CHALCID FORUM

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A Forum to Promote Communication
Among Chalcid Workers

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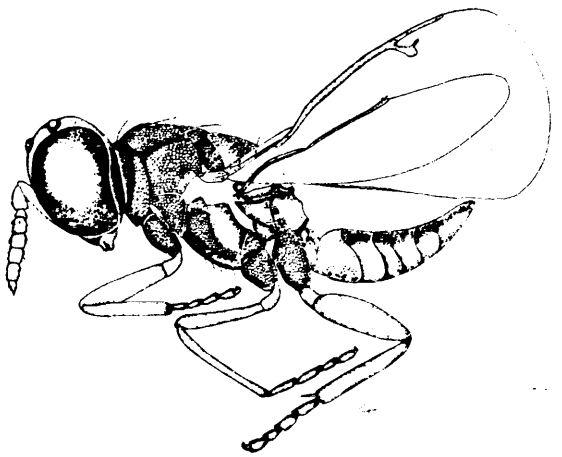

Chrysocharis amanus (Walker)

EDITORS' NOTES

This will be a relatively short issue but at least it will be on time. So far the response to our form for the "Directory of World Chalcidoid Workers" (CHALCID FORUM No. 4) has been somewhat subdued. About one-fourth of you have returned the forms (of about 175 workers on our mailing list). When things become a little less hectic around here (like next winter) we will see what we can do to collate this information into a useful guide. The mailing list we produced for CHALCID FORUM No. 2 is now so out of date that the new directory will be useful to summarize the many new additions and corrections to it.

We would once again like to ask that you consider taking the time to sit down and write up something for inclusion in the forum section. We are sure that many of you have interesting ideas or information to share with other workers. We are grateful to those who have taken the time to send us material and we hope that it continues.

The masthead for this issue was provided by Christer Hansson and we thank him for the exceptionally nice drawing. To our surprise, we have received several illustrations for use as mastheads in future issues. Therefore, be advised that we currently have masthead illustrations for the next four issues and if you send us one it will be two years before we can get it into an issue.

RESEARCH REPORTS

S. N. Myartseva: "For the past several years I have been working on Middle Asian encyrtids. My interest in present and future research is in Encyrtidae of arid areas of Palearctic region. I am also interested in the biological and integrated control of agricultural pests." [See also the "New Literature Section" for a brief summary of Dr. Myartseva's recent book on the encyrtids of Turkmenistan and adjacent regions of central Asia.]

Tang Yu-qing: "I have finished my Master's degree on investigations on the hymenopterous parasites of citrus pests in Fujian Province, China, in the beginning of this year. In this investigation, more than 100 species of parasitic Hymenoptera, mainly Chalcidoidea, were found in Fujian Province. Now I am planning to do some systematic studies of Chalcidoidea, probably Eulophidae or Encyrtidae, in the Ph. D."

Udo Sellenschlo: Dr. Sellenschlo writes that he has worked on torymids since 1975, with the primary center of interest being the morphology of larvae. In 1979 he finished his dissertation on European torymids and now torymids are his "hobby." He wants to publish an "atlas of torymid-larvae."

Steve Heydon: Steve writes that he "is completing a revision of the Nearctic species of Sphegigaster Spinola and is looking for information and/or Nearctic specimens of Sphegigaster pallicornis (flavicornis) which was introduced into British Columbia for control of the holly leaf miner. It is recorded in the literature as having been established but I have not seen any specimens in collections that were collected from British Columbia."

Dr. G. Michaloud: Dr. Michaloud is currently working on the reproduction of figs including "biology of both figs and fig wasps, behaviour, population dynamics, and ecology." Species studied are Ficus natalensis and pollinators (Alfonsiella natalensis) and parasite (Phagoblastus liodontus); Ficus ottoniifolia and pollinators (Courtella gabonensis and Courtella camerunensis).

Andrey Sharkov: "I am currently finishing my dissertation on Encyrtidae of the Soviet Far East and the preparation of the key of Encyrtidae of this region. In future I plan to study the Eupelmidae of the Soviet Union and (if it will be possible) of the Palearctic region."

Mrs. Natalia D. Voinovich: Dr. Trjapitzin writes that Mrs. Voinovich works "in our Zoological Institute under the guidance of Dr. E. S. Sugunjaev on immature stages of Encyrtidae and of some other Chalcidoidea and has published an article on the taxonomy of the encyrtid genus Plesiomicroterys."

Ljubodrag Mihajlovic: "I am interested in all the families of Chalcidoidea belonging to the European fauna and particularly the Balcan Peninsula (faunistics, bionomy, taxonomy and biological control). I am especially interested in the insects associated in the seed, cone and fruit of coniferous and deciduous trees, as well as the Chalcidoidea parasites of xylophagous insects. At the moment, I am engaged, together with Dr. Boucek, in the study of Chalcidoidea fauna in the National Park "Durmitor" in Montenegro."

T. C. Narendran: "At present I am working on biosystematics of Chalcididae of Indian subcontinent. I will be completing this work by the end of a three year P.L. 480 research project in 1987 and a MONOGRAPH ON INDIAN CHALCIDIDAE will be published based on the work done during this research project. Apart from this I am concentrating on taxonomy of some genera of Torymidae, Eurytomidae, Eucharitidae and Eulophidae also of India."

J. Patrick Parkman: "My dissertation research involves the parasitoids attacking economically important leafminers (Liriomyza spp.) of south Florida, with special emphasis on the effect alternate hosts (weeds) have on leafminer and leafminer parasitoid population dynamics within certain crops, especially celery."

J. W. Smith, Jr.: Current areas of research include "biological control (classical) of gramineous stalk borers, Diatraea saccharalis, D. grandiosella, D. lineolata,, Eoreuma loftina, in the southwest [U.S.]. Surveys and

importations from Pakistan, Kenya, Niger, Nigeria, South Africa, Mexico, Brazil, Bolivia, Trinidad, Texas, from above stem borer species and related species. Rearing and making innoculative releases for ca. 10 species of parasites."

Robert Wharton: Bob, a braconid worker at heart (and thus not a true chalcidophile), espresses his interest in the wonderful world of chalcidoids as follows: "It has been my misfortune to repeatedly stumble across chalcidoids in my routine tasks. Our braconid rearings (especially from leaf-miners) turn up an annoying amount of chalcidoids. More to the point, however, I am teaching a course in entomophagous insects, and try as I might, there is no way to avoid chalcidoids. [See John Noyes' exciting exposition of the worth of chalcidoids to understand why. Eds.] Thus, I would appreciate it if you could add me to your list, at least for the purpose of receiving CHALCID FORUM. [It is wonderful to hear a braconid worker grovel at the feet of the tiny and true rulers of the universe. Eds.] The info contained therein has also proved useful in my current (and, I trust, temporary) capacity as secretary of the Hymenoptera Society."

John M. Heraty: "I have recently finished a revision of the Nearctic Eucharitinae (Eucharitidae) and the genus Pseudochalcura in the New World. I will be involving myself with a few of the smaller taxonomic problems in this group and then hopefully, start working on the genus Orasema. (Orasema is present in the Old World but very poorly collected and any material would be appreciated!) I am working on the life history and taxonomic status of Sympiesis sericeicornis (Nees) (Eulophidae) which is a parasite of tentiform leafminers. Material in alcohol or a possible supply of live material for quarantine rearing would be welcomed. Also, I am involved with the importation of Holcothorax testaceipes (Ratz.) from Japan for establishment on Phyllonorycter blancardella (Fabr.), a gracillariid leafminer on apple."

Ian Galloway: "I am primarily interested in the Proctotrupoidea but I have published in the Chalcidoidea. In the DPI insect collection we are building up an extensive chalcidoid collection from all parts of Queensland. Current research projects include a taxonomic revision of Australian Scelionidae. A revision of the genus Scelio is currently in progress."

Rev. Anthony Watsham: "I collect at St.Ignatius College, Chishawasha, about 15 miles east of Harare. Many of the specimens are sent to BM(NH) and to Ottawa CNC. It is hoped that names will eventually be found for most of the collection. I have a representative collection here of chalcids, proctotrupids, and other Hymenoptera. I am illustrating the genera of Pteromalidae and Proctotrupidae that are found here. Other groups may eventually be illustrated. Dr. Z. Boucek determined the chalcids and will help in the work. Dr. L. Masner the same on procto's. The illustrations are watercolors. I have worked with Dr. J.T. Wiebes, and Z.Boucek on fig insects (Chalcids)."

TRIP REPORT

Steve Heydon

Last fall, I was able to spend ten weeks at the USNM in Washington, D.C. on a Smithsonian Graduate Student Fellowship. My primary objective was to do work toward a revision of the nearctic genera of the Miscogasterinae (Pteromalidae) as part of my Ph.D. research. The most fruitful part of my visit was sorting through the 26 drawers of unsorted pteromalids in the USNM collection. When finished, I had accumulated about a thousand new specimens

belonging to various miscogasterine genera. This material contained specimens of 13 genera proviously unknown from the Nearctic. Some of the genera were represented by 4 or 5 species. I also checked all the described species of nearctic Miscogasterinae for correct placement and in some cases, the errors were abundant. The genus Trigonoderus provides a good example. Of the three described North American species, T. aegeriae actually belongs in the genus Halticoptera, T. irvingi belongs in Janssoniella, and T. nonstylus in Seladerma. Washington was an enjoyable place to visit and life in the big city was really a new experience for someone like me who grew up in small towns.

After Washington, I was able to go to the British Museum for a week to take all my unanswered questions to Drs. Boucek and Noyes. The London trip ended with some excitement as I came down with a healthy case of the flu and spent part of my last night in London in the hospital.

I flew home only to find my Washington residence had been robbed while I was gone. So, after a short time, I returned to Champaign, Illinois where I have resided safe and healthy (but bored) ever since.

COLLECTION NOTES

Slide mounting of types
M. E. Schauff

The types of many smaller species of chalcidoids (especially mymarids, trichogrammatids, and aphelinids) have been and are being slide mounted. This is, of course, generally the proper way of preserving these specimens for study, but I would like to make a cautionary note regarding the mounting medium used for these specimens. As you will see in the next note, the USNM has recently become the depository for a majority of the types of Aphytis. These specimens are almost without exception mounted in Hoyer's medium and almost all of them are rapidly disintegrating. Even though many of these slides were ringed with something it does not appear to have done much good. This poses not only a problem for me (these types are now part of my curation assignment) but for anyone who wants to work on Aphytis now or in the future. Remounting these types is going to take considerable time and effort, but I am afraid that there are few alternatives.

My point is this. It is the responsibility of all taxonomists to see to it that the types of species we describe are preserved in a way that will ensure that they remain available for future workers. I would hope that all workers who slide mount types would consider this before they make use of a non-permanent mounting medium such as Hoyer's. At least make sure that such mounts are properly ringed with an appropriate material (although I have grave doubts that ringing will really make these slides permanent, mite workers continue to insist that a properly ringed mount will last). When in doubt, ask yourself this question: "Would I like to have to use this type to revise this group a hundred years from now?"

Transfer of Aphytis types

Recently, the University of California (Riverside) sent their collection of Aphytis types on permanent loan to the USNM. Below is a list of the types as well as notes on the status of other Aphytis associated with UCR (H = holotype, S = syntypes, Neo = neotype, A = allotype, L = lectotype).

acrenulatus D. & R. - H,A
acutaspidis R. & D. - H
africanus Qued. - S
amazonensis R. &. D. - H,A
anneckei D. & R. - H,A
anomalus Comp. - H
antennalis R. & D. - H
australiensis D. & R. - H
capensis D. &. R. - H,A
capitis (Rust) - S
cercinus Comp. - H
cochereaui D. & R. - H,A
coheni DeBach - L.
comperei D. &. R. - H
cylindratus Comp. - S
dealbatus Comp. - H
desantisi D. & R. - H
equatorialis R. & D. - S
fabresi D. &. R. - H,A
fisheri DeBach - S
funicularis Comp. - H,A
gordoni D. & R. - H,A
griseus Qued. - S
holoxanthus DeBach - L
hyalinipennis R. & D. - H,A
ignotus Comp. - H
immaculatus Comp. - S
japonicus Deb. & Azim. - S
lepidosaphes Comp. - S
lingnanensis Comp. - S
longicaudus R. & D. - H,A
malayensis R. & D. - H
mandalayensis R. & D. - H
margaretae D. & R. - H,A
mazalae D. & R. - H,A
melanosticutus Comp. - S
melinus Debach - S
merceti Comp. - H,A
obscurus D. & R. - H,A
paramaculicornis D. & R. - H,A
perplexus R. & D. - H,A
philippinensis D. & R. - H,A
phoenicus D. & R. - H
pinnaspidis R. & D. - H
quaylei (Rust) - S
roseni D. & Gordh - H,A
salvadorensis R. & D. - H,A
sensorius D. & R. - H,A
spiniferus Comp. & Ann. - H
theae (Cameron) - Neo,A
tucmani R. & D. - H,A
vandenboschi D. & R. - H
yasamatsui Azim -S

Aphytis types in UCR collection but not recorded as deposited there.

costalimi (Gomes) - H
maculicornis var. hispanica (Mercet) - H
riyadhi DeBach - H
debachi Azim - S

Aphytis types recorded as being in UCR, but sent to Pretoria South Africa.

bedfordi R. & D.
mimosae D. & R.
confusus D. & R.
pilosus D. & R.

Our thanks to Paul DeBach and Jack Hall for sending the types and compiling the above list.

FORUM

Chalcidoids and Biological Control
by John S. Noyes

The relative importance of insect groups in relation to biocontrol has often been a topic of discussion amongst myself and several interested colleagues. This has been highlighted by the recent necessity to appoint two replacement hymenopterists in the Commonwealth Institute of Entomology identification service. The division of the enquiry load between the new appointees will reflect the relative importance of each group in biological control and the number of enquiries received in the past. Whilst this has been the responsibility of members of the C.I.E. identification service I thought it would be of interest to attempt my own analysis of the relative importance of the different animal groups in biological control.

Table 1 is such an analysis of the data presented in Clausen (1978), a review of organisms introduced throughout the world for the control of animal and plant pests. This review is a summary of biocontrol using introduced animals, each section having been compiled by specialists within their own field. It is the most comprehensive to date and, for the purposes of illustrating the importance of each group of biocontrol agents, is probably the most objective means of obtaining information for analysis. Other sources of information available to me would necessarily be biased heavily towards the Chalcidoidea since many references to groups other than chalcids would have a good chance of being overlooked.

The method of abstracting the information from Clausen for presentation needs some explanation as follows:

Column 1: Species involved in biocontrol programmes. Straight forward enough: a total of all the species quoted in Clausen for each group. This is occasionally a "guestimate" because species are often listed as "10 Scoliidae," "10 Coccinellidae" etc. Some of these may have been given species names elsewhere and thus the totals given in this column may be a little on the high side as a result of unseen duplication.

Column 2: Total introductions. A single introduction is counted as a species being introduced from one area to another for release against a specific pest, irrespective of the total number of occasions on which this was attempted. A different introduced species, source area, destination or target species counts as a separate introduction.

Column 3: Introductions in which some control achieved. Those in which at least a 10% reduction in the pest population can be attributed to the introduced agent.

Column 4: Introductions in which full economic control achieved. Those where supplementary measures, either additional agents or other forms of control, were not required to achieve full economic control once the biocontrol agent was established. Where two species (and no more) complement each other's actions, this is counted as 2 in this column. Generally seaking a minimum 90% rate of parasitism counts as total economic control.

Column 5: Biocontrol index. It is hoped that this index reflects the amount of work required of taxonomists and workers in biocontrol and also the relative success of the biocontrol agent used. The index is the sum of columns 1, 2 and 4 plus one-quarter of the total number of introductions where only partial control was achieved (column 3 minus column 4) rounded to the nearest whole number. By a bit of convoluted logic I have assumed that 4 "partial controls" are equivalent to one "complete control." In other words the mid value between 10% reduction (minimum for partial control) and 90% reduction (minimum for complete control) in the population of the target species is 50%. Thus if species A reduced the target species by 50%, and so on then it will require the introduction of 4 species to achieve the magic 90% reduction to be equivalent to complete control.

Tables 2-4 give "league" tables of the different groups in order of importance based on the criteria stated. It can be seen that whichever criterion is taken the order of importance remains much the same with the Hymenoptera being the most important order, followed by the Coleoptera. Within the Hymenoptera the Parasitica are clearly the most important with the chalcids next in order

of importance (of course!!). These tables are self-explanatory.
It is also possible to estimate a value for the percentage success of the different groups in biocontrol programmes. This can be done by totalling the partial controls (column 3 minus column 4), dividing this by 4, adding the complete successes (column 4) and espressing this as a percentage of the total introductions (column 2). By means of this calculation an overall success rate for biocontrol is calculated as 12%, a very reasonable figure indeed. Success rates for the most important groups used in biocontrol, as detailed in tables 2-4, are given in table 5.

There are obviously three main drawbacks in this sort of data. Firstly, the analysis takes no account of the relative importance of biological control programmes in terms of the economic benefit gained. In other words, the control of Icerya purchasi on citrus in California by Rodalia cardinalis (a major economic benefit) is given the same weight as control of muscid flies in Mauritius by Hister chinensis (a relatively minor economic benefit) and so on. Secondly, it does not take into account the many native species which may have been cultured and used in inundative releases against pest species, e.g. many species of Trichogramma. Thirdly, it should be pointed out that ants play an important part in biological control programmes. They are usually the villains in that they may prevent many introduced parasites and predators from being effective by attacking them or preventing them searching the host plant of the pest.

A further problem with this presentation is that it is out of date by at least 10 years, since the book compiled by Clausen includes only information of programmes undertaken before the mid 1970's. This is where readers of CHALCID FORUM may be of help. It would be of interest to me and probably other people interested in biological control, to see a more up to date overview and analysis of the successes and failures in biocontrol similar to that given above but in more detail. I know several programmes initiated since the mid 1970's, but these mainly involve the use of chalcids. To prevent a chalcid bias in any future analysis it would be of help if readers of CHALCID FORUM, or their associates, could send me a brief account of programmes not included in Clausen (1978). This could include those that were overlooked, considered irrelevent (i.e., involved use of native parasites/predators in inundative releases, etc.) or initiated since the mid 1970's. The information need not be more detailed than 1) the name of the biocontrol agent, 2) the source area, 3), the destination area/area of release, 4) the pest species and 5) whether the programme was successful/partially successful/ a failure (criteria as detailed above) or awaiting analysis of results. It may be possible then to produce a more comprehensive paper for formal publication by perhaps the end of 1986.

Reference

Clausen, C. P. (editor), 1978. Introduced parasites and predators of arthropod pests and weeds: A world review. U. S. Dept. Agr., Agr. Handbook, 480:1-551.

TABLE 1. Analysis of information on the use of introduced parasites and predators of pests for biocontrol purposes as detailed in Clausen (1978).

	Species involved in biocontrol programmes	Total introductions	Introductions in which some control achieved	Introductions in which full economic control achived	Biocontrol index
HYMENOPTERA					
Apocrita					
Parasitica					
Aphelinidae	99	330	102	64	503
Chalcididae	9	20	1	-	29
Elasmidae	1	1	-	-	2
Encyrtidae	138	341	65	32	519
Eulophidae	61	171	23	8	244
Eupelmidae	6	9	2	1	18
Eurytomidae	3	3	1	1	7
Mymaridae	18	26	6	5	49
Pteromalidae	46	153	29	6	211
Signiphoridae	1	1	-	-	2
Tetracampidae	1	2	-	-	3
Torymidae	3	3	-	-	6
Trichogrammatidae	22	41	4	2	86
Chalcidoidea TOTAL	408	1101	233	119	1657
Braconidae	200	548	62	27	784
Ceraphronidae	1	1	1	-	2
Diapriidae	4	10	-	-	14
Eucoilidae	7	8	1	-	15
Figitidae	1	1	-	-	2
Ibaliidae	3	9	2	-	13
Ichneumonidae	128	316	37	15	465
Platygastridae	12	28	8	2	44
Scelionidae	17	29	11	8	55
Stephanidae	1	2	-	-	3
TOTAL	374	952	122	52	1397
Parasitica TOTAL	782	2053	355	171	3054
Aculeata					
Ampulicidae	2	2	2	2	6
Bethylidae	5	12	-	-	21
Chrysididae	1	1	-	-	2
Dryinidae	6	6	2	-	13
Formicidae	2	3	2	2	7
Scoliidae	37	68	5	1	107
Sphecidae	2	2	2	1	5
Thynnidae	3	14	-	-	17
Tiphiidae	23	38	6		63
Vespidae	1	4	-	-	5
TOTAL	86	150	19	6	246
Symphyta					
Tenthredinidae	1	1	-	-	2
Hymenoptera TOTAL	869	2204	374	177	3447
LEPIDOPTERA					
Aegeriidae	1	1	-	-	2
Arctiidae	1	10	2	-	12
Carposinidae	1	1	-	-	2
Cosmopterygidae	1	1	-	-	2
Gelechiidae	2	2	-	-	4
Geometridae	4	7	-	-	11
Gracilariidae	3	3	-	-	6
Heliodinidae	2	2	1	-	4
Lycaenidae	2	4	-	-	6
Lyonetiidae	1	1	1	-	2
Noctuidae	8	18	4	-	27
Oecophoridae	1	1	-	-	2
Olethreutidae	5	8	2	-	14
Pyralidae	15	46	12	9	71
Sphingidae	1	1	-	-	2
Tortricidae	1	1	1	-	2
TOTAL	49	107	23	9	169

TABLE 1 (continued). Analysis of information on the use of introduced parasites and predators of pests for biocontrol purposes as detailed in Clausen (1978).

	Species involved in biocontrol programmes	Total introductions	Introductions in which some control achieved	Introductions in which full economic control achieved	Biocontrol index
COLEOPTERA					
Bruchidae	1	1	1	-	2
Buprestidae	2	7	1	-	9
Carabidae	40	63	1	-	103
Cerambycidae	11	14	4	-	26
Chrysomelidae	10	35	14	5	52
Cicindelidae	4	5	-	-	9
Cleridae	2	3	-	-	5
Coccinellidae	206	476	120	97	802
Curculionidae	11	31	9	1	45
Derodontidae	1	2	2	-	4
Elateridae	6	14	-	-	22
Histeridae	20	76	9	3	101
Hydrophilidae	2	8	-	-	10
Meloidae	2	2	1	-	4
Melyridae	1	1	-	-	2
Nitidulidae	12	15	5	5	32
Rhizophagidae	1	1	-	-	2
Scarabaeidae	24	28	4	-	53
Silphidae	2	2	-	-	4
Staphylinidae	8	15	2	-	24
TOTAL	368	799	173	111	1311
DIPTERA					
Agromyzidae	3	26	5	1	31
Anthomyiidae	1	3	1	-	4
Bombylidae	3	3	-	-	6
Cecidomyiidae	9	21	1	-	30
Chamaemyiidae	5	9	1	1	15
Chironomidae	1	1	-	-	2
Culicidae	5	9	-	-	14
Drosophilidae	1	1	-	-	2
Muscidae	2	2	-	-	4
Phoridae	1	1	-	-	2
Pyrgotidae	3	3	-	-	6
Rhagionidae	1	1	-	-	2
Sarcophagidae	10	11	-	-	21
Syrphidae	4	4	-	-	8
Tachinidae	114	297	30	15	427
Tephritidae	5	11	4	1	16
TOTAL	168	398	42	21	592
HEMIPTERA					
Anthocoridae	10	12	-	-	22
Aphididae	1	1	-	-	2
Coreidae	3	7	2	-	11
Dactylopiidae	8	39	17	12	50
Miridae	3	7	4	4	14
Pentatomidae	2	14	-	-	16
Reduviidae	1	5	-	-	6
Tingidae	1	20	8	3	25
TOTAL	29	105	31	19	146
NEUROPTERA					
Chrysopidae	8	8	1	-	16
Coniopterygidae	4	4	-	-	8
Hemerobiidae	6	7	-	-	13
Ithonidae	1	1	-	-	2
Raphidiidae	1	1	-	-	2
TOTAL	20	21	1	-	41
ODONATA	1	1	-	-	2
ORTHOPTERA					
Mantidae	1	1	-	-	2
THYSANOPTERA					
Phlaeothripidae	4	6	2	1	11
FUNGI	4	4	-	-	8
VIRUSES	1	1	1	1	3
NEMATODES	2	2	-	-	4
ACARI					
Hemisarcoptidae	2	2	1	1	5
Phytoseiidae	12	37	5	4	54
TOTAL	14	39	6	5	60
PISCES	5	73	24	19	98
AMPHIBIA	4	12	3	2	18
REPTILIA	1	1	-	-	2
AVES	3	4	1	1	8
OVERALL TOTAL	1543	3778	681	366	

TABLE 2. Order of importance in terms of numbers of species used in biocontrol programmes

1.	Hymenoptera	869
2.	Hymenoptera (Parasitica)	782
3.	Chalcidoidea	408
4.	Coleoptera	366
5.	Coccinellidae	206
6.	Braconidae	200
7.	Diptera	168
8.	Encyrtidae	139
9.	Icneumonidae	128
10.	Tachinidae	114
11.	Aphelinidae	99
12.	Hymenoptera (Aculeata)	88
13.	Eulophidae	61
14.	Lepidoptera	49
15.	Pteromalidae	46
16.	Carabidae	40
17.	Scoliidae	37
18.	Hemiptera	29
19.	Scarabaeidae	24
20.	Tiphiidae	23

TABLE 3. Order of importance in terms of numbers of introductions

1.	Hymenoptera	2204
2.	Hymenoptera (Parasitica)	2053
3.	Chalcidoidea	1101
4.	Coleoptera	799
5.	Braconidae	545
6.	Coccinellidae	476
7.	Diptera	398
8.	Encyrtidae	341
9.	Aphelinidae	330
10.	Ichneumonidae	316
11.	Tachinidae	292
12	Eulophidae	171
13.	Pteromalidae	153
14.	Hymenoptera (Aculeata)	150
15.	Lepidoptera	107
16.	Hemiptera	105
17.	Histeridae	76
18.	Pisces	73
19.	Scoliidae	66
20.	Pyralidae	46

TABLE 4. Order of importance in terms of "biocontrol index"

1.	Hymenoptera	3447
2.	Hymenoptera (Parasitica)	3052
3.	Chalcidoidea	1657
4.	Coleoptera	1311
5.	Coccinellidae	802
6.	Braconidae	784
7.	Diptera	592
8.	Encyrtidae	519
9.	Aphelinidae	503
10.	Ichneumonidae	465
11.	Tachinidae	427
12.	Hymenoptera (Aculeata)	246
13.	Eulophidae	244
14.	Pteromalidae	211
15.	Lepidoptera	169
16.	Hemiptera	146
17.	Scoliidae	107
18.	Carabidae	103
19.	Histeridae	101
20	Pisces	98

TABLE 5. Order of importance in terms of success rate

1.	Pisces	29%
2.	Aphelinidae	22%
	Coccinellidae	22%
4.	Pyralidae	21%
	Hemiptera	21%
6.	Coleoptera	16%
7.	Chalcidoidea	13%
8.	Encyrtidae	12%
	Lepidoptera	12%
10.	Hymenoptera (Parasitica)	11%
11.	Hymenoptera	9%
12.	Pteromalidae	8%
13.	Tachinidae	7%
	Eulophidae	7%
	Diptera	7%
	Braconidae	7%
17.	Ichneumonidae	6%
	Hymenoptera (Aculeata)	6%
	Histeridae	6%
20.	Tiphiidae	4%
	Scarabaeidae	4%
22.	Scoliidae	3%
23.	Carabidae	0.4%

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[Dr. V. A. Trjaptzin writes that this is a study of encyrtids that occur in the "very hot conditions of mid asiatic deserts of Kara-Kum and Kyzyl-Kum." This region has a "very interesting and specific flora and fauna." The work first presents a numbered checklist of all genera and species treated. Next comes an introduction to literature and morphology followed by a parasite-host list (p.47-53). Pages 64-102 present a two-part key to males and females of 111 genera of Encyrtidae and this is followed by keys to all species of the region covered (p. 104-190). A detailed discussion of each of 314 species is then given and after this comes a reference list, a generic index, and a host-parasite list.]

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ETCETERA

HELP: John Werren sends the following request for information on living chalcidoid cultures: "We are attempting to compile a list of chalcid species which are maintained in culture by CHALCID FORUM readers. This way individuals can provide cultures and information to other workers in the area. If you maintain chalcids in culture and are willing to provide them to others could you send the name and family of the chalcidoid species and the name and family of the host species to:"

Dr. John Werren
Department of Entomology
University of Maryland
College Park, MD 20742 (USA)

FILM: G. Michaloud has sent us the following information on a film that may be of interest to many of our readers.

Figuiers Tropicaux et Pollinisateurs
Relations Symbiotigues

Direction Scientifique: G. Michaloud (Ecotrop et ERA 489 CNRS)
Assistante Scientifique: Sylvie Michaloud (Ecotrop et ERA 489 CNRS)
Scripte: Rosanna Arcangeli
Images-Son-Montage-Realisation: Alain Devez (SFRS-Ecotrop/CNRS)
Reseignements techniques: 16mm, Couleur, son optique, 25 minutes (1982) versions Francaise et Anglaise.
Résumé du film: Le complexe et la partcularité des relations entre Ficus monoiques et leurs pollinisateurs sont analysés selon différents points de vue: Ecologie - comportment - morpholgie - évolution.

This film on the pollination ecology of monoecious figs can be obtained on loan in English by request to the cultural Department of the French Embassy. A copy of the request should be sent for information to the

producers at S.F.R.S. at the address below.

Service du Film de Recherche Scientifique
Cinematheque Scientifique, Medicale et Technique
du Ministere des Relations Exterieures
96, Bd Raspail - 75272 Paris Cedex 06

SPECIMEN EXCHANGES:

From Ljubodrag Mihajlovic (Belgrade, Yugoslavia): I have recently reared a large series of Bruchophagus sophorae Crosby & Crosby (Chalcidoidea, Eurytomidae) from seed of Sophora japonica in Serbia (Yugoslavia). If anybody requires the above samples for his collection, I would gladly send them, especially in exchange for other species of seed insects (Megastigmus, Eurytoma, Bruchophagus, etc.)."

From Les Ehler (Davis, California): "I have extra specimens of Coccobius varicornis, Ablerus clisiocampae, Coccophagoides fuscipennis, and Encarsia aurantii. Anyone wishing to add these to their aphelinid holdings should contact me."

FORMATION OF BIOLOGICAL CONTROL SERVICE: A new company called BIOLOGICAL CONTROL INTERNATIONAL, INC. has been formed by two members of the CHALCID FORUM community. Dr. Paul DeBach and Mike Rose have combined forces (with Everett Dietrick, Rincon-Vitova Insectaries, Inc.) to provide a service "Specializing in applied classical biological control of insect pests by discovery, importation and colonization of new natural enemies." The above "have over 75 years of combined experience in research and development of applied biological control." Services to clients include: consultation and feasibility estimates, project planning, project development and supervision, foreign exploration, importation, culture and establishment of natural enemies, insectary and greenhouse design and operation, mass production of beneficial insects, training of local personnel, and evaluation of results. Any one or any combination of these services may be required, on site, depending upon the nature of the project involved. For further information contact Biological Control International, Inc. P.O. Box 1569, College Station, Texas 77841.

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INTERNATIONAL COMPETITION: We received the notice reproduced below and pass it along for your information. Perhaps one of our numerous colleagues will be amongst the next set of winners.

FILIPPO SILVESTRI FOUNDATION

ANNOUNCEMENT OF COMPETITION

On the initiative of the Institute of Agricultural Entomology, Faculty of Agriculture, University of Naples, Portici, the Filippo Silvestri Foundation was established. Its property is constituted through a public subscription and remains opened to further contributions.

To honour the memory of Filippo Silvestri the main purpose of the Foundation is that of promoting studies in the field of agricultural entomology, with special consideration for those on biological control against insect pests.

On the occasion of the 30th anniversary of Prof. Silvestri's death, and subsequently every three years, the Foundation announces a competition for three prizes to scientific work or set of works concerning agricultural entomology, with particular consideration for papers on biological control, published from July 1st, 1983 to June 30th, 1985.

The papers will be evaluated by an international commission of experts.

The winners will be awarded

1) a first prize (1,000,000 lt. Lire, a gold medal and a diploma of merit);

2) a second prize (a gold medal and a diploma of merit);

3) a third prize (a diploma of merit).

Applications should be addressed to the «Presidenza della Fondazione Filippo Silvestri presso l'Istituto di Entomologia Agraria, via Università, 100 - 80055 PORTICI (Na)» from July 1st to December 31st 1985.

Each application must include 6 copies of the paper or set of papers to be considered for the competition.

The ceremony for the awarding of prizes will take place on June 1st, 1986 at the Faculty of Agriculture (public hall), Portici.