROJECTS: "Fauna of the Palearctic Halictus s.l. (Halictus, Seladonia, Vestitohalictus, Thrincohalictus) - monographic revision; key to the Palearctic species of Lasioglossum s.str.; revision of the African Nomicoidini." HELP: "Any material of African Nomicoidini (for study); representatives of different genera and subgenera of the Halictidae (in exchange)."

D. Stefan Peters (Forschungsinstitut Senckenberg, Senckenberg Anlage 25, D-6000 Frankfurt/M., WEST GERMANY). CURRENT PROJECT: Revision of Noteriades.

Jacques Petit (Grand'route 5, B-4493 Wonck, BELGIUM). CURRENT PROJECTS: "Bionomie des Colletidae d'Europe."

Ing Pettinga (Experimental bee Farm, Tilburgseweg 32, 5081 NG Hilvarenbeek, THE NETHERLANDS). CURRENT PROJECTS: "Open air and greenhouse pollination studies; Varroa."

John D. Plant (Institut fur Biologie I (Zoologie), Albertstrasse 21a, D-7800 Frerburg im Breisgau, WEST GERMANY). CURRENT PROJECTS: "Comparative morphology of mouthparts, leg structure, etc.; observations on Anthidium male behavior."

Darrell A. Posey (Laboratório de Etnobiologia, Dept. de Biologia, Universidade Federal do Maranhão, 65.000 São Luis, Maranhão, BRASIL). CURRENT PROJECTS: "Studies of Kayapo Indian knowledge of meliponines and Apis - an interdisciplinary project with entomologists, ecologists and anthropologists." HELP: "Information regarding native beliefs and knowledge about bees (all "native" groups, worldwide)."

Alexander A. Prusakov (Department of Ecology, Simferopol State University, 333036 Simferopol, Yaltinsdaja st., U.S.S.R.). CURRENT PROJECTS: Planning to collect Halictidae in Crimea during the next field season. HELP: Reprints concerning Halictidae.

Wasantha Punchihewa (31/5 C.W.E. Road, Homagama, SRI LANKA). CURRENT PROJECTS: "Parasitic mites of Apis; pollination of crop plants and pollinator management; collection catalogue of Sri Lanka's apoid fauna." HELP: "Need taxonomic keys and literature on biology."

Graham H. Pyke (The Australian Museum, 6-8 College Street, Sydney, N.S.W. 2000, AUSTRALIA). CURRENT PROJECTS: "Coevolution between bumblebees and Polemonium foliosissimum in Rocky Mountains of Colorado; effects of introduced honeybees on Australian native bees." HELP: Identification of Australian bees.

Ivica Radović (Institute of Zoology, University of Belgrade, 16, Studentski trg., 11000 Belgrade, YUGOSLAVIA). CURRENT PROJECTS: "Comparative morphological study of sphecid wasps and bees; origin of bees." HELP: "Identification of some species."

Victoria Raica-Iuga (Muzeul de Istorie Naturală, "Grigore Antipa", Secția de Entomologie, Soseaua Kiseleff nr. 1, Bucarest 79744, R.S. ROMANIA). CURRENT PROJECT: "The labiomaxillary complex of specoid wasps."

Radclyffe B. Roberts (Department of Entomology and Economic Zoology, Cook College, Rutgers University, New Brunswick, New Jersey 08903, U.S.A.). CURRENT PROJECTS: "Revision of Meso-American halictines allied to Agapostemon (with R.W. Brooks); revision of Pseudagapostemon (Halictini); competition between Apis and Bombus foraging on Vaccinium." HELP: "Would like to see material in following the genera in connection with systematic work: Agapostemonoides, Dinagapostemon, Paragapostemon, Rhinetula, Pseudagapostemon, Caenohalictus, Habralictus." GENERAL: "I have apoid material from Costa Rica, Panama, eastern Colombia, southwestern Brasil, northeastern Brasil, eastern Bolivia, eastern Peru and Argentina."

Norman W. Rodd ("Joalah" Skyline Road, Mt. Tomah via Bilpin, N.S.W. 2758, AUSTRALIA). CURRENT PROJECTS: "Mainly collecting for addition to my extensive collection which eventually goes to the Australian Museum (Sydney) of which I am an Honorary Associate." HELP: "It would be of great assistance to obtain a copy of Michener's "Bees of the Pacific Region" (I only have a xerox copy)." GENERAL: "My most recent field trip was in June/July 1985 with most collecting in far north Queensland, as far north as the tip of Cape York. Some spectacular Amegilla and Nomia collected there and further south at Cooktown some handsome Euryglossinae (Stenohesma?)."

Peter-Frank Röseler (Zoologisches Institut (II), Röntgenring 10, D-8700 Würzburg, WEST GERMANY). CURRENT PROJECT: "Energy metabolism of fat body."

David W. Roubik (Smithsonian Tropical Research Institute, APO Miami 34002, U.S.A.). CURRENT PROJECTS: "1) Ecological impact of African honey bees on neotropical flora and fauna. 2) Pollination ecology, palynology. 3) General biology of bees, especially population dynamics. 4) Highly eusocial bees."

Jerome G. Rozen, Jr. (American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024, U.S.A.). CURRENT PROJECTS: "Nesting biology of various taxa; biosystematics of parasitic bees, especially Oreopasites." HELP: "I am attempting to develop a collection of immature stages of all taxa of bees. I urge all investigators to contribute samples of eggs, larvae and pupae together with adults, all preserved in fluid, so that these specimens might be available to all interested members of the scientific community."

Richard W. Rust (Department of Biology, University of Nevada, Reno, Nevada 89557, U.S.A.). CURRENT PROJECTS: "Experimental analysis of pollen foraging in polylectic and oligolectic bees (the two species under investigation are Osmia lignaria and O. ribifloris). Intraspecific competition in Osmia species, resource limitation in nesting sites. Review of the metallic green Osmia of North America with Drs. G.E. Bohart and T. Griswold. I am following several populations of bees, Osmia spp., Nomadopsis and Perdita. Analysis of body and nest cell waxes of Nomia spp., with Dr. G. Blomquist." HELP: "Frozen adults and nest of Nomia species." GENERAL: "My collecting efforts are in the Great Basin Desert of North America and I have been collecting in both the hot

desert regions and the high montane areas. Material is slowly starting to accumulate and is available for loan and study."

Shoichi F. Sakagami (Institute of Low Temperature Science, Hokkaido University, Sapporo, 060 JAPAN). CURRENT PROJECTS: "1) Social behavior of Ceratina bees. 2) Bionomics of N. Japanese halictine bees. 3) Oviposition behavior of stingless bees. 4) Systematics of Indopacific stingless bees. 5) Taxonomy of Japanese and S.E. Asian halictids."

Justin O. Schmidt (Department of Entomology, University of Arizona, Tucson, Arizona 85721, U.S.A.). CURRENT PROJECTS: "Phylogeny based on venoms; aggregation pheromones of anthophorids; behavior and value of venoms in defenses of aculeates." HELP: "Collecting and behavioral information about species; collaboration on sending live or frozen specimens for physiological experiments; determinations."

Klaus Schönitzer (Zoologisches Institut der Universität München, Luisenstr. 14, D-8000 München 2, WEST GERMANY). CURRENT PROJECTS: "Histology and ultrastructure of salivary glands; biology of Andrena." HELP: "I am fascinated by the tremendously broad dilated forelegs of several species of Megachile males (and related genera). It seems probable that they are used in copulation, but I did not find any hints of this in the literature. Could anybody tell me anything about this; how do Megachile spp. (and related genera) copulate?"

Karl-Heinz Schwämberger (Ruhr-Universität Bochum, Lehrstuhl für Spezielle Zoologie und Parasitologie, Postfach 102148, D-4630 Bochum 1, WEST GERMANY). CURRENT PROJECT: "Bearbeitung der Gattung Panurgus."

Maximilian Schwarz (Eibenweg 6, A-4052 Ansfelden, Freindorf, AUSTRIA). CURRENT PROJECTS: "Taxonomy of Apoidea, especially parasitic bees."

Michael Schwarz (Department of Zoology, Monash University, Clayton, Victoria 3168, AUSTRALIA). CURRENT PROJECTS: "Social organization and population structure of Exoneura bicolor (Anthophoridae); role of macrocephalic males in communal halictines."

Cynthia D. Scott (Department of Environmental Biology, University of Guelph, Guelph, Ontario, CANADA, N1G 2W1). CURRENT PROJECTS: "1) Abundance and diversity of wild bee pollinators in the Okanagan Valley of B.C. [I am preparing my Ph.D. thesis on 2 years of collecting wild bee species of the Okanagan Valley. Some floral visitation data will be available once I'm done]; 2) a comparison of the pollination efficiency of Osmia lignaria propinqua and honeybees on apples; 3) a system of utilizing forager entrance counts as a means of determining honeybee colony strength in orchards."

Virginia L. Scott (Department of Entomology, 243 Natural Science Building, Michigan State University, East Lansing, Michigan 48824, U.S.A.). CURRENT PROJECTS: "Masters research is on the nesting biology of three species of Hylaeus (Colletidae). I've also been looking at Hylaeus taxonomy and distribution within the state of Michigan." HELP: "Any information on Hylaeus nesting biology not already in the literature (even seemingly unimportant tidbits)."

Sandra S. Shanks (Department of Biology, University of San Francisco, San Francisco, California 94117, U.S.A.). CURRENT PROJECTS: "Revision of Osiris

(Anthophoridae); identification of Africanized honey bees." HELP: "Still looking for about 10 Osiris types named by Friese."

Alvin F. Shinn (Department of Biology, William Paterson College, 300 Pompton Road, Wayne, New Jersey 07470, U.S.A.). CURRENT PROJECTS: "1) Supplemental notes on the genus Calliopsis (Andrenidae). 2) Pollen usage by Calliopsis species. 3) Scanning electron microscopy of a morphological feature of the panurgine bees (Andrenidae). HELP: "I will request the loan of specimens from several museums." GENERAL: Field trip "Aug. 28- Sept. 16, 1985 to the Southwestern Research Station, American Museum of Natural History, Portal, Arizona; collection of Calliopsis specimens for pollen usage and of their host plants for pollen samples." Alvin also notes that "after completion of 13 years as Dean of the School of Science, I have returned as Full Professor of Biology to the Department of Biology."

Brian H. Smith (c/o Dr. Charles D. Michener, Entomological Museum, Snow Hall, University of Kansas, Lawrence, Kansas 66045, U.S.A.). CURRENT PROJECTS: "1) Genetics of pheromone variation and kin recognition. 2) Learning and imprinting in bees. 3) Evolution of castes and pheromones in halictine bees. I have been doing some research on this with Lasioglossum malachurum and L. pauxillum. Queens of each species produce and release 4-14x as much of the macrocyclic pheromone as workers although the former are only 1.1-1.3x as large as the latter. Additionally, there is a linear relationship within the queens of size vs. pheromone - the larger the queen the more pheromone she puts out. However, there is no such relationship among the workers. I hypothesize that pheromone differences have to do with signalling of size, and are particularly effective in early summer, when the gynes are solitary; there is a tremendous amount of fighting and nest take-over in early summer. In social nests, the pheromone signals reproductive/dominance status. All this may ultimately lead to hypotheses regarding the evolution of queen pheromones in highly social bees."

Roy R. Snelling (Los Angeles County Museum of Natural History, 900 Exposition Boulevard, Los Angeles, California 90007, U.S.A.). CURRENT PROJECTS: "Revisions of selected groups of New World nomadine bees; Hylaeinae of Ethiopian and Neotropical regions; New World Chalicodoma."

Lionel A. Stange (Florida Department of Agriculture, Division of Plant Industry, Doyle Conner Building, P.O. Box 1269, Gainesville, Florida 32601, U.S.A.). CURRENT PROJECTS: "Revision of North American Anthidiellum; revision of New World Hypanthidiooides; identification of Africanized honey bee." HELP: "Loan of New World Anthidiini; exchange of World Anthidiini." GENERAL: Recent field trips to "Mexico: March 1985, general collecting; California and Louisiana: Africanized bee identification facilities; Dominican Republic: May and September 1985, general collecting; Tunisia and Egypt: June 1984, general collecting."

Christopher K. Starr (Biology Department, De la Salle University, P.O. Box 3819, Manila, PHILIPPINES). CURRENT PROJECTS: "1) Venom toxicity of Apis spp. (PI: J.O. Schmidt). 2) Zoogeography of giant honey bees (subgenus Megapis) (PI: S.F. Sakagami). 3) Nest architecture of some philippine Trigona spp. 4) Semi-popular book on philippine social insects."

Kim E. Steiner (National Botanic Gardens, Kirstenbosch, Private Bag X7, Claremont 7735, SOUTH AFRICA). CURRENT PROJECT: "The association between oil-producing flowers and oil-collecting bees in southern Africa."

Erwin Steinmann (Schonbergstrasse 11, CH-7000 CHUR, SWITZERLAND). CURRENT PROJECTS: "Short range orientation of Anthophora plagiata (Illiger); color discrimination and color learning of Osmia and Heriades." HELP: Need to locate "Balfour-Browne, F. (1925) 'Concerning the Habits of Insects', Cambridge University Press (parts about the orientation of Osmia)."

Aleksandar M. Stevanović (Faculty of Natural Sciences and Mathematics, Institute of Zoology, Studentski Trg 16, POB 550, 11001 Beograd, YUGOSLAVIA). CURRENT PROJECT: "Fauna of Serbia financed by the Serbian Academy of Arts and Sciences." HELP: New identification keys.

Evan A. Sugden (Visiting Research Associate [through June 1986], Department of Vertebrate Ecology, The Australian Museum, 6-8 College Street, Sydney 2000 NSW, AUSTRALIA). CURRENT PROJECTS: "Investigation of potential competitive interaction between introduced (commercial apiary) honey bees and native bees in Australia; biology of Osmia integra in Western North America; biology of Chalicodoma cephalotes in Arabia and India." HELP: "Recent work or articles on Exoneura or allied genera (mid 1970's or later)."

Bo G. Svensson (Department of Entomology, Box 561, Uppsala University, S-751 22 Uppsala, SWEDEN). CURRENT PROJECTS: "Chemical ecology and reproductive behaviour in male bumble bees; Halictidae (chemical ecology, systematics); East African Xylocopa (behaviour, ecology); trap-nesting (sex-ratio, sex dimorphism, mortality, etc.)."

Osamu Tadauchi (Entomological Laboratory, Faculty of Agriculture, Kyushu University, 46-01, Fukuoka 812, JAPAN). CURRENT PROJECTS: "Systematics of Lasioglossum of Japan; numerical taxonomy of the subgenera of Andrena in the World; producing database on Apoidea." GENERAL: Field work in "Hokkaido, northern Japan for six months in 1984."

L. Tanács (Szeged Tarjánszele 4/b, 6723 HUNGARY III.11). CURRENT PROJECT: The relationship between biotic/abiotic factors and species distributions, and how these patterns influence the pollination of economically important plants in Hungary.

J.N. Tasei (Laboratoire de Zoologie INRA, 86600 Lusignan, FRANCE). CURRENT PROJECTS: "Effects of pyrethroids on solitary bees (Megachile rotundata); comparison of ecotypes of M. rotundata (behaviour, nest building, enzymes)." HELP: "Need live native specimens of M. rotundata from various parts of Europe, Asia, Africa (places where no outcrossing with American leafcutting bees could occur)."

Jan Tengö (Ecological Research Station of Uppsala University, S-386 00 Farjestaden, SWEDEN). CURRENT PROJECTS: "Kleptoparasitism - behavior directing and population regulating mechanisms. Natal area fidelity in bees and wasps. Kin recognition."

Vincent J. Tepedino (USDA-ARS, Bee Biology & Systematics Lab., Utah State University, UMC 53, Logan, Utah 84322, U.S.A.). CURRENT PROJECTS: "1) Studies on parental investment in various species of megachilids. 2) Control of diapause in Megachile rotundata (F.). 3) Studies of life history parameters of parsivoltine bees."

H.G.M. Teunissen (Kruisstraat 53, 5341 HB Kruisstraat 53 OSS, THE NETHERLANDS). CURRENT PROJECTS: Preparation of male genitalic illustrations of Andrena, Osmia and Eucera. GENERAL: "The Museum in Leiden recently received the collections of A. Lieftinck, Mr. Vegter and P. Verhoeff."

Robbin W. Thorp (Department of Entomology, University of California, Davis, California 95616, U.S.A.). CURRENT PROJECTS: "Applied pollination of: almonds, kiwi fruit, alfalfa, hybrid seed crops; basic pollination of: Limnanthes, Downingia, Aristolochia and dioecious plants; systematics of: Andrena (Hesperandrena & Onagrandrena), Trachusa; ecology of: Trachusa spp., Centris hoffmansegiae; impact of Apis in National Parks in Australia."

Haroldo G. Toro (Departamento de Zoología, Universidad Católica de Valparaíso, Casilla 4059, Valparaíso, CHILE). CURRENT PROJECT: "The muscles of the posterior legs of the Xeromelissinae." Haroldo has just completed a check list of the chilean bees (in press).

Robert D. Tuckerman (Ramsay Wright Zoology Labs, University of Toronto, 25 Harbord Street, Toronto, Ontario, CANADA, M5S 1A1). CURRENT PROJECT: "A study of the nesting biology of a primitively social sweat bee, Halictus (Seladonia) confusus (Ph.D. research; I have completed two field seasons work on a local population)." HELP: "I would be very appreciative of any information on other New World members of the subgenus Seladonia (H. harmonius, hesperus, lanei, lutescens, tripartitus, virgatellus) especially location of specimens. I am doing a cladistic analysis of the New World species as a portion of my thesis and am currently trying to determine the location and availability of the necessary specimens (or anywhere that might have the appropriate specimens)."

Bernard E. Vaissiere (Department of Entomology, Texas A & M University, College Station, Texas 77843, U.S.A.). CURRENT PROJECTS: "Pollination of cotton for hybrid seed production; pollen collection; mating behavior." HELP: "Need colonies of non-Apis and non-Bombus bees in flight room or greenhouse for pollen collection studies."

G. van der Zanden (Leiden Museum, Jongkindstraat 2, 5645 JV Eindhoven, THE NETHERLANDS). CURRENT PROJECT: "Subgenus Diceratosmia Rob., fauna of N. Africa." HELP: "Fresh material from S.E. Palearctic regions for study and determination."

Hayo H.W. Velthuis (Laboratorium voor Vergelijkende Fysiologie, University of Utrecht, Jan van Galenstraat 40, 3572 LA Utrecht, THE NETHERLANDS). CURRENT PROJECTS: "Social behavior in general of carpenter bees and Apidae."

S. Bradleigh Vinson (Department of Entomology, Texas A & M University, College Station, Texas 77843, U.S.A.). CURRENT PROJECTS: "Cooperative studies with Dr. G. Frankie concerning Centris species in Costa Rica."

Ken Walker (Museum of Victoria, 71 Victoria Crescent, Abbotsford, Victoria 3067, AUSTRALIA). CURRENT PROJECTS: "Revisions of Homalictus and Lasioglossum (Halictidae)." HELP: "New Guinea material of the above genera."

William T. Wcislo (Entomological Museum, Snow Hall, University of Kansas, Lawrence, Kansas 66045, U.S.A.). CURRENT PROJECTS: "The mating biology of sweat bees (Halictidae), and a review of parasitism in the nesting aculeate Hymenoptera."

Nevin Weaver (Department of Biology, University of Massachusetts/Boston, Boston, Massachusetts 02125, U.S.A.). CURRENT PROJECTS: "Interactions of queen and worker honeybees, and influence of pheromones in the interactions. Recently studied stingless bee biology, colony defense, and interactions among colonies and species of stingless bees and other social insects in Yucatan, Mexico."

Paul Westrich (Eduard-Spranger-Strasse 41, D-7400 Tubingen 1, WEST GERMANY). CURRENT PROJECTS: "Distribution, nesting biology, oligoleptic behaviour of West German bees; revision of European Anthophora (sensu lato)."

Vincent B. Whitehead (Entomology Department, South African Museum, P.O. Box 61, Cape Town 8000, SOUTH AFRICA). CURRENT PROJECTS: "Taxonomy of the Fideliidae; taxonomy and flower relationships of bees of the oil-collecting genus Rediviva (Melittidae)."

Wm. Mark Whitten (208 Florida State Museum, Gainesville, Florida 32611, U.S.A.). CURRENT PROJECTS: "Analysis of floral fragrances used by male euglossines; mandibular gland secretions of euglossines."

Zdzislaw Wilkaniec (Academy of Agriculture in Poznan ul Wojska Polskiego 71 c, 60-625 Poznan, POLAND). CURRENT PROJECT: Improvement of rearing methods of solitary bees for use in pollination.

Alvaro Wille (Museo de Entomologia, Facultad de Agronomia, Universidad de Costa Rica, Ciudad Universitaria Rodrigo Facio, COSTA RICA). CURRENT PROJECTS: "Costa Rican Peponapis, Xenoglossa, Xylocopa and Bombus; back to Meliponinae in 1987." HELP: "I might need help in obtaining literature and identifications."

Kristina R. Williams (EPO Biology, University of Colorado, Boulder, Colorado 80309-0334, U.S.A.). CURRENT PROJECTS: "Kin recognition in honeybees, especially in emergency queen rearing; effect of queen odor on recognition in honeybees; Bombus-Psithyrus complex (future possibility)." HELP: "I am looking for information on the relationship between Bombus and Psithyrus in an ecological-behavioral context. Also helpful would be culture methods for both. I am also looking for ways to induce honeybee queens to lay and/or continue laying in the lab."

Norris H. Williams (Department of Natural Sciences, Florida State Museum, University of Florida, Gainesville, Florida 32611, U.S.A.). CURRENT PROJECTS: "Mandibular gland composition of male euglossines; pollination mechanisms by male euglossine bees; floral fragrance collection and specificity of male euglossines; floral fragrance composition of euglossine pollinated orchids, aroids, and gesneriads."

Mark L. Winston (Department of Biological Sciences, Simon Fraser University, Burnaby British Columbia, CANADA V5A 1S6). CURRENT PROJECTS: "1) Life history, caste structure, and reproduction in highly social bees. 2) Pheromones of honey bees and their pests. 3) Sublethal pesticide impact on pollinators. 4) Crop pollination and pollinator abundance and behavior. 5) Package bee production in B.C.; bee management." HELP: Specimen identification. GENERAL: Collections made in the "Fraser and Okanagan Valley regions of British Columbia, on berry and fruit crops and natural vegetation, 1981-1985."

Seiki Yamane (Department of Biology, Faculty of Science, Kagoshima University, Kagoshima, 890 JAPAN). CURRENT PROJECT: "Biogeography and speciation of carpenter bees in the Ryukyu Islands." GENERAL: "I went to West Sumatra (Indonesia) from 14 July to 11 September 1985. The trip was for the collection of Aculeate Hymenoptera for taxonomic purposes, but especially to compare the aculeate fauna of West Sumatra with that of Sipora Island, the Mentawai group, where many animals are endemic at the species or subspecies level."

Douglas A. Yanega (Department of Entomology, Snow Hall, University of Kansas, Lawrence, Kansas 66045, U.S.A.). CURRENT PROJECT: "Ongoing study of biology and behavior of a population of Halictus rubicundus in New York City begun in 1982 and concentrating on variation in social structure, diapause, and caste determination." HELP: "Seeking any information on halictid nesting sites, particularly Halictus rubicundus. Also seeking natural history observations pertaining to arboreal and/or euglossine-parasitizing mutillids (particularly genera Pappognatha and Hoplomutilla), including data from specimen labels. Interested in any faunistic surveys pertaining to Long Island, New York and the surrounding area."

Wu Yan-ru (Institute of Zoology, Academia Sinica, 7 Zhongguancun Lu, Haitien, Beijing, CHINA). CURRENT PROJECTS: Studies on the bees of the Hengduan Mountain Range, Nanjiabawa Mountain, Hainan Island, Fukien Province and Tibet. HELP: Mrs. Wu needs to examine types, especially chinese types (and other specimens) deposited in foreign countries. GENERAL: Recent collections made in the Hengduan Mountain Range (including part of Tibet, Yunnan, Szechuan) and Nanling Mountain (including Kwansi, Hunnan, Kwangdun Province).

Thomas J. Zavortink (Department of Biology, University of San Francisco, San Francisco, California 94117, U.S.A.). CURRENT PROJECTS: "Revision of Ptilothrix; revision of Melitoma."

STINGLESS BEE NEWS

João Batista Vicentin Aguilar (Departamento de Ecologia Geral, Instituto de Biociências - USP, 05.508 - São Paulo - SP. BRASIL). CURRENT PROJECT: "Behavior of Meliponinae virgin queens." HELP: Literature needed.

Maria Christina de Almeida (Departamento de Zoologia, Universidade Federal do Paraná, Caixa Postal 3034, 80.000 Curitiba, Paraná, BRASIL). CURRENT PROJECTS: "Revision of Trigona of the Neotropical region; working on the Catalog of the Meliponinae of the World with J.S. Moure."

J.M.F. de Camargo (Departamento de Biologia, Faculdade de Filosofia Ciências e Letras de Ribeirão Preto, USP, 14.100 Ribeirão Preto, São Paulo, BRASIL). CURRENT PROJECTS: "Systematics and biogeography of Meliponinae bees; structure of bee communities in Ribeirão Preto, São Paulo and Maranhão States; pollination." GENERAL: Recent field trips to Panamá and northern Brasil to collect meliponines (States of Piaui, Maranhão, Bahia, Ceara, Pará and others); trip to Pará State "for study of Indians knowledge of bees."

Anne Dollin (Commonwealth Scientific and Industrial Research Organization, P.O. Box 74, North Richmond, N.S.W. 2754, AUSTRALIA). CURRENT PROJECTS: "Collecting specimens of Australian Trigona; recording data on nesting habits, behaviour, etc.; revision of Australian species of Trigona; collaboration with Dr. Barry Milborrow, University of NSW, on biochemical aspects of Australian Trigona's waxes, propolis, etc." HELP: "As I am the only person working on the taxonomy and general biology of Australian Trigona, I value communication with overseas scientists working on related species. Specimens of Trigona from other countries would also be of great interest to me."

Elizabeth Exley (Department of Entomology, University of Queensland, St. Lucia, Brisbane 4067, AUSTRALIA). CURRENT PROJECT: "Role of Trigona in pollination of macadamia." GENERAL: Field trip to "tip of Cape York Peninsula

in late August/early September; unfortunately not a good time for bees. Too dry."

Khoo Soo Ghee (Department of Zoology, University of Malaya, Kuala Lumpur, MALAYSIA). CURRENT PROJECTS: "Taxonomy of Malaysian stingless bees with particular reference to the subgenus Tetragonula; foraging behaviour and swarming of Trigona bees." HELP: "I would like to receive or exchange specimens of stingless bees; would be interested to know of different methods of culturing stingless bees."

Tim Heard (Department of Entomology, University of Queensland, St. Lucia, Brisbane 4067, AUSTRALIA). CURRENT PROJECTS: "The role of Trigona spp. in pollinating Macadamia integrifolia."

Vera Lucia Imperatriz Fonseca (Departamento de Ecologia Geral, Instituto de Biociências - USP, 05.508 - São Paulo - SP. BRASIL). CURRENT PROJECTS: "Behaviour of virgin queens in some species of stingless bees; 2) resource partitioning of stingless bees in summer and autumn; 3) influence of abiotic conditions on flight activity in stingless bees; 4) bee plants; 5) relative abundance of bees in São Paulo region; 6) stingless bees; 7) bee products." HELP: "Sometimes the scientific journals arrive very late; we need books that could be deposited in our library at the Instituto de Biociências. We value participation in special courses, workshops and meetings related to our areas of interest as well as the respective proceedings." GENERAL: "Recent field trips have made in the state of Paraná in the Prudentopolis region where species of Melipona and Plebeia can be found."

Warwick E. Kerr (Departamento de Biologia, Universidade Federal do Maranhão, Largo dos Amores 21, 065000 São Luis, Maranhão, BRASIL). CURRENT PROJECTS: "1) Genetics and biology of Melipona comprissipes; 2) Bee fauna in Maranhão." HELP: "Our library is very poor - we depend very much on reprints received. Professors willing to work with our students are welcome - they can work with my live collection of 40 hives of Melipona."

Jeff E. Klahn (Department of Biology, University of Iowa, Iowa City, Iowa 52242, U.S.A.). CURRENT PROJECTS: "Presently involved in non-apid project in Malaysian rain forest but have contact with large numbers of Trigona colonies."

Astrid Kleinert-Giovannini (Departamento de Ecologia Geral, Instituto de Biociências - USP, 05.508 - São Paulo - SP. BRASIL). CURRENT PROJECTS: "1) Behaviour of virgin and physogastric queens in Melipona marginata Lepeletier; 2) division of labour in colonies of Melipona marginata Lepeletier; 3) influence of climatic conditions on flight activity of stingless bees; 4) resource partitioning of stingless bees in summer and autumn." HELP: "In Brasil we have problems buying the books and journals we need for our work; some arrive late and others never arrive. It would be very helpful if researchers would send their reprints to us."

Paitoon Leksawasdi (Biology Department, Faculty of Science, Chiang Mai University, Chiang Mai, THAILAND 50002). CURRENT PROJECT: "Morphology and distribution of stingless bees (Trigona spp.) at the foot of Doi Suthep, Chiang Mai." HELP: Identifications, literature and cooperative research in northern Thailand.

Mauro Ramalho (Instituto de Biociências da Universidade de São Paulo, Rua do Matão - Travessa 14 no 321, Caixa Postal 11.461, CEP 05508, BRASIL). CURRENT PROJECT: "We are evaluating the trophic niches of some Meliponinae native in southern Brasil (Jureia Ecological Station in São Paulo); we are

collecting pollen and honey from colonies for analysis." HELP: "We would like to receive any information concerning bee morphology, physiology, and pollen analyses. We are especially interested in literature, study programs and technical training."

Márcia de F. Ribeiro (Dept. Ecologia Geral, Instituto de Biociências, Universidade de São Paulo, CEP. 05508, C.P. 11.461, BRASIL). CURRENT PROJECT: "At the moment I am working with a meliponine species, Frieseomellita silvestrii (Friese), concentrating on bionomics: oviposition process, coaction between queen and worker, development of ovaries of workers in normal and queenless conditions, activity of foragers related to climatic conditions and division of labour." HELP: "I would like to receive papers related to the subjects cited above."

Siti Salmah (Department of Biology, Faculty of Science, Andalas University, Air Tawar, Padang, Sumbar, INDONESIA). CURRENT PROJECTS: "Eco-sociological studies of Sumatran stingless bees with special reference to workers task schedules and colony management systems. I am now working on the following aspects: age-colour-task relationships of Trigona minangkabau, T. moorei and T. itama." HELP: Literature on bees and stingless bees. GENERAL: "I have several collections of bees and stingless bees from central Sumatra and nearby islands."

Hoi-Sen Yong (Department of Genetics and Cellular Biology, University of Malaya, 59100 Kuala Lumpur, MALAYSIA). CURRENT PROJECTS: "1) Genetics of Trigona stingless bees; 2) geographical distribution and general ecology of stingless bees in Malaysia; 3) systematics of Malaysian stingless bees. HELP: "Identifications and literature." GENERAL: "We make regular collecting trips in Peninsular Malaysia."

Ronaldo Zucchi (Departamento de Biologia, Faculdade de Filosofia, Ciências e Letras (USP), Campus da USP, 14100 Ribeirão Preto (SP), BRASIL). CURRENT PROJECTS: "Behavioral evolution in stingless bees (Meliponinae)."

BUMBLEBEE NEWS

Sydney A. Cameron (until August 1986: c/o Dr. R.R. Askew, Department of Zoology, University of Manchester, Manchester M13 9PL, UNITED KINGDOM). CURRENT PROJECTS: "Effects of buzzing by dominant worker bumble bees as contrasted with buzzing by guards - what does buzzing accomplish, to disseminate pheromone, communicate by substrate vibration, or both? Identification of dominance hierarchies in Polistes major and comparison with Bombus griseocollis. Geographic variation and possible speciation of B. pennsylvanicus and B. sonorus." HELP: "Specimens of B. pennsylvanicus and B. sonorus for geographic comparisons between and within species using external characters; nest sightings of either species in Mexico and southwest Texas."

Miroslav Demajo (Institute of Nuclear Sciences, Dept. 090, POB 522, 11001 Beograd, YUGOSLAVIA). CURRENT PROJECTS: Collaborative studies on Bombus. HELP: Identifications and new determination keys.

Richard M. Fisher (Department of Zoology, University of Oxford, South Parks Road, Oxford OX1 3PS, UNITED KINGDOM). CURRENT PROJECTS: "Study of chemical ecology of social parasitism in Bombus; adaptive radiation of socially parasitic behaviours in Psithyrus."

Lawrence D. Harder (Department of Zoology, University of Western Ontario, London, Ontario, CANADA N6A 5B7). CURRENT PROJECTS: "1) Effects of nectar concentration on ingestion rates [Bombus]. 2) Pollen foraging efficiency, especially pollen removal [Bombus]. 3) Are bumble bees really risk sensitive? 4) Key of bumble bees of Eastern Canada." HELP: "I would appreciate knowing of substantial collections of eastern Canadian (east of Manitoba) bumble bees to compile complete distribution maps."

David W. Inouye (Department of Zoology, University of Maryland, College Park, Maryland 20742, U.S.A.). CURRENT PROJECTS: "Nesting biology of Bombus in nest boxes; foraging behavior of Bombus (especially nectar robbing)." HELP: "Identification of Bombus from Austrian Alps."

Henrik B. Jacobsen (Agricultural University of Copenhagen, Blaesenborgvej 9. Box 81, 4320 Lefre, DENMARK). CURRENT PROJECT: "Domestication of the bumblebee (Bombus)."

Eisuke Katayama (Shimoishigami 1780-57, Otawara City, Tochigi Pref., 329-26, JAPAN). CURRENT PROJECTS: "Comparative studies on the oviposition behavior of bumblebees."

Terence M. Laverty (Department of Zoology, University of Toronto, Toronto, Ontario M5S 1A1, CANADA). CURRENT PROJECTS: "1) Learning in Bombus consobrinus, a specialist bumble bee; 2) key to Bombus of North America; 3) determinants of seed and fruit set in Mayapple (Podophyllum peltatum), a clonal forest herb; 4) bibliography of Bombus papers over past 20 years." HELP: "Specimens from Northern Areas - Arctic, Northern Ontario and Quebec/Labrador; would like to be on mailing list of any author publishing papers on Bombus/Psithyrus."

Astrid Løken (Department of Biology, University of Oslo, P.O. Box 1050, Blindern, N-0316 Oslo 3, NORWAY). CURRENT PROJECT: "Working on the volume: Bombinae for Fauna Entomologica Scandinavica, Scand. Science Press Ltd."

Roderick P. Macfarlane (Entomology Division, D.S.I.R., Private Bag, Christchurch, NEW ZEALAND). CURRENT PROJECTS: "Pollination of agricultural and horticultural crops particularly red clover and kiwifruit. Economic development and management of bumble bees as pollinators. Zoogeography and taxonomy of bumble bees."

Lazarus W. Macior (Department of Biology, The University of Akron, Akron, Ohio 44325, U.S.A.). CURRENT PROJECTS: "1) Pollination ecology of Pedicularis in North America (nearing completion). 2) Pollination ecology and geographic disjunction of amphi-Pacific plant species (current proposal to US-Japan Cooperative Program of NSF)." HELP: "Identification of Asiatic Bombus species; literature on Asiatic species of Bombus." GENERAL: Recent field work making "collections of Bombus on Mt. Rainier (summer 1985), in Siskiyou Mountains (summer 1984), Inner Coast Range (California, spring 1984), Japan (summers 1982-83), Beartooth Plateau (Montana, 1980-81). Pollination studies require mass collections of insects for statistical analysis of frequencies of species on plants and for analysis of corbicula pollen loads and tongue lengths in relation to nectariferous corolla tube lengths. Specimens are retained until no longer needed and then are given to museums (esp. Smithsonian). Representative samples of all species and castes are retained for comparative purposes."

Russell B. Miller (Peabody Museum of Natural History, Yale University, New Haven, Connecticut 06511, U.S.A.). CURRENT PROJECTS: "Book/manual on North American Bombus and Psithyrus (Bombini)." HELP: "Access to identified specimens of Bombus and Psithyrus from far northern and arctic North America."

Atle Mjelde (N-2866 Enger, NORWAY). CURRENT PROJECTS: "The biology of Bombus consobrinus; new methods for domestication of Bombus; sex ratios in bumblebees." HELP: "Seed/plants of Aconitum plants for foraging experiments."

Douglass H. Morse (Division of Biology & Medicine, Brown University, Providence, Rhode Island 02912, U.S.A.). CURRENT PROJECT: "The contribution of Bombus as pollinators of common milkweed Asclepias syriaca [part of an ongoing project carried out along the Maine coast]." HELP: "Occasional Bombus identifications."

Robin E. Owen (Department of Biology, University of Calgary, Calgary, Alberta, CANADA T2N 1N4). CURRENT PROJECTS: "Sex ratio evolution in bumble bees (Bombus spp.); quantitative genetics of body size of bumble bee queens."

Pekka Pamilo (Department of Genetics, University of Helsinki, Arkadiankatu 7, SF-00100 Helsinki, FINLAND). CURRENT PROJECTS: "Evolutionary systematics of bumblebees". HELP: "Need live or frozen samples of different species for electrophoretical studies (but I cannot specify yet). I have no collections but I can try to collect samples for specific purposes if somebody requests."

Antti Pekkarinen (Department of Zoology, University of Helsinki, P. Rautatiekatu 13, SF-00100 Helsinki, FINLAND). CURRENT PROJECTS: "Colour polymorphism in some northern European Bombus and Psithyrus species; taxonomy of the subgenus Bombus; zoogeography of palearctic bumblebees."

John D. Pleasants (Department of Botany, Bessey Hall, Iowa State University, Ames, Iowa 50011, U.S.A.). CURRENT PROJECTS: "Foraging behavior of Bombus in response to variation in nectar availability and impact of foraging behavior on plant reproduction."

R.C. Plowright (Department of Zoology, University of Toronto, Toronto, Ontario, CANADA M5S 1A1). CURRENT PROJECTS: Pollination ecology; bumble bee biology. HELP: "Bombus specimens from anywhere, any time."

Nelson Pomeroy (Department of Botany & Zoology, Massey University, Palmerston North, NEW ZEALAND). CURRENT PROJECT: "Development of mass-rearing system for Bombus terrestris for crop pollination (especially kiwi fruit)." HELP: "Selection of food plants able to be cultivated to feed short-tongued Bombus on field scale."

A. Pouvreau (Station de Recherches de Physiologie Sensorielle et Comportementale des Invertébrés, I.N.R.A. - C.N.R.S., 91440, Bures-sur-Yvette, FRANCE). CURRENT PROJECTS: "Study of mechanisms involved in morphological and physiological adaptations of bumble-bees in nectar collecting; association of Aphomia sociella and Bombus; apoid cartography of France." HELP: Literature and identifications for some European species of Apoidea other than Bombus.

Oliver E. Prŷs-Jones (Bodhaulog, St. Asaph, Clwyd, NORTH WALES, LL17 0LY). CURRENT PROJECTS: "Causes and consequences of some physical and chemical properties of nectars; life histories of British bumblebees; factors affecting the foraging behaviour of bumblebees; bumblebee distributions in Iceland and Ireland." HELP: "1) Distribution records (preferably accompanied by specimens) of bumblebees in Iceland, that will help update the maps given

in J. Apicultural Research, 20(3):189-197 (1981); 2) distribution records (preferably accompanied by specimens) of bumblebees in Eire and Northern Ireland, that help update ITE (1980), Atlas of the Bumblebees of the British Isles [available from IBRA, Hill House, Gerrards Cross, Bucks, SL9 0NR]. 3) Records of insect (and other) visitors to toothworts (Lathraea clandestina and L. squamaria)."

Pierre Rasmont (Zoologie Générale et Faunistique, Faculté des Sciences Agronomiques de l'Etat, B-5800 Gembloux, BELGIUM). CURRENT PROJECT: "Ph.D. Thesis: A survey of bumblebee populations of Belgium and France and the influence of anthropic and climatic parameters on their composition (biogeography and ecology of French Bombinae)." HELP: Need "bumblebee collections from France, Belgium, Luxemburg, northern Spain and adjacent regions; also, Russian literature on bumblebees." GENERAL: "During the last two years I collected in South France and Corsica many thousands of bumblebees in all biotopes of the Pyrenees and Corsica. We have in Gembloux an entomological data bank. Following our interest in Hymenoptera we have a large amount of apoid data (approximately 150,000 European specimens). It is possible to produce European maps of many apoid species. I'm interested in any European cartographical project on bees and bumblebees."

Adolf Scholl (Institute of Zoology, University of Berne/Switzerland, Baltzerstr. 3, CH - 3012 Berne, SWITZERLAND). CURRENT PROJECT: "Gene geographic studies in Bombus (Thoracobombus) pascuorum." HELP: "We would be very grateful to receive a few specimens of Bombus nevadensis, B. fraternus and B. sylvicola (deep frozen for biochemical studies)."

Ilkka Teräs (Department of Zoology, University of Helsinki, P. Rautatiekatu 13, SF-00100 Helsinki, FINLAND). CURRENT PROJECTS: "Pollination of forest berries; individual behavior of foraging bumblebees."

Hans-Ulrich Thomas (Zeppelinstr 31, CH-8057 Zurich, SWITZERLAND). CURRENT PROJECTS: "Systematics of Bombus species in Switzerland." HELP: "Looking for the following antiquarian literature: A. Dahlbom (1832), Bombi Scandinaviae Monographice Tractato it Iconibus Illustrati, Lund; H.F. Schwarz (1948), Stingless Bees of the Western Hemisphere; A. Kerner von Marilaun (1878) Flowers and their Unbidden Guests, London; H.J. Franklin (1913) The Bombidae of the New World, Philadelphia."

James D. Thomson (Department of Ecology and Evolution, State University of New York, Stony Brook, New York 11794, U.S.A.). CURRENT PROJECTS: "Measuring 'pollen shadows' and male reproductive success of Erythronium plants pollinated by Bombus spp. (at Rocky Mountain Biol. Lab). Considering a proposal for field testing Mullerian mimicry in Bombus." HELP: "Any literature citations, data, etc., on traplining foraging and on the mechanical aspects of pollination."

A. van Doorn (Zoologisches Institut (II), Rontgenring 10, D-8700 Würzburg, WEST GERMANY). CURRENT PROJECTS: "The ontogeny of dominance behaviour in bumblebees."

Nickolas M. Wase (Department of Biology, University of California, Riverside, California 92521, U.S.A.). CURRENT PROJECTS: "Floral choice of bees based on economics of reward; pollen carrying behavior of bumblebees; comparisons of bumblebees and hummingbirds as pollinators."

Paul H. Williams (Department of Entomology, British Museum (Natural History), Cromwell Road, London SW7 5BD, UNITED KINGDOM). CURRENT PROJECTS:

"1) Revision of the bumble bees of the Kashmir Himalaya. 2) Description of mate-searching behaviour of male bumble bees. 3) Preliminary world catalogue of bumble bees." HELP: "Loan of any bumble bees from the Western Himalaya." GENERAL: "Recent field trips abroad during which collections were made: 1980 and 1986, Kashmir and Ladakh; 1983, Ontario (with Dr. R.C. Plowright); 1984, Austrian Alps; 1985, Kashmir."

Michael Zimmerman (Department of Biology, Oberlin College, Oberlin, Ohio 44074, U.S.A.). CURRENT PROJECTS: "1) Optimal nectar production in bumble bee pollinated plants; 2) manipulation of bee behavior by plants (through variability in nectar production, flowering phenology, plant architecture, etc.); 3) optimal foraging behavior of bees."

HONEYBEE NEWS

Dennis L. Anderson (DSIR, Entomology Division, Mt. Albert Research Centre, Private Bag, Auckland, NEW ZEALAND). CURRENT PROJECTS: "Looking at virus infections of honeybees; studying strains of Kashmir bee virus; doing a national survey of bee diseases in New Zealand." HELP: "Can use diseased specimens from around the world." GENERAL: "Have travelled over most of New Zealand collecting diseased bee material; results will be published in the future."

Stephen B. Bambara (Agricultural Extension Service, Department of Entomology, Box 7626, North Carolina State University, Raleigh, North Carolina 27695, U.S.A.). CURRENT PROJECTS: "Sunflower pollination (Apis); honeybee colony buildup as influenced by hive volume."

Alan Bolten (Department of Zoology, Bartram Hall, University of Florida, Gainesville, Florida 32611, U.S.A.). CURRENT PROJECTS: "Reproductive biology and cuticular hydrocarbon studies of Africanized honey bees; taxonomy of genus Apis using cuticular hydrocarbons."

Michael Breed (EPO Biology, University of Colorado, Boulder, Colorado 80309-0334, U.S.A.). CURRENT PROJECTS: Kin recognition and guard bee behavior in honeybees.

Anita Collins (Honey Bee Breeding, Genetics & Physiology Research, 1157 Ben Hur Road, Baton rouge, Louisiana 70820, U.S.A.). CURRENT PROJECTS: "Genetic selection for less defensive bees [Apis], study of habituation to alarm pheromone." HELP: "Need frozen specimens from northern Central America or Mexico, with location of collection." GENERAL: "Currently involved in work in Venezuela on Africanized bees, usual tour is October to April."

Clarence H. Collison (Department of Entomology, 106 Patterson Building, The Pennsylvania State University, University Park, Pennsylvania 16802, U.S.A.). CURRENT PROJECT: "Continuing to work on drone production in honey bee colonies."

Robert G. Danka (ARS, USDA Honey-bee Breeding, Genetics and Physiology Research, 1157 Ben Hur Road, Baton Rouge, Louisiana 70820, U.S.A.). CURRENT PROJECTS: "1) Comparison of pollen-vectoring behaviors of tropically-evolved and temperately-evolved Apis mellifera types. 2) Studying mechanics of pollen collection in A. mellifera at both the colony and individual forager level." GENERAL: "Between January 1984 and April 1985 I spent approximately 9 months in Venezuela assessing pollen-vectoring abilities of Africanized honey bees. I have a few non-Apis spp. available if someone needs Neotropical bees."

David De Jong (Dept. de Genética, Faculdade de Medicina, Universidade de São Paulo, 14.100 Ribeirão Preto, SP, BRASIL). CURRENT PROJECTS: "Studies of Varroa jacobsoni (mite pest of honey bees); comparative biology of Africanized and European honey bees." HELP: "Need literature - there is very limited access here." GENERAL: Recent "trips to southern and northern Brasil as well as Honduras to observe Africanized bees." GENERAL: Our "Bee Collection was transferred to São Luis, Maranhão, but is now back here in the Entomology Department; Ronaldo Zucchi has taken the position of Director of the Faculdade de Filosofia, Ciencias e Letras here."

Syed Md. Abdul Latif Dewan (Bangladesh Inst. of Apiculture, Street No. 1, House No. 8, Shyamoli, Dhaka - 7, BANGLADESH). CURRENT PROJECTS: "Apicultural development in Bangladesh through training, extension, research and marketing." HELP: Need identified specimens and literature.

Alfred Dietz (Department of Entomology, University of Georgia, Athens, Georgia 30602, U.S.A.). CURRENT PROJECTS: "Africanized honey bees in Argentina; parasitic mites of honey bees in Mexico; pollination of uncultivated dune stabilizing plants."

Andrew W. Ferguson (Entomology Department, Rothamsted Experimental Station, Harpenden, Hertfordshire AL5 2JQ, UNITED KINGDOM). CURRENT PROJECTS: "Role of compounds of alarm pheromones of Apis mellifera; use of alarm pheromones to control colony aggression in A. mellifera; use of alarm pheromones to repel foraging honeybees from flowering crops prior to application of pesticide; pollination requirements of varieties of lupin and sunflower." HELP: "Literature on pollination of lupin and sunflower would be very useful."

John B. Free (Rothamsted Experimental Station, Harpenden, UNITED KINGDOM). CURRENT PROJECTS: "Honeybee pheromones and using synthetic pheromones to control colony activities. Encouraging beekeeping and use of bees for pollination in tropics." HELP: "I am preparing a revised edition of my book 'Insect Pollination of Crops' published by Academic Press in 1970 and based on literature up to 1969. I would be grateful for copies of papers written since that time." GENERAL: Recent field trip "with Dr. N. Bradbear (I.B.R.A.) to Bangladesh to initiate a project on feasibility of beekeeping in rice growing areas." Also, "I retire from Rothamsted Experimental Station next Spring - will help with teaching and supervising research students at the Bee Research Unit, Cardiff."

Norman E. Gary (Department of Entomology, University of California, Davis, California 95616, U.S.A.). CURRENT PROJECTS: "Tracheal mite detection, behavioral bioassay; defensive behavior [Apis]; Africanized bee problem; queen bees (quality control)." HELP: "Literature translations."

Mark Goodwin (Department of Zoology, University of Auckland, Auckland, NEW ZEALAND). CURRENT PROJECT: "Honeybee pollination of kiwifruit (Actinidia deliciosa)."

Oldřich Haragsim (Vinohradská 44, 120 00 Prague, CZECHOSLOVAKIA). CURRENT PROJECTS: "Varroatosis of Apis (biology of Varroa jacobsoni); cannibalism in bees; pollination of some agricultural crops." HELP: "Sometimes I need literature from abroad, especially that published in uncommon journals."

Richard L. Hellmich (Honey-Bee Breeding, Genetics and Physiology Research, 1157 Ben Hur Road, Baton Rouge, Louisiana 70820, U.S.A.). CURRENT PROJECTS: "Africanized honey bee mating biology. We hope to develop technology which

will help United States queen breeders when the African bee migrates into the southern states."

Zhiyony Huang (Environmental Biology, University of Guelph, Guelph, Ontario, CANADA N1G 2W1). CURRENT PROJECT: "I am investigating a hypothetical brood pheromone from honey bee brood to trigger the hypopharyngeal gland of adult bees."

Rudolf Jander (Department of Entomology, University of Kansas, Lawrence, Kansas 66045, U.S.A.). CURRENT PROJECT: "Honey bee learning and spatial orientation."

Steven A. Kolmes (Department of Biology, Hobart and William Smith Colleges, Geneva, New York 14456, U.S.A.). CURRENT PROJECTS: "The influence of colony demography on the division of labor among worker honey bees. The ergonomic organization of honey bee colonies: resiliency vs. efficiency studies."

M.D. Levin (USDA, ARS Carl Hayden Bee Research Center, 2000 E. Allen Road, Tucson, Arizona 85719, U.S.A.). CURRENT PROJECTS: "Pollination ecology involving honey bees (Apis mellifera) and agricultural crops. Physiology/nutrition of A. mellifera."

M. Lindauer (Zoologisches Institut (II) der Universität Würzburg, Röntgenring 10, D-8700 Würzburg, WEST GERMANY). CURRENT PROJECTS: "Orientation of bees in the earth's magnetic field; learning processes of different genetic strains and species of Apis; communication by vibration in the honeybee colony."

Osmar Malaspina (Department of Biology, Instituto de Biociências de Rio Claro, UNESP, Cx. Postal 178 - CEP 13.500, Rio Claro, São Paulo, BRASIL). CURRENT PROJECT: "Productivity in Apis mellifera (Africanized bees)." HELP: "Need literature on behavior, genetics and collecting of Apis."

Makhdzir Mardan (Plant Protection Department, Faculty of Agriculture, Universiti Pertanian 43400, Serdang, Selangor, MALAYSIA). CURRENT PROJECTS: "1) Ph.D. research thesis on the bionomics and foraging ecology of Apis dorsata. 2) Beekeeping development in Malaysia (UPM-IDRC)." HELP: "I need help to identify the highly possible different strains of A. cerana and A. dorsata as well as pests of these bees."

Adolfo Molina-Pardo (Departamento de Biología, Facultad de Ciencias, Universidad Nacional de Colombia, Apartado Aéreo 3840, Medellín, COLOMBIA). CURRENT PROJECTS: "Degree of Africanization of apiaries in South Western Antioquia; comparative productivity of European, African and two F1 hybrid lines at 800 m and 1300 m elevations. The colonies will be observed for behavior and production over a 1.5 year period, which will include 3 honey flows." HELP: "Our limitations on literature are more pronounced for taxonomic materials so that we will like to have collaboration in obtaining some taxonomic papers, presently on Meliponinae. We can send a list of the papers of which we have a copy. In some cases, because of lack of reprints or of working experience in a group, we need help with identifications."

Mary Jo Moor (EPO Biology, University of Colorado, Boulder, Colorado 80309, U.S.A.). CURRENT PROJECTS: "Reproduction by worker honey bees; guard bee behavior; defensive behavior." HELP: "Any literature on drone-drone interaction, worker honey bee drone production and sex ratios."

Roger A. Morse (Department of Entomology, Comstock Hall, Cornell University Ithaca, New York 14853, U.S.A.). CURRENT PROJECTS: "Africanized bees, kinship recognition in honey bees, control of Varroa jacobsoni." GENERAL: "The past two years I have spent time in several countries in Asia, Egypt and Brasil; am willing to collect specimens and materials for others as it is feasible."

Eric C. Mussen (Entomology Extension, University of California, Davis, California 95616, U.S.A.). CURRENT PROJECTS: "Managing honey bee queen mating nuclei; gamma irradiation for honey comb sterilization; insecticides compatible with crop pollination."

Gard W. Otis (Department of Environmental Biology, University of Guelph, Guelph, Ontario N1G 2W1, CANADA). CURRENT PROJECTS: "Effects of bee size on bee behavior; feeding behavior of worker bees toward full- and half-sister larvae; effects of nest size on honey bee demography; pattern of Acarapis woodi mites on bees in temperate climates." HELP: "Specimens of Apis from Africa and Asia; occasional identification of bees for which ecological or behavioral data have been obtained." GENERAL: "Projected field trip to Costa Rica (May 1986) and possibly East Africa (1986)."

Christine Y.S. Peng (Department of Entomology, University of California, Davis, California 95616, U.S.A.). CURRENT PROJECTS: "Bee sperm biology; bee nutrition; hormonal regulation of female oogenesis behavior; bee parasitic mites."

Francisco J. Reyes Ordaz (National Beekeepers Union, Apartado Postal 95, Calle 3 Num. 10, Cordoba, Veracruz 94500, MEXICO). CURRENT PROJECTS: "Identification of Africanized honey bees in Mexico; possible impact and spread of Africanized bees in Mexico; mating biology of Africanized bees (dilution of feral colonies); use of synthetic pheromones (Apis mellifera) to change several basic traits of bees in general beekeeping operations." HELP: "Reprint exchange; Euglossini and Meliponini identifications."

John W. Rhodes (Department of Primary Industries, Meiers Road, Indoororophilly, Queensland, AUSTRALIA 4068). CURRENT PROJECTS: "Pollination of Macadamia; toxic effects of oxytetracycline hydrochloride on honey bees; field testing of pesticides on honey bees." GENERAL: "I recently visited the Torres Straits area of Queensland to determine risk of transmission of bee diseases across the Torres Strait; at this period of time the risk is considered low."

Thomas D. Seeley (Department of Biology, Yale University, New Haven, Connecticut 06511, U.S.A.). CURRENT PROJECTS: "1) A book, Honeybee Ecology, Princeton University Press. 2) Experimental studies of resource acquisition and allocation in honeybee colonies." GENERAL: "Fieldwork in Thailand on foraging ecology of Asian Apis."

Walter S. Sheppard (Department of Entomology, University of Illinois, 505 S. Goodwin Ave., Urbana, Illinois 61801, U.S.A.). CURRENT PROJECTS: "Electrophoretic studies of Apis species; studies of electrophoretic variability within the Hymenoptera (I've found high levels of variation in three sawfly species and am interested to see if any pattern emerges within the order)." HELP: "I am interested in obtaining frozen samples of Apis species from India through Southeast Asia and also any Old World races of A. mellifera."

Hachiro Shimanuki (USDA-ARS, Beneficial Insects Laboratory, Bldg. 476, BARC-East, Beltsville, Maryland 20750, U.S.A.). CURRENT PROJECTS: "Computer modeling of honey bee population; honey bee physiology."

R.C. Sihag (Laboratory of Animal Behavior & Simulated Ecology, Department of Zoology, Haryana Agricultural University, Hissar - 125004, INDIA). CURRENT PROJECTS: "Management of alfalfa pollinating bees for seed production (since 1975); selection and breeding of honeybees for honey production and pollination (since 1979); nesting behaviour of Apis dorsata (since 1984); estimation of insecticide residues in the environment of bee pollinators (since 1984). HELP: "Receiving only one journal on bees (J. Apic. Res.); earnestly needing all kinds of literature on Apoidea." GENERAL: "Collected bee fauna of Hissar (all the bees have not been identified."

Deborah R. Smith (Museum of Zoology, Insect Division, University of Michigan, Ann Arbor, Michigan 48109, U.S.A.). CURRENT PROJECT: "Survey of mitochondrial DNA restriction patterns of honey bees." HELP: "I am in need of samples of European and African races of Apis mellifera frozen on dry ice or at -70° C."

Edward E. Southwick (SUNY - Biology, Brockport, New York 14420, U.S.A.). CURRENT PROJECTS: "Honey bee energetics, overwintering, winter/summer studies."

Gordon Townsend (Arkell P.O., Ontario, CANADA N0B 1C0). CURRENT PROJECTS: "Integrated rural development using honeybees and honeytrees as a base in dry zone areas; rural development in Kenya."

John D. Vandenberg (USDA-ARS, Bioenvironmental Bee Laboratory, BARC-East, Bldg 476, Beltsville, Maryland 20705, U.S.A.). CURRENT PROJECTS: "Etiology and pathogenesis of European foulbrood and related syndromes in larvae of Apis mellifera; control of greater wax moths using Bacillus thuringiensis; epizootiology of chalkbrood in honey bees; safety of microbial pesticides for adult honey bees."

O. Van Laere (State Research Station for Nematology and Entomology, Van Gansberghelaan 96, B-9220 Merelbeke, BELGIUM). CURRENT PROJECT: "EEC - Varroa Project." HELP: "Historical bee hives and beekeeping materials for the INTERNATIONAL APIMONDIA BEEKEEPING MUSEUM in Mechelen, Belgium."

Jose D. Villa (Bee Breeding, Genetics & Physiology Research Laboratory, 1157 Ben Hur Rd., Baton Rouge, Louisiana 70820, U.S.A.). CURRENT PROJECTS: "Comparison of metabolic rates and overwintering cues in Africanized and European honey bees." HELP: "I might need identifications of higher elevation tropical bees in the near future."

Keith D. Waddington (Department of Biology, University of Miami, Coral Gables, Florida 33124, U.S.A.). CURRENT PROJECTS: "Evolution of bee communication (recruitment) systems; perception of cost and gains during foraging; foraging behavior; effects of size on honey bee behavior." GENERAL: "A new laboratory for the study of honey bees (primarily) has been constructed on the University of Miami main campus. The lab contains flight rooms with controlled environments, a room for observation hives that open to the outside, and a video and computer room. Also, a fenced area for hives located adjacent to the lab."

Jerzy Woyke (Bee Culture Division of Agricultural University, Akademia Rolnicza - SGGW, Zaklad Pszczelnictwa, 02-766 Warszawa, Nowoursynowska 166, POLAND). CURRENT PROJECTS: Reproduction, sex determination and brood survival

in Apis; biological control of Tropilaelaps. GENERAL: "Recent trips to Afghanistan and Vietnam to study biology and control of parasitic bee mite Tropilaelaps."

POLLINATION NEWS

James D. Ackerman (Department of Biology, University of Puerto Rico, Rio Piedras, PUERTO RICO 00931). CURRENT PROJECTS: "Seasonality of euglossine bees (with D.W. Roubik); orchid flora of Puerto Rico; evolution of deception pollination; fruit limitation phenomena in epiphytic orchids; biosystematics of the Oncidium variegatum complex; relative effectiveness of pollinators (all Apidae) of Spathiphyllum (with A.M. Montalvo)."

Margaret Adey (International Bee Research Association, Hill House, Gerrards Cross, Buckinghamshire SL9 0NR, UNITED KINGDOM). CURRENT PROJECT: "I am at present compiling the first issue of an 'International Pollination Research Newsletter' in collaboration with Dr. Charles Stirton (Royal Botanic Gardens, Kew), funded by Kew. The Newsletter will only be concerned with pollination and it will deal with all types of pollinating agents - not just bees. By collaborating with Kew, I hope that we will reach plant taxonomists who are interested in pollination ecology, as well as the pollination ecologists that IBRA is aware of."

Bonnie Amos (Department of Biology, Baylor University, Waco, Texas 76798 U.S.A.). CURRENT PROJECTS: "Pollination ecology of local population of Erythronium albidum (Liliaceae); pollination ecology of Matelea biflora (Asclepidaceae); pollination ecology of Erodium texanum (Geraniaceae); pollination ecology of Ungnadia speciosa (Sapindaceae); comparative study of Cooperia drummondii and Habranthus texanus (Amaryllidaceae); study of the evolution of oligolecty (primary examples: Callirhoe (Malvaceae) - Diadasia; Erythronium - Andrena). HELP: Identification of specimens. GENERAL: Bees collected to supplement pollination studies primarily in central and western Texas.

Gregory J. Anderson (Biological Sciences Group U-43, University of Connecticut, Storrs, Connecticut 06268, U.S.A.). CURRENT PROJECTS: "Pollination biology of Solanum in Latin America, Solanum in Australia, Myoporaceae in Australia, Hamamelis in North America." HELP: "Bee visitors to any of the above."

Ron M. Bitner (Pollination and Pest Management Consulting Services, Inc., Rt. 4, Box 585, Caldwell, Idaho 83605, U.S.A.). CURRENT PROJECTS: "I currently manage commercial pollination projects using both Megachile rotundata and Osmia lignaria."

Anna-Karin Borg-Karlson (Ecological Station of Uppsala University, Ölands Skogsby 6280, S-38600 Farjestaden, SWEDEN). CURRENT PROJECTS: "Pollination of Ophrys orchids (chemical analyses and behavioral tests)." HELP: "Ophrys pollinators: observations."

John K. Bouseman (Illinois Natural History Survey, 607 E. Peabody, Champaign, Illinois 61820, U.S.A.). CURRENT PROJECTS: "Apoid pollinators of the more xerophytic midwestern sunflowers (Helianthus)." GENERAL: "Collected Apoidea and other insects in Zambia in April and November-December of 1984. Collecting was particularly productive during the latter trip which followed the inception of the rains in late October."

Anne Bruneau (Department of Ecology and Evolutionary Biology, U-43, The University of Connecticut, Storrs, Connecticut 06268, U.S.A.). CURRENT PROJECT: Pollination biology of Apios americana (Leguminosae). HELP: Identification of a few Megachile spp.

Stephen H. Bullock (Estación de Biología Chamea, UNAM, Apartado Postal 21, San Patricio, Jalisco 48980, MÉXICO). CURRENT PROJECTS: "Flower visitation patterns in a tropical deciduous forest." HELP: "Identifications; exchange of specimens from Pacific slope of Mexico and Central America; literature."

Linda W. Clark (Department of Botany and Microbiology, University of Oklahoma, Norman, Oklahoma 73019, U.S.A.). CURRENT PROJECT: "Pollination ecology of Marshallia (Asteraceae)."

Sarah A. Corbet (Department of Applied Biology, University of Cambridge, Pembroke St., Cambridge CB2 3DX, UNITED KINGDOM). CURRENT PROJECTS: "Studies of nectar production and pollen release; bee behaviour on flowers."

Amotz Dafni (Institute of Evolution, University of Haifa, Haifa 31999, ISRAEL). CURRENT PROJECTS: "Pollination ecology of Orchis, Ophrys, Ceratonia, Arbutus and Asphodelus." HELP: "Identifications, especially of Eucera, Anthophora and Halictus."

Roger Darchen (Station Biologique, 24620 LES EYZIES, FRANCE). CURRENT PROJECTS: "Pollination in Ivory Coast and Gaboon." HELP: "Maybe, stingless bees from America." GENERAL: Recent field trips to Ivory Coast, Benin and Togo.

Suzzette Delgado (University of Puerto Rico, Box 5846, College Station, Mayaguez, PUERTO RICO, 00709). CURRENT PROJECTS: Pollination ecology and floral visitors of several members of the pepper family (Piperaceae) in Puerto Rico. HELP: Identification of bees and current literature

Candace Galen (Biological Sciences Department, Bowling Green State University, Bowling Green, Ohio 43403, U.S.A.). CURRENT PROJECTS: "Plant-animal interactions: consequences for fitness and gene flow in a polymorphic alpine wildflower." HELP: "Identifications of Andrenidae, Halictidae." GENERAL: Have made recent "collections of pollinators from five alpine plant populations in St. Peaks (Arizona); Cumberland Pass, Pennsylvania Mt., Niwot Ridge, Rocky Mountain Park (Colorado)."

Verne Grant (Department of Botany, University of Texas, Austin, Texas 78712, U.S.A.). CURRENT PROJECTS: "Hawkmoth pollination. Ipomopsis aggregata group (Polemoniaceae)."

Svend N. Holm (Department of Crop Husbandry & Plant Breeding, The Royal Veterinary & Agricultural University, Højbakkegaard, Agrovej 10, DK-2630 Taastrup, DENMARK). CURRENT PROJECT: "Propagation of solitary bees for pollination of seed and fruit crops in Denmark (Megachile, Osmia and Bombus)."

Ola Jennersten (Department of Zoology, Uppsala University, Box 561, S-751 22 Uppsala, SWEDEN). CURRENT PROJECTS: "The role of nest habitats on pollination in the agricultural landscape; patch size and pollination success in Viscaria vulgaris; night and day pollination in Viscaria vulgaris."

Anselm Kratochwil (Institut fur Biologie II/Geobotanik, Universitat Freiburg, Schanzlestrasse 1, D-7800 Freiburg, WEST GERMANY). CURRENT

PROJECTS: "The flower-visitor community of different grassland types in Southwest-Germany and proposals for grassland management in nature reservation (Apoidea, Lepidoptera, Diptera); analysis of corbiculae pollen of Bombus species with special reference to pollen collecting in different plant communities and their phenology; phylogenetic aspects of flower-visiting behaviour in Andrena."

Danielle H. Lobreau-Callen (UA 218 CNRS, Arboretum de Chevreloup, Museum National d'Histoire Naturelle, Route de Maule-Rocquencourt, 78150 LE CHESNAY, FRANCE). CURRENT PROJECTS: "Coevolution of plantes and insectes; interrelations plantes-pollen-insectes; recent studies of honey and corbiculae of some Apides of the Ivory Coast for melittoplaynology studies of the insects in the Savanna and Forest."

Javier Herrera Maliani (Estacion Experimental de Zonas Aridas, Almería, SPAIN). CURRENT PROJECTS: Pollination (shrublands, arid zones); plant reproduction).

Daniel F. Mayer (Extension and Research Entomologist, Washington State University, IAREC - Box 30, Prosser, Washington 99350, U.S.A.). CURRENT PROJECTS: "Tree fruit pollination; vegetable seed pollination; toxicity of insecticides to bees."

Nina A. Mohr (Department of Environmental Biology, University of Guelph, Guelph, Ontario, CANADA, N1G 2W1). CURRENT PROJECT: "My Ph.D. project is on the foraging behavior and pollinating efficiency of native bees and honey bees on the lowbush blueberry (Vaccinium angustifolium). I am doing a general collection of all blueberry pollinators in the Kirkland Lake area of Northern Ontario, Canada."

L. Anders Nilsson (Institute of Systematic Botany, Uppsala University, P.O. Box 541, S-751 21 Uppsala, SWEDEN). CURRENT PROJECTS: "Pollination biology, with special reference to orchids; relationships between pollinators and plants in Madagascar." HELP: "Identification of Malagasy bees, especially Halictidae." GENERAL: Recent field trips to "Madagascar, September-December 1983 and March-April 1985."

Eben A. Osgood (Department of Entomology, 302 Derring Hall, University of Maine, Orono, Maine, 04469, U.S.A.). CURRENT PROJECTS: "Determining the species of insect pollinators of various species of flowering plants in spruce-fir forests in Maine; this to provide evidence that would directly associate lower fruit set following aerial spraying with mortality of specific insect pollinator species or groups." HELP: "Identification assistance or verification for some groups."

William L. Overal (Museu Paraense Emílio Goeldi, Caixa Postal 399, 66.000 Belém, Pará, BRASIL). CURRENT PROJECTS: "Pollination of select Amazonian palms. Floral visitors and pollination of Passiflora. At the moment I am looking at the pollination of Passiflora by large bees, especially Xylocopa. If we are to eliminate the need for hand-pollinating (only 30% effective) from the growing of passion fruit, we are going to have to know a whole lot more about what carpenter bees need and want." HELP: "I identify bees by comparison with specimens from our collections that have been determined by the likes of Ducke, Friese, Schwarz, Moure, Michener, Roubik, Camargo and Dressler. Nevertheless, many specimens are not amenable to such a solution. Further identifications by specialist would be a great help." GENERAL: "This year I have been to Bolivia, Mato Grosso (Pantanal south of Cuiaba), Rondonia (Madeira River), Serra do Cipo (Minas Gerais), São Paulo, Serra dos Carajás

(iron-ore mining district), and to the Kayapo Indian reservation in southern Para State, near the Xingu River." William notes that "the Adolpho Ducke collection of bees is here at the Museu Goeldi" and that he will provide us with a brief account of this collection in a future newsletter.

Beverly J. Rathcke (Division of Biological Sciences, University of Michigan Ann Arbor, Michigan 48109, U.S.A.). CURRENT PROJECTS: "Pollination of shrubs in a heath bald near Mt. Lake, Virginia; foraging ecology of bees." HELP: "Identification; literature: basic biology of bee species, especially Halictidae and Andrenidae and foraging ecology."

Peter H. Raven (Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, U.S.A.). GENERAL COMMENT: "Our institution would be willing to help in the identification of vouchers and plants visited by bees from Central or South America or Africa."

Susanne S. Renner (Department of Botany, NHB-W512, Smithsonian Institution, Washington, D.C. 20560, U.S.A.). GENERAL: Recent "expedition to Cerro Nablina (Terr. Fed. Amazonas, Venezuela) making observations on pollination at 1700 and 2100 m (camps II and VII); collected 215 bee specimens."

K. W. Richards (Agriculture Canada, Research Station, Lethbridge, Alberta, CANADA T1J 4B1). CURRENT PROJECTS: "Development of management practices of wild bees (alfalfa leafcutter bees and bumble bees especially) for the pollination of field crops (mainly forage crops, especially alfalfa). Pollination requirements of forage crops."

Edward Roberts (Batchelor Agriculture Centre, PO Box 1654, Palmerston North, NEW ZEALAND). CURRENT PROJECTS: "Management and pollination studies [Apis]; heavy metals in honey/pollen."

Douglas W. Schemske (Department of Biology, The University of Chicago, Chicago, Illinois 60637, U.S.A.). CURRENT PROJECTS: "1) Pollination and local differentiation of Phacelia distans (Hydrophyllaceae). 2) Spatial and temporal variation in the pollinators of Calothoe ovardensis (Marantaceae)."

Konrad Schmidt (D-7500 Karlsruhe, Zoologisches Institut der Universität, Kornblumenstr. 13 Postfach 6380, WEST GERMANY). CURRENT PROJECT: "Pollination biology of some apoids in southern Germany: field observations and identification of the pollen loads." HELP: "Specimens of the examined species in order to identify their pollen loads."

Stefan Vogel (Institut für Spezielle Botanik und Botanischer Garten, Johannes Gutenberg-Universität, D-65 Mainz, Postfach 3980, WEST GERMANY). CURRENT PROJECTS: "Floral relationships of the Ctenoplectridae. Pollination of Linum flavum by Osmia spp." HELP: Identifications. GENERAL: Recently collected Ctenoplectridae from Togo (1985); also has collections from Brasil, Argentina, Mexico, Canary Isles and Turkey.

Gunther Vorwohl (Universität Hohenheim, Landesanstalt für Bienenkunde (730), August-von-Hartmann-Strasse 13, Postfach 700562, D-7000 Stuttgart 70, WEST GERMANY). HELP: Flower samples from bee plants.

Christian Westerkamp (Inst. Spezielle Botanik, Johannes Gutenberg-Universität, Saarstr. 21 (FB 2120), D-6500 Mainz, WEST GERMANY). CURRENT PROJECT: "Pollen foraging of solitary and social bees in relation to flower structure and pollination."

Recent Literature

- Alcock, J. and S.L. Buchmann. 1985. The significance of the post-insemination display of male Centris pallida (Hym.: Anthophoridae). *Z. Tierpsychol.* 68:231-243.
- Almeida, M.C. de. Duas especies novas de Trigona (s.str.) (Apidae, Meliponinae) da região neotropical. *Dusenia*, 14(3) [in press].
- Anderson, D.L. Inapparent virus infections of the honey bee Apis mellifera [in press].
- Anderson, D.L. Kashmir bee virus in honey bees [in press].
- Anzenberger, G. How do carpenter bees recognize the entrance of their nests? *Z. f. Tierpsychologie* [in press].
- Armbruster, W.S. and W. Mziray. Pollination and herbivore ecology of an African Dalechampia (Euphorbiaceae): comparisons with New World species. *Biotropica* [in press; reports pollination by resin-collecting Heriades nr. spiniscutis].
- Arretz, P.V. and R.P. Macfarlane. 1986. Bombus ruderatus introduced to Chile for red clover pollination. *Bee World* [submitted].
- Banaszak, J. 1985. Zgrupowania pszczół (Apoidea) w srodowisku wiejskim [Communites of Apoidea in rural environment], Pol. *Pismo Entomol.*, 55:115-133.
- Banaszak, J. Impact of agricultural landscape structure on diversity and density of pollination insects (Ed. INRA Publ.) [in press].
- Banaszak, J. Plant-pollinator relationships in agricultural landscape [in press].
- Banaszak, J. Phenology of bees (Apoidea) of Central Poland Lowlands. *Bad. Fizjograf. Pol. Zac.*, Poznań [in press].
- Barrows, E.M., G.B. Chapman, J.E. Zenel, and A.S. Blake. Ultrastructure of Dufour's glands of the horn-faced bee, Osmia cornifrons (Hymenoptera: Megachilidae). *J. Kansas Entomol. Soc.* [in press].
- Beig, D. Brood cell characteristics and worker oviposition in Melipona quadrifasciata anthidioides Lep. (Hym., Apidae, Meliponinae). *Naturalia*, 10. S. Paulo, Brasil [in press].
- Blagoveschenskaya, N.N. The colonies of wild solitary bees and prospects of their protection in Middle Volga [in press].
- Blomquist, G.J., D.W. Roubik and S.L. Buchmann. 1985. Wax chemistry of two stingless bees of the Trigonisca Group (Apidae: Meliponinae). *J. Comp. Biochem. Physiol.* 157.
- Borg-Karlsson, A.-K. and J. Tengö. Odour mimetism? Key substances in the Ophrys lutea - Andrena pollination relationship (Orchidaceae - Andrenidae). *J. Chem. Ecol.* [in press].
- Brooks, R.W. and C.D. Michener. 1985. Nests of Tetralonia lepida. *J. Kansas Ent. Soc.*, 58:559-561.
- Buchmann, S.L. 1985. Bees use vibration to aid pollen collection from non-poricidal flowers. *J. Kans. Entomol. Soc.* 58(3):517-525.
- Camargo, J.M.F. de. Inventorio da fauna e flora apícola de Ribeirão Preto, SP. Brasil. *Dusenia* [in press].
- Camargo, J.M.F. de. Additional notes on the classification and knowledge of stingless bees by the Kayapo Indians. *Ann. of Carnegie Museum of Natural History* [in press].
- Camargo, J.M.F. de. and D.A. Posey. Apiculture dos indios Kaiapo do Brasil. *Revista Brasil. de Zoologia* [in press].
- Cameron, S.A. 1985. Brood care by male bumble bees. *Proc. Natl. Acad. Sci.*, 82:6371-6373.
- Cameron, S.A. Age polyethism in Bombus griseocollis: Incipient castes among workers in a primitively eusocial bee? *Behav. Ecol. Sociobiol.* [in review].
- Cane, J.H. Predator deterrence by mandibular gland secretions of bees. *J. Chem. Ecol.*
- Cooper, P.E., W.M. Schaffer, and S.L. Buchmann. 1985. Temperature regulation of honey bees (Apis mellifera) foraging in the Sonoran Desert. *J. Exp. Biol.* 114:1-15.

- Coville, R.E., G.W. Frankie, S.L. Buckmann, S.B. Vinson and H.J. Williams. Nesting and male behavior of Centris heithausi in Costa Rica (Hymenoptera: Anthophoridae) with chemical analysis of the hindleg glands of males. J. Kans. Entomol. Soc. [in press].
- Cruz-Landim, C. Origin of the peritrophic membrane of the adult Apis mellifera L. (Hymenoptera: Apidae). Rev. Brasil. Biol. [in press].
- Cruz-Landim, C. Histological and cytological studies on the fat body of the queen honeybee abdomen during the active oviposition phase. Rev. Brasil. Biol. [in press].
- D'Albore, G.R. [following titles all in press]: Pollinators of some Umbelliferae; Pollinators of Trifolium incarnatum; Pollinators of Onobrychis viciifolia; floral ethology of 32 pollinators in a specialized area; Bumblebees in central Italy; Pollinators of Carthamus tinctorius.
- Danka, R.G., and C.H. Collison and L.A. Hull. 1985. Honey bee (Hym.: Apidae) foraging during bloom in dimethoate-treated apple orchards. J. Econ. Entomol. 78 [in press].
- Darchen, R. Pollination in Togo and Benin. Apidologie [in press].
- Dathe, H.H. Beitrage zur Klarung asiatischer Hylaeus-Arten der Autoren Morawitz, Cockerell und Strand. Fol. Ent. (Budapest) [in press].
- Dathe, H.H. Die Bienengattung Hylaeus F. in der Mongolei. Ann. Hist. Nat. Mus. Nat. Hung. (Budapest) [in press].
- Doorn, A. van, P. Hogeweg, 1985. Die Entwicklung des agonistischen Verhalteus innerhalb der Arbeiterinnenkaste und zurischen Arbeiterinnen und der Konigin wahrend der Voldsentwicklung beider Erdhummel, Bombus terristris. Mitt. dtsch. Ges. allg. angew. Ent, 4 (4-6):328-331 [in German with English summary].
- Doorn, A. van and J. Heringa. The ontogeny of a dominance hierarchy in colonies of the bumblebee Bombus terristris (Hymenoptera, Apidae). Insectes Sociaux [in press].
- Ebmer, P.A.W. Die westpalaarktischen Arten der Gattung Dufourea Lepeletier 1841 mit illustrierten Bestimmungstabellen, Nachtrag. - Senckenbergiana biol. [in press].
- Ebmer, P.A.W. and K.H. Schwammberger. Die Bienengattung Rophites Spinola 1808. Illustrierte Bestimmungstabellen. - Senckenbergiana biol. [in press].
- Ebmer, P.A.W. and S.F. Sakagami. Lasioglossum (Evylaeus) hirashimae n. sp., ein Vertreter einer palaotropischen Artgruppe in Japan - Nachrbl. bayer. Ent. [in press].
- Erlandsson, S. Hymenoptera Aculeata from the European part of the Mediterranean countries III. Apoidea 2, Hylaeus [in press].
- Fisher, R.M. and R.D. Tuckerman. 1985. Mimicry of bumble bees and cuckoo bumble bees by carrion beetles. J. Kansas Entomol. Soc. 58 [in press].
- Fisher, R.M. Evolution of facultative social parasitism in bumble bees. [in review].
- Fonta, C. and C. Masson. Structural and functional studies of the peripheral olfactory nervous system of bumblebee males and females (B. hypnorum and B. terrestris). Chem. Senses [in press].
- Free, J.B., Ferguson A.W. (1985). Influence of virgin queen honeybees (Apis mellifera) on queen rearing and foraging. Physiological Entomology.
- Frohlich, D.R. and F.D. Parker. 1985. Observations on the nest building and reproductive behavior of a resin gathering bee. Ann. Entomol. Soc. Amer. [in press].
- Frohlich, D.R. and V.J. Tepedino. 1986. Sex ratio, parental investment, and interparent variability in nesting success in a solitary bee. Evolution, 40 [in press].
- Garofalo, C.A., 1985. Social structure of Euglossa cordata nest (Hymenoptera, Apidae, Euglossini). Entomol. Gener. 11 (1/2).
- Gilliam, M., S.L. Buchmann, and B.J. Lorenz. 1984. Microbial flora of the larval provisions of the solitary bees, Centris pallida and Anthophora sp. Apidologie 15(1):1-10.

- Gilliam, M., S.L. Buchmann, B.J. Lorenz, and D.W. Roubik. 1985. Microbiology of the larval provisions of the stingless bee, Trigona hypogea, an obligate necrophage. *Biotropica* 17(1):28-31.
- Goodwin, R.M. 1986. Increased kiwifruit pollen collection after feeding sugar syrup to honeybees within their hive. *New Zealand Journal of Experimental Agriculture*, 14(1) [in press].
- Gottberger, G.K. Pollination strategies in neotropical savannas and forests. *Plant System. Evol.* [in press].
- Goukon, K., Sh.F. Sakagami and Y. Maeta: Bionomic comparison of two populations of a eusocial halictine bee, Lasioglossum duplex, in northern Japan. *Jap. J. Ecol.* 35 [in press].
- Griswold, T. A new heriadine from the Mojave Desert [submitted].
- Griswold, T. and F. Parker. A new species of Protosmia Ducke from Spain [submitted].
- Griswold, T. Notes on the nesting biology of Protosmia (Chelostomopsis) rubifloris (Cockerell) [submitted].
- Haragsim, O. The cannibalism of worker honey bees, caused with juvenoids. *Apidology* [in press].
- Harder, L.D. Influences on the density and dispersion of bumble bee nests (Hymenoptera, Apidae). *Holarctic Ecology* [in press].
- Hepburn, H.R. The conversiton of wax scales into comb by African honeybees. *J. Comp. Physiol.* [in press].
- Hepburn, H.R. Honeybee juggling: the transformation of acylglycerols in comb construction [submitted].
- Hepburn, H.R. Honeybees and Wax: An Experimental Natural History. MS with Springer-Verlag, Heidelberg. [This book is offered as an exhaustive and totally comprehensive treatment of the literature relating to the biology of bees and wax (honeybees). Particular care was taken with regard to primary sources and numerous obscure and/or ancient works have been traced and consulted]
- Holm, S.N. and J. Farkas (1985): Control of the chalcid wasp Pteromalus apum Retzius, a parasite of Megachile rotundata Fabr. [in press].
- Holm, S.N. (1985): Breeding honeybees for resistance to chalkbrood disease. *Apimondia* [in press].
- Houston, T.F. Supplement to a revision of the bee genus Ctenocolletes (Hymenoptera: Stenotritidae). *Rec. West. Aust. Mus.* [in press].
- Hurd, P.D., Jr. and J.S. Moure. 1986. An annotated catalog of the halictid bees of the western hemisphere. *Smithsonian Contrib. Zool.* [in press; after long delays in the production of the computerized indices, this important work will finally come out].
- Ikudome, S. The bee genus Colletes of Japan, with a description of a new species [in press].
- Imperatriz-Fonseca, V.L. Exploitation of floral resources by Plebeia remota Holmberg (Apidae, Meliponinae). *Apidologie* [in press].
- Imperatriz-Fonseca, V.L. Flight activity and responses to climate conditions by two subspecies of Melipona marginata Lepeletier. *J. Apic. Res.*
- Imperatriz-Fonseca, V.L. A importancia de Eucalyptus spp. como fonte de polen e nectar para algumas espécies de Apidae. *Anais do VI Congresso Brasileiro de Apicultura*.
- Imperatriz-Fonseca, V.L. Climate variations influence on the flight activity of Plebeia remota Holmberg (Hymenoptera, Apidae, Meliponinae). *Revta Bras. Ent.*
- Inoue, T. Foraging behavior of individual workers and foraging dynamics of colonies of three Sumatran stingless bees [in press].
- Kapil, R.P. Pollination Biology [in press].
- Kevan, P.G. and A.J. Lack. 1985. Pollination in a cryptically dioecious plant Decaspermum parviflorum (Lam.) A.J. Scott (Myrtaceae) by pollen-collecting bees in Sulawesi, Indonesia. *Biol. J. of the Linnean Society* 25:319-330.
- Kevan, P.G. and M.A. Lane. 1985. Flower petal microtexture is a tactile cue for bees. *Proc. Natl. Acad. Sci., USA*, 82:4750-4752.

- Kukuk, P.F. and P.C. Decelles. Behavioral evidence of population structure in Lasioglossum zephyrum (Hymenoptera: Halictidae): female dispersion patterns. Behav. Ecol. Sociobiol. [in press].
- LaBerge, W.E. Part XI. of Revision of Andrena of the Western Hemisphere [in press].
- LaBerge, W.E. Zoogeography of North American Andrena [in press].
- Labougle, J. and M. Ito. The bumblebees of Chiapas and Guatemala, with a morphometric and altitudinal analysis. Folia Entomologica [in press].
- Labougle, J. and R. Ayala. A new subgenus and new species of Bombus from Guerrero, Mexico. Folia Entomologica [in press].
- Laidlaw, H.H. Mating designs. In: Honeybee Genetics and Breeding, T. Rinderer, ed., Academic Press [in press].
- Laroca, S. and A.I. Orth. Pilhagem de um ninho de Plebeia catamarcensis meridionalis por Lestrimelitta limao (Apidae, Meliponinae) em Itapiranga, SC, Sul do Brasil. Dusenia [in press].
- Laroca, S. and M.C. de Almeida. Adaptacao dos palpos labiais de Niltonia virgili (Apoidea, Colletidae) para coleta de nectar em Jacaranda puberula (Bignoniaceae), com descricao do macho. Rev. Bras. Entomol. [in press].
- Leclercq, J. and P. Rasmont. 1985. Xylocopa violacea (L., 1758), carte 1963 in : Leclercq, J., C. Gaspar and C. Verstraeten, Atlas provisoire des Insectes de Belgique (et des regions limitrophes). Cartes 1801-2030. Faculte des sciences agronomiques de l'Etat, Gembloux (Belgique).
- Macfarlane R.P. 1985. Working towards a useful subgeneric classification in Bombus: a viewpoint. Sphecos 10.
- Macfarlane R.P., R.P. Griffin. An assessment of bumble bees and honey bees as pollinators of red clover. Proc. Australasian Grasslands Invertebrate Ecol. Conf. 4:114-120 [in press].
- Macior, L.W. Resource sharing in Pedicularis (Scrophulariaceae) pollination. [in review].
- Macior, L.W. Pollination ecology and endemic adaptation of Pedicularis howellii Gray (Scrophulariaceae) [in review].
- Malaspina, O. Sucrose syrup-collecting behavior in Africanized and Caucasian bees and in the descendants of their crossings. J. Apic. Reser. [in press].
- Manning, J.C. and D.J. Brothers. Floral relations of four species of Rediviva in Natal (Hymenoptera: Apoidea: Melittidae). J. Entomol. Soc. S. Africa [in press].
- Marikovskaja, T.P. The type exemplars of the genus Anthophora Latr. s.l. (Hymenoptera, Apoidea) from the collection of the Zoological Institute AS SSSR. Entomol. Rev. [in press].
- McGinley, R.J. Bee Larvae of North America. Chapter in Immature Insects of North America, Kendall/Hunt Publishing Co., Dubuque, Iowa [in press].
- McGinley, R.J. Studies of Halictinae (Apoidea: Halictidae), I: Revision of New World Lasioglossum Curtis. Smithsonian Contrib. Zool., 550 MS pp., 746 figures (with illustrated keys) [in press].
- Michener, C.D. A new Peruvian genus and a generic review of Andreninae. Annals of the ESA [in press].
- Michener, C.D. A review of the tribes Diphaglossini and Dissoglossini. Univ. Kansas Sci. Bull. [in press].
- Michener, C.D. Reproduction and caste in social halictine bees, In W. Engels (ed.) An evolutionary approach to caste and reproduction, Springer Verlag. [in press].
- Michener, C.D. Caste in xylocopine bees, In W. Engels (ed.) An evolutionary approach to caste and reproduction, Springer Verlag. [in press].
- Michener, C.D. Proposal to give precedence to the family-group name based on Colletes over names based on Hylaeus and Prosopis, on Paracolletes over Neopasiphae, on Halictus over Rophites and Sphecodes, on Anthidium over Stelis, and on Anthophora over Ceratina, Eucera, Nomada, Podalirius, and Xylocopa (Insecta: Hymenoptera: Apoidea). Bull. Zool. Nomen. [in press].

- Michener, C.D. Family-group names among bees. J. Kansas Ent. Soc. [in press].
- Michener, C.D. and B. Smith. Kin recognition in primitively eusocial insects, In Fletcher, D. and C. Michener (eds.), John Wiley [in press].
- Miliczky, E. Observations on the nesting biology of Tetralonia hamata. J. Kansas Entomol. Soc. [in press].
- Montz, R.F.A., Hawkins, C.F., Crozier, R.H., MacKinlay, A.G. A Mitochondrial DNA Polymorphism in Honeybees (Apis mellifera L.). Exponentia [in press].
- Morse, D.H. Inflorescence choice and time allocation by insects foraging on milkweed. Oikos [in press].
- Morse, D.H. Predatory risk to insects foraging at flowers. Oikos [in press].
- Moure, J.S. [following titles all in press]: Um novo subgenero de Euglossa da Amazonia; Especies novas de Euplusia da America do Sul; Novos meliponineos da America do Sul; Notas sobre especies sul-americanas do genero Bombus.
- Neff, J.L. and B. Simpson. Plants, their pollinating bees, and the great American interchange [in press].
- Nilsson, L.A., L. Jonsson, L. Rason and E. Randrianjohany. 1985. Pollination of Plectranthus vestitus Benth. (Lamiaceae) by trap-lining hovering bees in Madagascar. Pl. Syst. and Evol. [in press].
- Ordway, E. The life history of Diadasia rinconis Ckll., (Anthophoridae) [in press].
- Ordway, E. Pollen dispersal in Cucurbita foetidissima HBK (Cucurbitaceae) by bees of the genera Apis, Peponapis and Xenoglossa (Apidae, Anthophoridae) [in press].
- Ordway, E. The phenology and pollination biology of Anemone patens [in press].
- Owen, R.E. 1985. Colony-level selection in the social insects: single locus additive and non-additive models. Theoretical Population Biology, 28(2) [in press].
- Packer, L. and G. Knerer. The biology of a subtropical population of Halictus ligatus Say, I. phenology and social organisation. Behavioural Ecology and Sociobiology [in press].
- Packer, L. The social organisation of two halictine bees from Southern Mexico with notes on two bee hunting philanthine wasps. Pan-Pac. Ent. [in press].
- Pamilio, P. Pekkarinen, A. and Varvio-Aho, S.-L. Evolutionary divergence of bumblebees (Hymenoptera, Apidae: Bombus and Psithyrus) [in press].
- Parker, F.D. 1985. A new Osmia from Utah's San Rafael Desert. J. Kans. Entomol. Soc. [in press].
- Parker, F.D. 1985. Nesting, associates and mortality of Osmia sanrafaelae Parker. J. Kans. Entomol. Soc. [in press].
- Parker, F.D. 1985. A candidate legume pollinator, Osmia sanrafaelae Parker. J. Apic. Res. [in press].
- Parker, F.D. and D.R. Frohlich. 1985 Studies on management of the sunflower leafcutter bees. J. Apic. Res. [in press].
- Paulus, H.F. Quantitative aspects of the breeding biology of Osmia rufa and O. cornuta: A comparative study of competition reducing mechanisms in two near related bee species. Zool. Jb., Syst. [in press, ca. 40 pp., in German].
- Pekkarinen, A. and Teras, I. Melanic polymorphy in Bombus veteranus and B. soroeensis (Hymenoptera: Apidae) in southern Finland. Notutae Ent. [in press].
- Plateaux-Quenu, C. Second brood of Evylaeus calceatus (Scop.) (Hym., Halictinae). Are the foundresses issued from eggs only laid by foundresses? Ann. Sc. Nat., Zool., 13eme serie, 1985, 7 [in press].
- Plateaux-Quenu, C. et Plateaux L. 1985. Individual variation in a solitary species: Evylaeus villosulus (K.) (Hym., Halictinae). Comparison of the spring foundresses with their daughters belonging to the first generation. Actes Coll. Insectes Soc., 2:293-302.
- Pleasants, J. and N. Waser. 1985. Bumble bee foraging at a "hummingbird" flower: reward economics and floral choice. Amer. Midl. Nat. 114(20):283-291.

- Posey, D.A. and J.M.F de. Camargo. Additional notes on stingless bees by the Kayapo Indians. Annal of Carnegie Museum of Natural History [in press].
- Pouvreau, A. Polyethism in Bumble-bees [in press].
- Prys-Jones, O.E. Foraging behaviour and the activity of substrate cycle enzymes in bumblebees. Animal Behaviour, 34 (1 or 2) [in press].
- Prys-Jones, O.E. and S.A. Corbet. Bumblebees. Naturalists' Handbooks No. 6, Cambridge University Press [in press; publication in Spring 1986].
- Punchihewa, W. 1985. Foraging ranges of Apis cerana, Apis dorsata and Apis florea in Sri Lanka. J. Apic. Res. [in press].
- Radovic, I. Some aspects of the origin of long-tongued bees (Apoidea). Acta Entomol. Jugoslavica, Zagreb. [in press].
- Rasmont, P. 1985. Bombus terrestris (L.) (Hymenoptera: Apidae) dans le Massif des Maures (France, Var), une generation d'hiver? Bull. Ann. Soc. R. Belge Ent., 120:359-363.
- Rasmont, P. and R. Delmas. 1985. La cartographie des bourdons de la France (Hymenoptera, Apidae, Bombinae). Conference-Debat Invertebres menacants, Invertebres menaces, 53.
- Rasmont, P. and R. de Jonghe. 1985. Progres recents dans la connaissance des bourdons du genre Bombus Latreille Sensu Stricto (Hymenoptera, Apidae, Bombinae). Actes Coll. Insectes Soc., 2:119-122.
- Rasmont, P., R. Delmas, F. Leclant and I.H.H. Yarrow. Alpigenobombus wurfleini (Radoszkowski, 1859) (Hymenoptera, Apidae, Bombinae), le Bourdon des Montagnes. Documents pour un Atlas zoogeographique du Languedoc-Roussillon [sous presse].
- Raw, A. 1985. The ecology of Jamaican bees (Hymenoptera). Revista Brasileira de Entomologia, 29:1-16.
- Reinig, W.F. and P. Rasmont. Beitrag zur Kenntnis der Berghummel Alpigenobombus wurfleini (Radoszkowski, 1859) (Hymenoptera, Apidae, Bombinae). Spixiana, München [sous presse].
- Roberts, R.B. and R.W. Brooks. The agapostemonine bees of Mesoamerica [submitted].
- Roseler, P.-F. Caste specific differences in fat body glycogen metabolism of the bumblebee, Bombus terrestris. Insect Biochemistry [in press].
- Roubik, D.W., Sh.F. Sakagami and I. Kudo: A note on distribution and nesting of the Himalayan honeybee, Apis laboriosa Smith (Hymenoptera: Apidae). J. Kansas Entomol. Soc. 58(4) [in press].
- Rust, R.W. 1985. The biology of Osmia (O.) ribifloris Cockerell (Megachilidae). J. Kansas Entomol. Soc. [in press].
- Sakagami, Sh.F., T. Matsumura and Y. Maeta. 1985. Bionomics of the halictine bees in northern Japan III. Lasioglossum (Evlaeus) allodatum, with remarks on the serially arranged cells in the halictine nests. Kontyu, 53 (3):409-419.
- Sakagami, Sh.F. and T. Okagawa. 1985. A populous nest of the halictine bee Halictus (Seladonia) lutescens from Guatemala (Hym: Halictidae). Kontyu 53(4) [in press].
- Salmah, S. Discovery of absconding in the stingless bee Trigona minangkabau [in press].
- Salmah, S. Foraging behavior of individual workers and foraging dynamics of colonies of three Sumatran stingless bees [in press].
- Salmah, S. Incubation period and post-emergence pigmentation process of the stingless bee Trigona (Trigonella) moorei [in press].
- Schmidt, J.O., P.J. Schmidt and C.K. Starr. The giant honey bee, Apis dorsata, in Sabah. Am. Bee J. [in press].
- Schonitzer, K. Comparative Morphology of the Antenna Cleaner in Bees (Apoidea). Z. zool. Syst. Evolut.-forschung [in press].
- Schonitzer, K. Quantitative Aspects of Antenna Grooming in Bees (Hymenoptera: Apoidea) [submitted].
- Seeley, T.A. 1985. Honeybee Ecology: A Study of Adaptation in Social Life. Princeton Univ. Press [in press].

- Sheppard, W.S. and B.A. McPheron. Genetic variation in honey bees from an area of racial hybridization in western Czechoslovakia. *Apidologie* [in press].
- Smith, B.H. Effects of genealogical relationship and colony age on the dominance hierarchy in the primitively eusocial bee Lasioglossum zephyrum. *Anim. Behav.* [submitted].
- Smith, B.H., R.G. Carlson, and J. Frazier. Identification and bioassay of the macrocyclic lactone sex pheromones of the halictine bee Lasioglossum zephyrum [submitted].
- Smith, B.H., D.W. Roubik, and R.G. Carlson. An analysis of the caustic cephalic secretion of the fire bee Oxytrigona daemoniaca (Hymenoptera: Apidae) [submitted].
- Snelling, R.R. The taxonomic status of two North American Lithurge (Megachilidae) [in press].
- Snelling, R.R. Contributions toward a revision of the New World nomadine bees. A partitioning of the genus Nomada (Anthophoridae) [in press].
- Snelling, R.R. and R.W. Brooks. 1985. A review of the genera of cleptoparasitic bees of the tribe Ericrocini (Hymenoptera: Anthophoridae). *Natural History Museum of Los Angeles County, Contributions in Science*, 369:1-34.
- Stevanovic A.M. and M. Demajo. Material for the bumble-bee fauna (Bombinae, Apoidea, Hymenoptera) of Yugoslavia. Notes from an excursion to the open habitats of the Hajla, Mokra Gora and Mokra Planina mountain ranges [in press].
- Tadauchi, O. 1985. Synopsis of Andrena (Micrandrena) of Japan (Andrenidae) Parts I and II. *J. Fac. Agr.*, Kyushu Univ., [in press].
- Tadauchi, O. 1985. The effect of using various character subsets on numerical taxonomy in the Japanese andrenid bees, Esakia, Fukuoka [in press].
- Taylor, O.R., G.W. Otis, P. Kukuk and M. Spivak. Timing of mating flights of queens of African and European honey bee races in South American (Apis mellifera L.). *J. Apic. Res.* [in press].
- Taylor, O.R., R. Kingsolver, and G.W. Otis. A neutral mating model for honey bees. *J. Apic. Res.* [in press].
- Tengö, J. I. Groth and G. Bergstrom. 1985. Volatile secretions in three species of Dufourea (Halictidae) Bees: Chemical Composition and Phylogeny. *Z. Naturforsch.*, 40c [in press].
- Teras, I. Flower visits of bumblebees during one day in northeastern Finland. *Notulae Entomologicae* [in press].
- Thomson J.D. 1985. Mechanics of pollen transport by bumblebees with special reference to Erythronium. *J. of Ecology* [in press].
- Thomson J.D. 1985. Response of traplining bumble bees to competition experiments: shifts in feeding location and efficiency [submitted to *Oecologia*].
- Thomson J.D., M. Price, N. Waser and D. Stratton 1985. Comparative studies of pollen and fluorescent dye transport by bumble bees visiting Erythronium grandiflorum. *Oecologia* [in press].
- Toro, H. A check list of the Chilean bees [in press].
- Vandenberg, J.D., D.R. Massie, H. Shimanuki, J.R. Peterson and D.M. Poskevich. 1985. Survival, behavior and comb construction by honey bees, Apis mellifera, in zero gravity aboard NASA shuttle mission STS-13. *Apidologie* 16(4) [in press].
- Vinson, S.B., G.W. Frankie and H.J. Williams. Description of a new dorsal mesosomal gland in two Xylocopa species (Hymenoptera: Anthophoridae) from Costa Rica. *J. Kans. Entomol. Soc.* [in press].
- Vogel, S. Olblumen und olsammelnde Bienen: Lysimachia und Macropis. Reihe Tropische und Subtropische Pflanzenwelt, Akad. Wiss. u. Lit. [in press].
- Waddington, K.D. Nutritional Ecology of Bees. In: *Nutritional Ecology of Insects, Mites and Spiders* (eds. F. Slansky and J. Rodriguez). John Wiley and Sons, Inc. [in press].

- Waddington, K.D. Cost-intake information used in foraging. *J. Insect Physiology* [in press].
- Waddington, K.D. Relationships between recruitment systems of stingless bees and within-nest worker size variation. *J. Kansas Entomol. Soc.* [in press].
- Wagner, D. and S. Cameron. 1985. Observation on Bombus bifarius foraging on aphid honeydew. *Pan Pac. Entomol.* [in press].
- Walker, K.L. Revision of the Australian Species of the Genus Homalictus Cockerell (Hymenoptera: Halictidae). *Memoirs of the Museum of Victoria*, 47 [in press; approx. 80 pp.].
- Whitten, W.M., N.H. Williams, S. Armbruster, M. Battiste, L. Strekowski, and N. Lindquist. 1986. Carvone Oxide: An Example of Convergent Evolution in Euglossine Pollinated Plants. *Systematic Botany* [in press].
- Wilkaniec Z., Wojtowski, F. and B. Szymas. 1985. Some investigations on the solitary bee Rhopitoides canus Ev. (Apoidea, Halictidae) nesting in alfalfa seed plantations. *Zoologica Poloniae*, 32:139-151.
- Wille, A. Las abejas Peponapis y Xenoglossa en Costa Rica y su importancia en la polinizacion de las Curcurbita domesticas [in press].
- Wu Yan-ru. The following titles are all in press: A study of Chinese Macropis; A study of Chinese Rhopalomalissa and new descriptions of three new subgenera; Apoidea In: Forest Insects of Yunnan; Four new species from Hengduan Mountain; A study of Chinese Anthomegilla and descriptions of new species; Two new species of Elaphropoda; Two new species of bees from Yunnan; A study of Hoplitis and descriptions of new species; Apoidea from Yunnan.
- Wu Yan-ru and C.D. Michener. Observations on Chinese Macropis (Hymenoptera: Apoidea: Melittidae). *J. Kansas Ent. Soc.* [in press].
- Yong, H.S. Allozyme variation in the stingless bee Trigona fuscobalteata from Peninsular Malaysia. *Comp. Biochem. Physiol.* [in press].
- Zanden, G. van der. 1985. Ergebnisse der Untersuchungen der von R. Benoist beschriebenen Osmia-Arten, mit Liste seiner Schriften. *Reichenbachia* 23 [in press].
- Zanden, G. van der. 1986. Die palaar. Arten der Gattung Lithurgus Latreille. *Mitteil. Zool. Mus. Berlin* [in press].
- Zanden, G. van der. 1986. Untersuchungen an einigen wenig bekannten Osmia- und Megachile- Arten, mit Beschreibung einiger neuen Taxa. *Reichenbachia* 24 [in press].