

CURCULIO

An International Newsletter for Curculionoidea Research

Volume 46

March 2003

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Featured Researcher

Hiraku Yoshitake

Entomological Laboratory
Kyushu University, Japan



(Hiraku Yoshitake on the campus of KU, photo by N. Nakahara)

Academic Background

Bachelor of Agriculture, Tokyo University of Agriculture,
Japan: 'Compound eye ultrastructures in eight curculionid
weevils (Coleoptera)' - 1996 to 2000

Master of Agriculture, Kyushu University, Japan:
'Systematics of the genus *Orobitis* Germar (Coleoptera:
Curculionidae: Orobitidinae)' - 2000 to 2002

Doctor of Philosophy in Agriculture, Kyushu University,
Japan - 2002 to present

Research Fellow, Japanese Society for the Promotion
of Science - 2002 to present

Research Interests

Taxonomic, faunistic, and biological studies of the East Pale-
arctic and Oriental Ceutorhynchinae; molecular and morpho-
logical phylogeny of the subfamily, in relation to the host plants;
reconstruction of the higher classification system of the sub-
family.

I am a second-year Ph.D. student in the Entomological Labo-
ratory, Faculty of Agriculture, Kyushu University (ELKU), and
studying the subfamily Ceutorhynchinae (Curculionidae). I
appreciate the opportunity to introduce myself to the reader-
ship of Curculio.

When I was a child in school, I was attracted to large and
beautiful beetles, such as carabids and lucanids. Later my inter-
ests shifted to weevils - due to their species richness and mor-

phological diversity. When I entered the Tokyo University of
Agriculture in 1996, I decided without any hesitation to study
weevils for the rest of my life. I have studied the compound eye
structure of curculionids for my Bachelor's degree, under the
supervision of Professor Nobuo Gokan. Aside from this, I con-
tinued to collect and identify a variety of Japanese weevils,
since I had a sincere desire to study the taxonomy of weevils.

In 1998, I met for the first time Dr. Hiroaki Kojima, who then
was a postdoctoral research fellow at ELKU. Since that time, I
visited ELKU three times under his supervision, to examine
weevil specimens kept in ELKU during my undergraduate stu-
dent days. I was fascinated by the vast collection of East Asian

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CURCULIO - An International Newsletter for Curculionoidea Research (founded in 1975) - is published each year in March and September, and can be downloaded in Adobe PDF format at www.coleopsoc.org/nwsltrrs.shtml
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Editorial Comments

Welcome to the first CURCULIO volume of 2003 - we hope you find it interesting and fun to read. Very special thanks to everyone who contributed to its varied content, from updates of e-mail addresses to multi-page reports on research activities. Our Newsletter can legitimately claim to reflect information about Curculionidea researchers at an international level. All efforts should be directed at continuing and expanding on this aspect. Therefore, if you happen to read the present volume and are typically on the 'receiving end' of the information flow through CURCULIO, please take the time to consider what *you* could possibly prepare for any future volumes. You could even save yourself from the stress of meeting deadlines for submission, and begin writing tonight. Efficient yet stress-reduced science - something to ponder for most of us...

Two technical notes. First, you will probably notice that your contributions have been edited, considerably at times, before making into the present volume. Some of you have asked for

such corrections in style, while others might be taken by surprise. In case you have more serious objections, please feel free to write those up in an e-mail and send them off. CURCULIO is edited and circulated through the internet which facilitates corrections of editorial errors without many difficulties. We will simply post an updated version. Second, you might have noticed that the format for the Recent Publications section follows - more or less - that of the *Coleopterists Bulletin*. Since we do not have critical limitations in space, it is possible to list the *complete names* of the Journals in which the articles have been published. This is desirable for both the authors and the readers. Imagine that your previous education has left you with an incomplete command of, say, the German language, yet you are asked to locate an article in *Z. zool. Syst. Evol.-forsch.* Granted, www.google.com can work wonders, but it is just as helpful to have '*Zeitschrift für zoologische Systematik und Evolutionsforschung*' specified in the reference. You do not have to be able to pronounce this perfectly.

NMF

Hiraku Yoshitake (continued)

weevils in ELKU, and decided to enter the graduate school of Kyushu University.

Dr. Katsura Morimoto, although already retired from ELKU, kindly advised me to revise Japanese Ceutorhynchinae for my Ph.D. thesis. Dr. Kojima also suggested pursuing this project. I accepted their encouraging recommendation, in spite of the fact that I had originally planned to study some entimine genera.

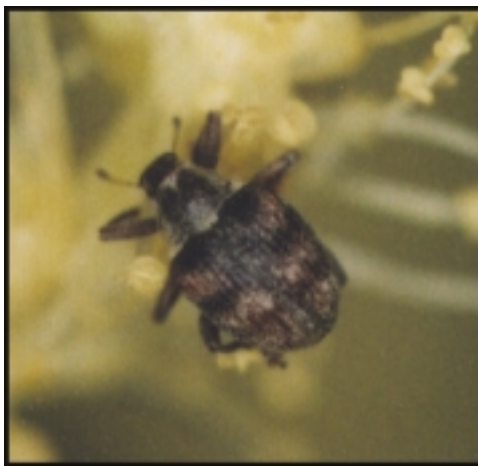
Presently, there are no comprehensive studies of Japanese and Oriental Ceutorhynchinae. Numerous species are still left undescribed, and some of them cannot be identified and/or assigned to taxonomic positions within the current classification system. Naturally, ecological information is rather limited as well. For a start, I compiled a provisional checklist of the Japanese Ceutorhynchinae, including undescribed and unrecorded species, in order to circumscribe the ceutorhynchine fauna of Japan.

At the worldwide level, Ceutorhynchinae consist of at least 1,300 species, classified into 136 genera and 9 tribes. Out of these, 72 genera and 8 tribes are known to occur in the East Palearctic and Oriental regions. I am interested in expanding my focus on the Palearctic and Oriental species, since the Japanese fauna presents a mixture of Palearctic and Oriental elements.

Ceutorhynchine weevils occur in a wide variety of habitats, including semi-aquatic and aquatic ones. Typically, they feed

on woody, herbaceous, and even submerged plants. The majority of species are monophagous or oligophagous, and the larvae develop in specific organs of the host plants. According to our current knowledge of the group, each genus (or subgenus) tends to utilize particular plant taxa as hosts. Therefore, I consider Ceutorhynchinae to represent an adequate taxon for studying the evolution of host utilization patterns, although the phylogeny of the subfamily has not yet been studied.

I have begun to investigate the molecular phylogeny of Ceutorhynchinae, analyzing sequences of the 16s rRNA gene for 65 species, representing 25 genera and 7 tribes. Meanwhile, I continue to collect additional material, in an attempt to analyze other DNA regions for better resolution of the intergeneric and intertribal relationships within the subfamily. Furthermore, I intend to reconstruct ceutorhynchine relationships based on morphological characters, to assess the congruence with the molecular phylogeny. In light of the results, I wish to contribute to the establishment of an appropriate higher classification system for the Ceutorhynchinae of the world.



Coeliodes amamianus on *Castanopsis cuspidata* flower,
photo by H. Yoshitake

Revision of *Orobitis*

For my master's degree, I revised the genus *Orobitis* Germar, which had been considered previously as a taxon within Ceutorhynchinae. I wanted to know whether or not Orobitidinae are closely related to Ceutorhynchinae. The contents of the revi-

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Hiraku Yoshitake (continued)



Homorosoma asperum on *Persicaria thunbergii* leaf,
photo by H. Yoshitake

sion are as follows: definition of *Orobitis*, including larval morphology, taxonomy of six species (with three new species from East Asia), cladistic analysis, and biology. More studies are necessary to analyze the distinct larval structures in comparison to those of other weevil taxa.

Ceutorhynchinae of Japan

Currently, the Ceutorhynchinae of Japan consist of 65 species, classified into 26 genera and 7 tribes. My Ph.D. thesis includes studies on the morphology, taxonomy, phylogeny, biology, and geographical distribution of the group. At least 30 species and 4 genera will be added to the Japanese fauna, whereas several taxa will be declared as new synonymies. I plan to visit several European institutions in order to examine type specimens for the completion of my thesis project.

Publications

- Yoshitake, H. 1999a. A new *Coeliodes* (Coleoptera, Curculionidae, Ceutorhynchinae) from the Ryukyu Islands, Southwest Japan. *Elytra* 27: 87-94.
- Yoshitake, H. 1999b. Additional records of *Coeliodes galloisi* (Coleoptera, Curculionidae, Ceutorhynchinae) from Japan. *Elytra* 27: 95-96.
- Yoshitake, H. 1999c. Additional records of *Coeliodes zinovjevi* (Coleoptera, Curculionidae, Ceutorhynchinae) from Japan. *Elytra* 27: 165-166.
- Yoshitake, H. 2000a. Additional records of *Coeliodes amamiensis* Yoshitake (Coleoptera, Curculionidae, Ceutorhynchinae). *Elytra* 28: 43-44.
- Yoshitake, H. 2000b. A biological note on *Coeliodes galloisi* (Coleoptera, Curculionidae, Ceutorhynchinae). *Elytra* 28: 191-

192.

- Yoshitake, H. 2000c. *Coeliodes gokani*, a new species of the Ceutorhynchinae (Coleoptera, Curculionidae) from Taiwan. *Elytra* 28: 211-216.
- Yoshitake, H. 2000d. Discovery of *Mecysmoderes nigrinus* (Coleoptera, Curculionidae, Ceutorhynchinae) from Japan. *Elytra* 28: 453-454.
- Yoshitake, H. 2001. Supplement to the description of *Mecysmoderes kerzhneri* (Coleoptera, Curculionidae, Ceutorhynchinae) with additional collection records from Japan. *Japanese Journal of Systematic Entomology* 7: 321-325.
- Yoshitake, H., S. Kamitani, and J.-C. Paik. 2000. Occurrence of *Trichocoeliodes excavatus* (Coleoptera, Curculionidae, Ceutorhynchinae) in South Korea. *Elytra* 28: 455-456.
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- Yoshitake, H., and I. Matoba. 2001a. A biological note on *Trichocoeliodes excavatus* (Coleoptera, Curculionidae, Ceutorhynchinae). *Japanese Journal of Systematic Entomology* 7: 315-316.
- Yoshitake, H., and I. Matoba. 2001b. Rediscovery of *Conocoeliodes setifer* (Coleoptera, Curculionidae, Ceutorhynchinae) from Japan with a note on its adult feeding plant. *Japanese Journal of Systematic Entomology* 7: 317-319.
- Yoshitake, H., and T. Yamauchi. 2002. A new genus of the Oriental tribe Mecysmoderini (Coleoptera: Curculionidae: Ceutorhynchinae), with descriptions of two new species from Indonesia and Malaysia. *Special Bulletin of the Japanese Society of Coleopterology (Tokyo)* 5: 413-423.



Mating pair of a new *Orobitis* species on the fruit of *Viola betonicifolia*, photo by H. Yoshitake

Research Activities and Requests for Specimens

Gabriel Alziar (France: gabriel.alziar@ville-nice.fr). Studying the curculionid fauna of the Island Cyprus, and **would therefore like to receive (as a loan) 2-3 specimens of *Sitophilus sculpturatus* Gyllenhal, 1838, and of *Curculio propinquus* (Desbr.)** - males and females, for a few weeks.

Patrice Bouchard (Canada: bouchardpb@agr.gc.ca). Is the new systematic entomologist at Agriculture and Agri-Food Canada, Ottawa. Has been employed as the new weevil taxonomist, and will be taking over Donald Bright's duties upon his retirement. Future research will be devoted to the systematics, evolution, and biogeography of weevils, with special interest in taxa of importance to Canadian agriculture and biodiversity.

Robert Hamilton (USA: rhamilt@orion.it.luc.edu). Currently working on several taxonomic papers on attelabid and rhynchitid weevils: eugnamptine weevils of the La Selva Biological Station, Costa Rica; eusceline weevils of the West Indies; attelabine weevils in the *Omolabus/Xestolabus* group; and the taxonomic position of *Archolabus* within the Curculionidae (with Charles O'Brien). **More *Euscelus* material from the West Indies would be welcome. Major groups of curculionoids from Mexico and Costa Rica are available in RWHC for loan to qualified researchers.**

Muhammad Haseeb (USA: muhammad.haseeb@famu.edu). Working under the supervision of Charles O'Brien at the Center for Biological Control, Florida A&M University, including surveys and collections of different weevil species in Florida, Alabama, Mississippi, and Louisiana. Focusing on select groups of aquatic and terrestrial weevil species. Interested in biological control of weeds using weevils as control agents, as well as biological control of weevil pest species. Collaborating with Charles O'Brien on a revision of the 'rice water weevil' genus *Lissorhoptrus* in North America, north of Mexico. Preparing a poster and circular on *Myllocerus undecimpustulatus* Faust, a relatively recently discovered pest weevil from the Indian Subcontinent. Responsible for the computer development of two expert-information systems: (1) introduced weevil biological control agents of aquatic and terrestrial weeds in the US and Canada, and (2) weevils of agricultural importance in the West Indies. Our laboratory now is equipped with a Synchroscopy/Auto-Montage system, upgraded to produce sharp three-dimensional images for systematic studies. Has completed the required training to produce high quality weevil images, facilitating the easy use of publications (electronic or printed) in the future. The equipment will be used heavily by the many members of the Center and colleagues in the College.

Bjarte Jordal (United Kingdom: b.jordal@uea.ac.uk). Broadly interested in morphological and molecular systematics of the woodboring subfamilies Cossoninae, Scolytinae, and Platypodinae, including their relationships to each other and to the remaining Curculionidae. Currently working on the scoly-

tine and cossonine weevil fauna in the Macaronesian island groups, with special emphasis on beetles breeding in *Euphorbia* shrubs, including the cossonine genera *Rhopalomesites* and *Mesites*, and the scolytine genera *Liparthrum*, *Coleobothrus*, and *Aphanarthrum*. **Interested in obtaining euphorb-feeding cossonine and scolytine weevils from Africa and India.**

Andrei Legalov (Russia: legalov@ngs.ru). Continues to study the leaf-rolling weevils (Attelabidae, Rhynchitidae) of the world fauna. Developing a new classification for these groups. Conducting revisions of the genera *Byctiscus* and *Rhynchites*. **Interested in studying material of the leaf-rolling weevils, and offering help with the determination of these weevils. Interested in exchanging Attelabidae and Rhynchitidae.** Has a website at http://www.bionet.nsc.ru/szmn/personal/legal_e.htm with information (species lists) of various taxa of Curculionoidea in Russia.

Christopher Lyal (United Kingdom: chcl@nhm.ac.uk). Taking a few weeks collecting time in Thailand, rearing weevils from the seeds of Dipterocarpaceae. Published a first paper on the Nanophyinae from dipterocarps, and a further 17 undescribed species, mostly from Thailand, have arrived on his desk. Trying to acquire more material before writing them up. The project is set to continue with more extensive field work, with quantifiable samples, over the next few years. Also, near to completing his morphological study of sclerolepidia. Working with a team in the Smithsonian Institution to digitize the *Biologia Centrali-Americana*, the 'bible' of Mesoamerican taxonomic studies, as part of the process of making taxonomic information available over the internet. The final version will be fully available in both PDF- and XML-versions, the latter with the possibility to link to other websites, including databases, directly from the text, or through intermediate pages. The further development of the project will involve a 'modern update' of the *BCA* to which all taxonomists interested in the region will be invited to contribute. The project website is <http://www.sil.si.edu/BCAProject/>. Other activities include working with students on the phylogeny of the Oxycorynidae, the taxonomy of the mango weevil, *Sternochetus*, and a morphological study of weevil thoracic horns. **Would be very grateful for the loan of specimens of *Sternochetus* from all parts of the world, and of Oxycorynidae.**

Magnus Lundmark (Sweden: magnus.lundmark@molbiol.umu.se). Mainly working on the evolution of clonality and polyploidy in the *Otiorhynchus scaber* complex, using both

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Research Activities (continued)

molecular methods and morphometry. Also studying the effects of polyploidization unrelated to clonality, using a few other weevil species that have geographical parthenogenesis.

Antoine Mantilleri (France: amantill@mnhn.fr). Now a Ph.D. student and working on the Brentidae, especially on the tribe Stereodermini. **Requesting specimens of this group for study.**

José Ricardo Mermudes (Brazil: jrmermudes@uol.com.br). Recently finished his Ph.D. thesis, a revision and cladistic analysis of *Ptychoderes* (Anthribidae). Planning to complete a post-doctoral research project (pending sources of funding) at the Museu de Zoologia in São Paulo or at the Museu Nacional in Rio de Janeiro, expanding the previous studies to include the entire tribe Ptychoderini.

Giuseppe Osella (Italy: osella@univaq.it). Has recently presented, in collaboration with Carla Di Marco (Italy: carla.dimarco@tin.it) and Anna Maria Zuppa (Italy: annazuppa@interfree.it), the results of 15 years of research (1987-2002) on the weevil fauna (Urodontidae, Anthribidae, Nemonychidae, Rhynchitidae, Attelebidae, Nanophyidae, Apionidae, Brachyceridae, Raymondionymidae, Curculionidae, Dryophthoridae, Scolytidae, Platypodidae) of the Gran Sasso Massif and neighbouring territories (Abruzzo, Central Apennines). On the whole, 527 species have been identified. This area constitutes a great part of the Gran Sasso and Laga Mountains National Park. A total of 367 species are listed for the first time for the Gran Sasso Massif, 40 species are new for the Abruzzo, and 14 are new for the Apennines. Six species are probably new to the science: *Otiorhynchus* (*Lixorrhynchus*) sp., *Meira* n. sp. pr. *straneoi*, *Omius* (*Mylacus*) n. sp., *Polydrusus* (*Chaerodryus*) sp., *Mesagroicus* n. sp. cf. *stierlini*, and *Sibinia* n. sp. pr. *sicana* (Ragusa, 1908). These species, added to endemic, rare and relict taxa, represent the most important component of the Gran Sasso Massif. On the basis of meaningful distributional features of the significant species, the most important habitats (xeric, humid, forest, and relict) have been characterized as well.

In Quito (Equador), research has been initiated on the blind soil weevils of the Otonga cloudy forests.

The genus *Acallorneuma* Mainardi, 1906 (Cryptorhynchinae) has been revised, in collaboration with Anna Maria Zuppa. Four species were previously known: *Acallorneuma reitteri* Mainardi, 1906 (Central Italy, Arpino), *A. doderoi* A. & F. Solari, 1908 (Sicily, Ficuzza), *A. mainardii* A. & F. Solari (Sardinia, Seui), and *A. peyerimhoffi* F. Solari, 1938 (Algeria, Guerrouch). Six species new to science are: *A. ingoi* (Central Italy, San Donato Val Comino), *A. sabellai* (Sicily, Erice), *A. montisalbi* (Sardinia, Monte Albo), *A. poggii* (Sardinia, Dorgali), *A. sardiniensis* (Sardinia, Lula), and *A. gasparoi* (Sardinia, Dorgali). With Roman Borovec and Anna Maria Zuppa, a new genus, *Pseudoparopion*, is described from the southern Caspian region. It includes two species: *P. aequale* (Reitter, 1883) from Lenkoran (Azerbaijan), and *P. kadleci* sp. n. from Mazandaran (Iran). The

former species was originally described by Reitter (1883) as *Aparopion aequale*, but clearly does not belong in that genus on the basis of intervals not raised, and the structure of VIII sternite of the female. A lectotype and paralectotype are designated for *P. aequale*. This species is transferred from genus *Aparopion* as *Aparopion aequale*. Results have been presented recently, in collaboration with Carla Di Marco, on taxonomic, faunistic, and ecological studies of *Otiorhynchus* Germar, 1824, and the closely related genera, *Dodecastichus* Stierlin, *Limatogaster* Apfelbeck, and *Cirrorhynchus* Apfelbeck from the Apennines of the Italian regions Abruzzes and Molise. On the whole 63 species were identified. The new taxon *Dodecastichus consentaneus penricus* n. ssp. from the Matese Massif is described. *Dodecastichus ovoideus* (Reitter, 1913), and *Otiorhynchus calvus* Fiori, 1899, are promoted to species from subspecies of *Dodecastichus heydeni* (Stierlin, 1861), and of *Otiorhynchus strigirostris* Boheman, 1843, respectively. *Otiorhynchus aterrimus* Boheman, 1843, is newly recorded from Italy. *Otiorhynchus alpicola* Boheman, 1843, is a new record for the Apennines, and *Otiorhynchus salicicola* Heyden, 1908, is recorded for the first time from the central Apennines. Male and/or female genitalia of 53 taxa (about 50% of the *Otiorhynchus* species from the Apennines) are illustrated for the first time. The greatest number of species (30 species) have been found around 1400 m above sea level, whereas 19 species can live at altitudes up to 2100 m above sea level, some even at higher elevations. Southern European forms (45 species) predominate, constituting about 72% of the whole. Endemics of the Central Apennines are 24 species (39% of all the species found). Analyses of the ecology of the studied weevils have shown that primary grasslands of the Alpine belt host the most zoogeographically significant species of the investigated group of genera.

Also in collaboration with Carla Di Marco, *Otiorhynchus* (*Baldorhynchus* subgen. nov.) *radjai* sp. nov. has been described from Vis Island (Dalmatia, Croatia). This new blind species, collected in a cave, is very closely related to some eyeless, hypogeous and/or cave-dwelling *Otiorhynchus* from the Pre-Alps of Lombardy and western Veneto (northern Italy) - thus far included in the subgenus *Troglorhynchus* Schmidt, 1854. These species, however, share with the new taxon the untoothed femora, the united arms of female sternum VIII, the spermatheca with nodus lengthened and body apex short, the ovopositor coxites with lengthened styli, being clearly separated at the subgeneric level from the *O. (Troglorhynchus)* species living in the eastern Alps and Istria. The new subgenus *Baldorhynchus* (type species: *Troglorhynchus baldensis* Czwilina, 1875) is accordingly described.

Eivind Palm (Denmark: eipa@km.dk). Amateur collector who also writes books on Curculionidae of northern Europe. Has published volume 1, and is working (rather slowly) on volume 2. Interested in species from North and Central Europe.

Frank Pelsue (USA: eucyllus@msn.com). Continuing to work

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Research Activities (end)

on the Curculionini of the World. **Would like to borrow, exchange, or purchase Curculionini from Asia, the Western Pacific region, Madagascar, etc.**

Hélène Perrin (France: hperrin@mnhn.fr). Continuing to study Curculionini of the Afrotropical region.

Helio Pierotti (Italy: hpierotti@notariato.it). Continuing to study Peritelini. **Interested in determining and exchanging Palearctic Peritelini, requesting (if necessary through purchase) Peritelini of the World.**

Jens Prena (Germany: jens.prena@gmx.de). Working on Baridinae, currently with emphasis on the Neotropical fauna associated with primitive dicotyledonous plants. **Would be interested in reasonably well established data on host plant associations and in specimens worldwide.** Does anybody know of Oriental or Australian baridines breeding in the seeds of Annonaceae - apart from *Dinobaris*?

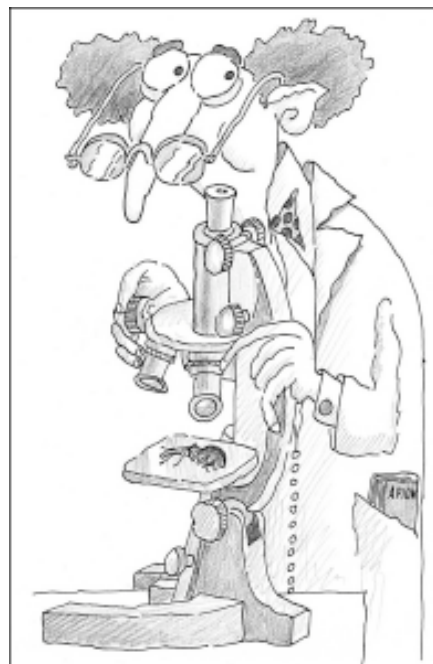
Andrea Sequeira (USA: asequeira@oeb.harvard.edu). Renewed interest in the island endemics of the genus *Galapaganus*, starting a comparative phylogeography and population structure project of these weevils in the younger Galápagos islands, in collaboration with Analia Lanteri. Currently in the final stages of a project on the evolution of host associations and biogeographical patterns of Cossoninae, using molecular characters for estimating their phylogeny. Continuing interest in other *Araucaria*-feeding weevils, and advancing at a slow pace looking at host associations in Nemonychidae, using a combined morphological and molecular approach, in collaboration with Adriana Marvaldi and Brian Farrell. **Interested in obtaining Nemonychidae specimens in ethanol (95-97%) for DNA studies.**

Peter Stüben (Germany: p.stueben@t-online.de). Working on the analytical catalogue of westpaleartic Cryptorhynchinae, part 2: *Acalles*, *Acallobrates* (November 2003, Snudebiller 4); the phylogeny, systematics and taxonomy of *Kykliacalles*, with a new subgenus *Paleoacalles* (November 2003, Snudebiller 4); and the description of some new species from Morocco and Spain (November 2003, Snudebiller 4). The other biogeographical focus is Macaronesia, especially - besides the Canary Islands and Madeira - the Cryptorhynchinae of the Azores (November 2004, Snudebiller 5). Planning to conduct more intensively DNA sequencing, population genetics, and phylogeography of Cryptorhynchinae. Editor of *Snudebiller*: studies on taxonomy, biology and ecology of Curculionoidea.

Richard Thompson (United Kingdom: richt2@nhm.ac.uk). Revising the Holarctic genus *Procas*, and **wishes to see all available material, but especially any from Spain, Sicily, Poland, the Balkans, Greece, Turkey, the Middle East, China, and Korea.**

Roberta Valente (Brazil: roberta@museu-goeldi.br). Investigating the phylogenetic systematics, diversity, and evolution of Curculionidae, including host plant interactions, especially for weevils associated with palms. Conducting - as part of her Ph.D. thesis - an analysis of the phylogeny, revision, and study of the evolution of associations with palms for the species of *Celetes* Schoenherr, 1836 (Erihiniinae: Derelomini). This is an important genus because of its palm-pollinating species, and necessitates systematic study. Already, 41 species of *Celetes* (including 13 new species) have been studied, with 8 species as outgroups. A preliminary matrix with 47 morphological characters yields six equally parsimonious cladograms, where *Celetes* is nonmophyletic. Starting to study the mouthparts and male genitalia which provide new characters. Still in need of examining some types. **Requesting to loan specimens of *Celetes*, and willing to exchange weevils for identification.** A website <http://www.museu-goeldi.br/biodiversidade/index.asp>. ('grupos do mês' - 'gorgulhos') contains general information and photos on weevils, particularly Amazonian species. The website provides weevil information for the general population.

Marek Wanat (Poland: wanatm@biol.uni.wroc.pl). Currently working on the species revision of Eastern Melanesian Apionidae (New Caledonia, Loyalties, Fiji, Vanuatu). Continuing interest in primitive apionid genera of the Southern Hemisphere. Also continuing general studies on weevil male genital segments. Requesting material of Apionidae from New Caledonia & vicinity.



drawing by Carlo Giusto
(Italy: giustocar@popmail.iol.it)

Diversity of weevils associated with palms in the National Forest of Caxiuanã, Pará State, Brazil

By **Roberta Valente** (Brazil: roberta@museu-goeldi.br)

From 1998 to 2000, I developed a project on the diversity of weevils associated with palms in the National Forest of Caxiuanã, State of Pará, Brazil. In 2000, I published a book - under the title 'Os insetos e os gorgulhos das palmeiras de Caxiuanã' - with the principal results of the project. With respect to the palms, 11 species were recorded as new for the area, for a total of 28 species. This diversity is considerable, because approximately 40 species have been recorded for the eastern Amazonian region. As a consequence of differences in phenology, observations of weevils were made on the inflorescences of only 16 species of palms. However, this yielded collections of 112 species of weevils! This species diversity is higher than that of any other group of animals studied in the area. However, the identification has proven difficult: no more than 14% of the species have been identified. Among the remaining weevil species, 30% are new to science, 8% pertain to previously undescribed genera, and 48% were identified to genus or tribe.

The genus *Celetes* Schoenherr, 1836, was most frequently represented in diversity on the inflorescences of palms, with 25 species in the collections, all probably new to science. *Celetes cariniceps* was identified as a first record for Brazil.

In addition to their remarkable diversity, all weevil species collected on

Parisoschoenus ovatus Casey, 1922, and *Pycnotheantis exarata* Casey, 1922, all on *Attalea maripa* (Aubl.) Mart.; (2) *Anchylorhynchus gottsbergerorum* Vanin, 1995, *Microforandia uniformis* Casey, 1922, and *Zyzyva ochreotecta* Casey, 1922, on *Oenocarpus distichus* Mart.; (3) *Metamasius hemipterus* (Linnaeus), 1758, on (A) *Oenocarpus distichus* Mart., (B) *Astrocaryum murumuru* Mart., and (C) *Astrocaryum vulgare* Mart.; (4) *Tonesia glabra* Casey, 1922, on *Euterpe oleraceae* Mart.; (5) *Crassiopus semicastaneus* Hustache, 1951, on *Astrocaryum vulgare* Mart.; (6) *Microstrates almiri* Valente, 1999, on *Syagrus inajai* (Spruce) Becc.; and (7) *Odontoderes morbillosus* (Drury), 1782, on (A) *Astrocaryum gynacanthum* Mart, and (B) *Bactris acanthocarpa* Mart. (Figures 1 & 2).

All host plant records are original, with the exception of *Belopoeus carmelita*, *Anchylorhynchus gottsbergerorum*, *Homalinotus depressus*, and *Metamasius hemipterus*. First records were confirmed for the following genera: *Anthenius* Casey, 1922; *Astethobaroides* Hustache, 1950; *Barymerus* Lacordaire, 1866; *Crassiopus* Hustache, 1951; *Hasidus* Casey, 1922; *Microforandia* Casey, 1922; *Notesia* Casey, 1922; *Pycnotheantis* Casey, 1922; and *Zyzyva* Casey, 1922. Host records had been established for the remaining genera, though never in association with *A. maripa*.

Figure 1. Species of Curculionidae, collected on the inflorescences of *A. maripa* (ECFPn).

- (A) *Astethobaroides puncticollis* (2,7 mm);
- (B) *Belopoeus carmelita* (7.0 mm);
- (C) *Belopoeus caudatus* (9.0 mm);
- (D) *Foveolus anomalus* (15.0 mm);
- (E) *Homalinotus depressus* (25.0 mm);
- (F) *Hasidus obliquatus* (3.6 mm);
- (G) *Parisoschoenus ovatus* (3.6 mm);
- (H) *Pycnotheantis exarata* (5.8 mm).

Measurements in parentheses are the lengths of prothorax + elytra. All specimens are males (photos by R. M. Valente), with the exception of (C) (photo by I. S. Gorayeb).



palms in Caxiuanã are considered to be specialists. With the exceptions of *Metamasius hemipterus* and *Odontoderes morbillosus*, they visit only one species of palms. The weevil species identified, with the respective host palm(s), are as follows: (1) *Astethobaroides puncticollis* Hustache, 1950, *Belopoeus carmelita* (Germar), 1824, *Belopoeus caudatus* Vanin, 1995, *Foveolus anomalus* Vaurie, 1968, *Hasidus obliquatus* Casey, 1922, *Homalinotus depressus* (Linnaeus), 1758,

Further work within the project concerns the Curculionidae on the inflorescences of *A. maripa* (Arecaceae), in collaboration with Dr. Sergio Vanin (São Paulo, Brazil). This is a study on the diversity of species of Curculionidae associated with the monoecious (bisexual) and staminate (male) inflorescences

(continued page 8)

Weevils on Palms (end)

of this palm species at the Estação Científica Ferreira Penna (ECFPn), Caxiuana. Collections were conducted during two time periods: (1) 07:30 to 10:30 a.m., and (2) 07:00 to 08:00 p.m.

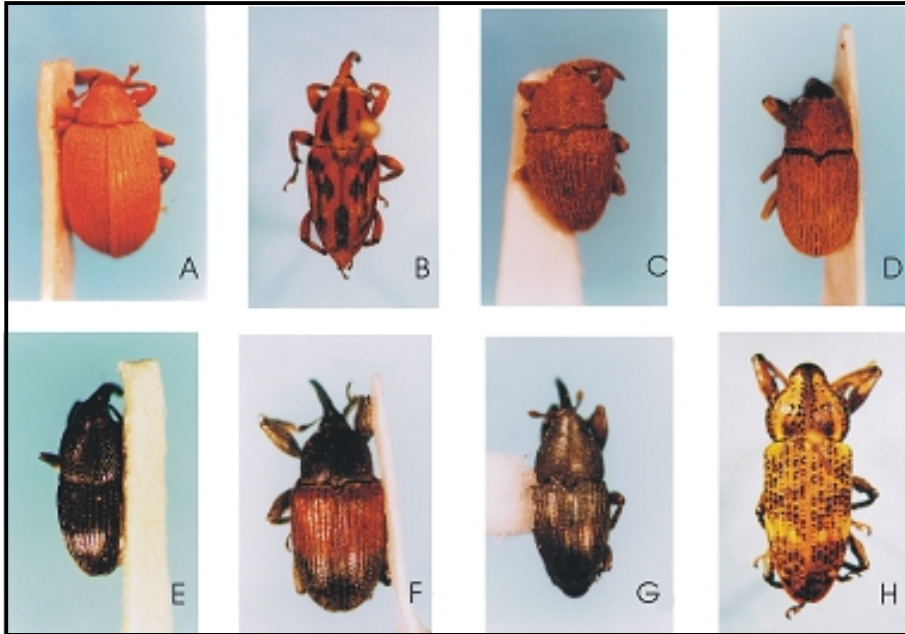


Figure 2. Species of Curculionidae, collected on palms (ECFPn, for details see text).

- (A) *Anchylorhynchus gottsbergerorum*;
- (B) *Metamasius hemipterus*;
- (C) *Microforandia uniformis*;
- (D) *Zyzyga ochreotecta*;
- (E) *Tonesia glabra*;
- (F) *Crassiopus semicastaneus*;
- (G) *Microstrates almiri*;
- (H) *Odontoderes morbillosus*

(photos by R. M. Valente).

(dawn versus dusk) had no significant effect on the number of species collected (Table 1). Thus, the weevils appear to be able to use the inflorescences as substrates whenever they flower.

A total of 5861 specimens of weevils were collected, and identified as 19 species, including *Astethobaroides puncticollis*, *Belopoeus carmelita*, *B. caudatus*, *Foveolus anomalus*, *Hasidus obliquatus*, *Homalinotus depressus*, *Parisoschoenus ovatus*, and *Pycnotheantis exarata* (Figure 1). The remaining species are new to science, and will be described in the future. One *Parisoschoenus* species was identified to genus.

The host records on *A. maripa* are original for all identified genera and species of weevils. Also, *Belopoeus carmelita* has been associated with *Attalea attaleoides* (Barb. Rodr.) Wess., and *Homalinotus depressus* with *Cocos nucifera* L. as well as *Oenocarpus bacaba* Mart. Collections of weevils on 15 additional palm species in the area of the Estação Científica Ferreira Penna have confirmed the exclusiveness of this association with the inflorescences of *A. maripa*. Apparently, there is an interdependence of the weevils and their palm host.

The species accumulation curve indicates that the asymptote has been obtained with 16 samples on the monoecious (bisexual) inflorescences, and with 18 samples on the staminate (male) inflorescences (Figure 3). For the sam-

ples on all inflorescences, 14 samples were sufficient (Figure 3). These species accumulation curves suggest that the sampling was adequate for estimating the richness of species of weevils on the inflorescences of *A. maripa*.

Tests with Morisita's index of similarity and Spearman's rank correlation coefficient indicate that the kind of inflorescence (i.e. bisexual versus male) and the period of collecting

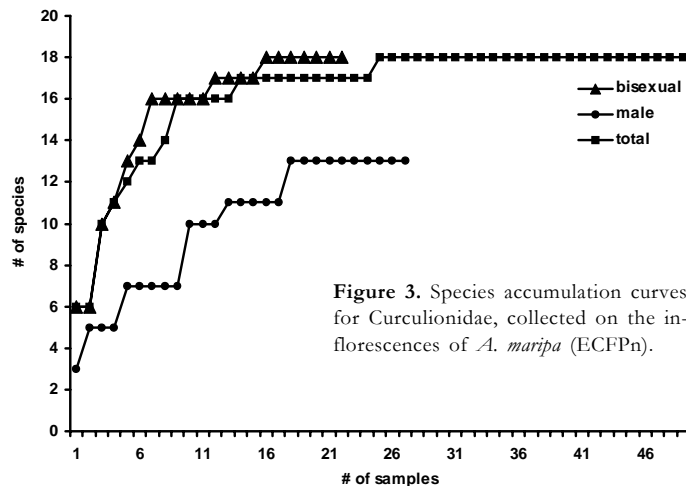


Figure 3. Species accumulation curves for Curculionidae, collected on the inflorescences of *A. maripa* (ECFPn).

Table 1. Morisita's index of similarity (MI) and Spearman's rank correlation coefficient (SR). bi = bisexual; ma = male; am = dawn (07:30 to 10:30 a.m.); pm = dusk (07:00 to 08:00 p.m.).

	bi/am MI	SR	bi/pm MI	SR	ma/am MI	SR	ma/pm MI	SR
bi/am	1.0	1.0	0.69	0.77	0.48	0.54	0.38	0.50
bi/pm	0.69	0.77	1.0	1.0	0.11	0.28	0.10	0.22
ma/pm	0.48	0.55	0.11	0.28	1.0	1.0	0.96	0.84
ma/pm	0.38	0.50	0.10	0.22	0.96	0.84	1.0	1.0

Informal Weevil Meeting - ESA 2002 Ft. Lauderdale

By **Robert Jones** (USA: rjones@sulross.edu)

In the afternoon of November 18 during the 2002 Entomological Society of America Meeting in Ft. Lauderdale, Florida, various participants interested in weevils met to discuss - informally - their research projects. Reports on activities were followed by various general comments.

Robert Anderson (Ottawa, Canada) has many projects going at the Canadian Museum of Nature, and reports that he is still working away at the monumental task of revising the leaf litter inhabiting genus *Theognete* (Lymantini). In relation to this project, he is planning to collaborate with Jorge León Cortéz, and a new graduate student, Jesús Luna Cozar, on the diversity of leaf litter weevils and their distribution in Chiapas. Has just published on the Dryophthoridae of Costa Rica, including a check list, keys, and descriptions of new species. Was the principal author of the chapters on Curculionoidea of the recent volume 2 of *American Beetles*. **Donald Bright** (Ottawa, Canada) continues to work at the Eastern Cereal and Oilseed Research Centre in Ottawa, and has just published the second supplement to the second volume of the Bark Beetle Catalog. The broad-nosed weevils of Canada have been finished. Working on a biodiversity study of bark beetles from Puerto Rico, and planning to have a monograph on the entire West Indies bark beetle fauna, including a data base, in the near future. May (not) retire in the following year. **Elin Claridge** (Berkeley, California) is a graduate student at the University of California at Berkeley, where she is working on the evolutionary biology of *Rhyncogonus* (Entiminae) from the French Polynesian islands (apparently 'horrible' localities for collecting). **Nico Franz** (Ithaca, New York) is in the process of finishing his Ph.D. thesis at Cornell University, functions as keynote speaker at the Annual Meeting of the Coleopterists Society, and as editor of CURCULIO. He invites everyone to participate in updating the directory for the Newsletter, and to submit other relevant information. Has several new publications on weevils associated with the inflorescences of Araceae, Arecaceae, and Cyclanthaceae. **Vasily Grebennikov** (Pretoria, South Africa) is a Postdoctoral Fellow at the University of Pretoria, and mentions the potential for collecting and working in East Africa, especially in Kenya. Has published an excellent web page on the permitting process for collecting in Kenya: <http://www.zin.ru/Animalia/Coleoptera/addpages/grebenn/kenyaper.htm>. Also, this web page has a report on the beetles in the National Museum of Kenya, and wonderful photographs of habitats and vegetation in Kenya. **Henry Hespenehede** (Los Angeles, California) continues his long term support and collaboration with the Arthropods of La Selva project (ALAS), as well as work on various systematic studies of the Conoderinae. Reports that the ALAS project has expanded in scope to include adjacent higher elevation habitats in the Braulio Carrillo National Park. Sampling has resulted in many new and interesting finds which differ from the La Selva

fauna. Finishing a paper on the *Archocopturis regalis* complex, has just published work on *Lechriops*, and is working on the biology and systematics of *Cylindrocopterus*, and a review of *Ptous* from Costa Rica and Panama. **Anne Howden** (Ottawa, Canada) continues with the revision of *Pandeleiteius* from northern South America, and with long-term goals for the same group from other regions (she claims that the group is speciating so fast that she cannot catch up with it!). **Paul Johnson** (Brookings, South Dakota) works on Elateridae at South Dakota State University, but has interesting information from a project on the seed feeders of a number of native legumes in the Northern Plains, some of which are weevils. Studying the parasitoid guild on these beetles. The native parasitoids appear to be displaced by an Eurasian species, introduced for biocontrol of a seed-predating bruchid. **Robert Jones** (Alpine, Texas) has recently moved from Central Mexico to west Texas, where he is at Sul Ross State University. Interested in continuing work on Mexican weevils and boll weevil relatives, and would like now to focus on Chihuahuan desert weevils, especially the Entiminae. Working with Horace Burke on new species of *Narberdia* (Anthonomini) from Mexico, and on faunistic weevil studies with Charles O'Brien. **Charles O'Brien** (Tallahassee, Florida) plans to retire from Florida A&M University by the end of June, 2003, to really get down to working on weevils. Has many ongoing projects, including a long term project on *Rhopalotria*, a revision of *Lissorhoptrus* (to be published soon), and a major revision of the Stenopelmini with Guillermo Wibmer. Has developed (in collaboration with Muhammad Haseeb) an Expert Information System for the identification and biology of aquatic weevils, and a similar system for weevils of economic importance from the West Indies. Furthermore, is working in some capacity on several genera, including *Phyllobius*, *Diaprepes*, *Conotrachelus*, and *Mylloceris*. **Alexander Riedel** (Lincoln, Nebraska) is now mainly surrounded by scarab workers (as reported in Curculio 45) at the University of Nebraska State Museum, where he is the new collection manager. He continues with Old World Tropical groups, and still has over 100 species of *Euops* (Attelabidae) to describe.

Robert Anderson mentions the possibility of submitting a Planetary Biodiversity Grant to the National Science Foundation - for a world-wide project on Curculionoidea. Given the communication network established through CURCULIO, and the recent publication of Alonso-Zarazaga and Lyal's Curculionoidea Catalogue, it appears that a viable proposal could be formulated for submission to tackle the world fauna. Naturally, this would be an extremely collaborative effort (a true mega-project) - to be achieved in parts over a considerable time period. Ideas and comments are necessary and welcomed.

Museum Report - European Type Study Trip

By Charles W. O'Brien and Lois B. O'Brien
(USA: biocontrol@nettally.com)

In July 2002, Lois and I traveled from Tallahassee by plane to Frankfurt, Germany, where we immediately boarded the train to Hamburg, using our *Eurail Flexipass* (good for 10 days first class travel over a two month period). We spent the night in Hamburg, and the following day we took the train to Copenhagen and changed there to the train to Stockholm. In **Stockholm** we took the Metro out to the Museum area, and then walked to the Riksmuseet, where we were met by Bert Viklund who gave us the key to the guesthouse, and who kindly helped us to move our extensive belongings, and we set up for the week. During the week we stayed there, we bought food from a store approximately 1 km away and from a pizza restaurant about 2 km away which we could cook in the shared kitchen. Also, I was able to collect in a forest nearby and around the guest house buildings and collected a fair number of weevils. Bert Viklund was kind enough to loan me his brand-new sifter which he had just received from *Bioquip*. With it I was able to collect some interesting weevils from the litter in the forest. I cooked them out of the litter using a frying pan on the stove, at very low heat. Thomas Pape was extremely cordial and helpful to us during our visit, and Lois received assistance from him and others. We were quite successful in locating the types with which we were particularly concerned. Bert Viklund accompanied us to the Museum cafeteria and we received a reduced rate as visitors to the museum. We had excellent lunches there each day at a very reasonable price.

We also made a special trip to Uppsala by train (round trip ticket \$ 14 US, or *Eurail Flexipass*) in order to see types of Linnaeus, which were housed there at the University. Although the University was closed that week, Bert Viklund made arrangements with one of his former professors, Lars Hedstrom, who met us and opened the Museum so that we could see the types. We made photographs of types using a Nikon digital camera which attaches to most scopes through one ocular when the eyepiece is removed. We returned the same day to Stockholm and continued our research there. Everyone at the Museum was extremely helpful and very interested in seeing more researchers visit the Museum to use their extensive collections.

Our next stop was Paris, and we went there by train taking a couchette (sleeping car) part of the way. We traveled on Saturday and arrived about noon on Sunday in **Paris**. We had reserved rooms there in a hotel near the Jardin des Plants (Botanical Garden), about 5 minutes walk from the Museum. The following day we began work at the Paris Museum. H el ene Perrin was unable to be there that week, so I worked with Ni-

cole Berti (currently the Head of Coleoptera) who was extremely helpful and kind to me during my visit. We used a combination of Spanish, French, and English, and with patience by all, communicated quite well. I worked in her office. There were never fewer than three and often as many as five of us working there. Everybody was extremely accommodating and pleasant under what could have been very difficult circumstances. I was able to locate all of the types that I needed to see, in part because of the assistance by Guy Couturier of ORSTOM, with offices on the floor above the Coleoptera section in the Paris Museum. He made arrangements to let me in early to work in his office until the Coleoptera staff arrived. We were able to stay quite late while staff were working as well, so that we got in a full day from 8:30 a.m. until 7:00 p.m. each day. Lois worked with Thierry Bourgoin on her fulgoroid groups. I had the pleasure of meeting Jean-Fran ois Voisin, and lunched with him, talking about his research on Andean weevils of the tribe Anthonini. He presented me with a number of reprints which I was missing.

We took the Eurostar from Paris to **London**, the fast train that goes via the 'Chunnel,' taking only three hours. It was well worth the price to save so much time. We then went to our rented flat near the Museum where we stayed for the week. Chris Lyal was on holiday that week, but Max Barclay (Curator of Curculionidae) was a perfect host, and helped me to find the groups I needed to study. The Museum was in a state of chaos, as new cabinets were being added that week. The collection was being moved into the new cabinets as they replaced the old. Part of the collection of weevils was under the original system, and part was moved to follow the system in the new Alonso-Zarazaga and Lyal catalogue (1999). This made it difficult to find some things, but in the long run will make everything easy to find. Everyone there went out of their way to accommodate visitors while working long hours to get everything moved in a remarkably short time. Lois and I worked from 9:00 a.m. until 7:00 p.m. daily, and accomplished a lot. Working hours depended upon whether someone is coming in early to let a visitor in, and whether someone is working late so that the visitor is not left working alone on any floor. I believe that 10:00 a.m. until 5:00 p.m. are the usual working hours for visitors without special permission.

We took the Eurostar again, this time to Bruxelles, and then other trains on to Berlin and Potsdam where Lois spent the week attending an Auchenorrhyncha International Conference, chairing one of the sessions. Meanwhile, I went on to **Dresden** to work in the Museum there. Klaus Klass (specialist in Blattodea) was very helpful and generous with this time in assisting me in working with the weevil collection. The Museum is in new quarters away from the Elbe river and the downtown area where it once was. Our workday began at 8:30 a.m., and ended about 14 hours later. It was exhausting but extremely productive. On one afternoon when I was looking really wiped out, Klaus Klass commented that - if the sugges-

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Museums in Europe (end)

tion did not offend me - I might consider taking a nap on the floor in one of the back rooms of the collection. He gave me a thin plastic mattress. I lay down on the concrete floor and was asleep in a matter of seconds for an hour and 20 minutes. After that I was able to work flat out again and accomplished a great deal more. It was the only time I did that, but I was tempted more than once. The collection is extremely well ordered and in excellent condition. But it is large and contains many types of Faust, Kirsch, and Heller, making it necessary to do a fair amount of searching to find the particular types desired, particularly when one is working with a broad spectrum of subfamilies and families of weevils as I do. Once again I was told that the Museum was very interested in having visitors come to work with the collections. They would be most welcome. I certainly found that to be the case for me. While I used my limited German at the train stations and in my pension, I found that most of the curators and technicians were able to speak and understand English very well. The night before departing, I had an extremely pleasant and excellent dinner at Klaus Klass' home, before returning to Potsdam once again.

Thereafter, Lois and I then traveled to **Copenhagen** for one day of work with the types of Fabricius. On the following day, we went by train back to Frankfurt, staying in a hotel near the airport. We flew back to Tallahassee the next day. We were selected for a random search of all our luggage, which was a challenge with all we were carrying for the five-week trip. However, we were bumped up to Business Class for the flight to the US, so that was a pleasant surprise and a great pleasure.

Here is a **list of names and addresses** for the curators or researchers who assisted us, and the names and prices of the hotels etc. at which we stayed.

(1) **Copenhagen**, Zoological Museum Copenhagen University: Møller Andersen, Nils (nmandersen@zmuc.ku.dk). Ibis Accor Hotels, Copenhagen Crown, with huge breakfast, convenient to train station and bus lines to Museum. Double with private shower and bathroom, \$ 108 US per night.

(2) **Dresden**, Abteilung Entomologie, Staatliches Museum für Tierkunde: Klass, Klaus (klass@snsd.de). Pension Königswald, Königsbrucker Landstr. 84, Dresden, phone/fax: (0351) 880 10 75, 15 minutes walk from Museum, trams available too. Large room with huge breakfast, shower and bathroom shared down the hall with one other room. Very clean and comfortable, ca. \$ 39 US per night.

(3) **London**, The Natural History Museum: Barclay, Max V. (m.barclay@nhm.ac.uk); Lyal, Christopher H. C. (chcl@nhm.ac.uk). Elvaston Lodge, 12 Elvaston Place, about 8 minutes walk from Museum. Flat, one room with two beds, private shower and bathroom, small stove, small refrigerator and television, £ 340 per week. By the week only, Saturday to Saturday. Cash only, paid on arrival in advance. Reserve well in advance.

(4) **Paris**, Museum Natural d'Histoire Naturelle: Bourgoin, Thierry (bourgoin@cimrs1.mnhn.fr); Perrin, Helene (hperrin@cimrs1.mnhn.fr); ORSTOM: Couturier, Guy (couturie@cimrs1.mnhn.fr). Tim Hotel Jardin des Plantes, 5 rue Linné, 75005 Paris. Double room with private shower and bathroom, including Continental breakfast, \$ 101.50 US per night.

(5) **Stockholm**, Naturhistoriska Riksmuseet: Pape, Thomas (thomas.pape@nrm.se); Viklund, Bert, Collection Manager. Guest House at Museum, with two bedrooms and a shared shower and kitchen. With dishes, cooking utensils, and small refrigerator. Bring sheets or buy them there for about \$ 11 US. Daily rate is changing, to about \$ 60 US per night. Check for current rates, but the convenience of being so close to the museum is a large incentive to stay there. Also book the room months to a year in advance. Payment must be in cash only.

Field Report - Collecting at Wekso (Atlantic Panama)

By **Jens Prena** (Germany: jens.prena@gmx.de)

Since the mid 90's I have been working with a number of Central American institutions holding insect collections and maintaining field facilities. Most of the latter are well-known, and some have been visited frequently. The collections available provide a fair coverage of most areas in Costa Rica and western Panama, with only a few spots missing, e.g. the Atlantic slope of La Amistad National Park and the Palo Seco Forest Reserve in western Panama. This region might be of particular interest to those working on faunas (or floras) with recent events of invasion from South America. My data indicate that the presence of the Cordillera Central facilitated the origin of an Atlantic and a Pacific lineage, respectively, in the process of northward radiation. The Smithsonian field station at La Fortuna provides access to an area with predominantly (but not exclusively) Pacific faunal elements. The closest field sta-

tion on the Atlantic coast in Costa Rica used to be Hitoy Cerere, approximately 135 km northwest, but it appears to have been closed by now.

During the end of March 2001, I searched for a suitable collecting site in the area - taking advantage of the recently opened road between Changuinola and Chiriquí Grande. Microbuses cruise along the road and provide a good means of transportation for those without a private vehicle. However, I found the area well cleared of forest and, changing my mind, headed on towards La Fortuna. By pure accident I ran into Donald Windsor (STRI), who provided me with some first-class insider information as well as a ride to Chiriquí Grande. Thanks again, Don! Thus I came across a decent collecting site eventually, made good friends there, and promised to spread the word.

The place is called Wekso and used to be a military training

(continued page 12)

Collecting in Panama (end)

camp during the time of the Panamanian President Noriega. The place was cut by the U.S. military, and the Autoridad Nacional del Ambiente (ANAM) set up a nearby facility. Before departing one should therefore make arrangements with the ANAM office in Changuinola. They will provide the necessary documents and information. Buses leave from the terminal to El Silencio, from where indigenous people will provide transport with their motorized dug-out canoes to the autonomous region of the Teribe tribe. The trip takes approximately one hour, depending on the water level. The drop-off is at **Wekso**. Expect to be charged \$ 10 (US), or less if negotiated. The fee for locals is \$ 2 (US). The place is run by Hilario, under the assistance of Eliodoro - both Teribe Indians from villages further upstream. There is limited capacity for accommodation. Camping is possible and a valid option. Setting up the thatched roof buildings of the former military camp for visitors is in the planning. If one prefers to stay with a family, this can be arranged as well. I

stayed with Eliodoro's family in Solón, and had no regrets. They provide local food and the money goes right to the family clan.

The area is secondary forest with agriculturally used patches. Several trails lead to the fields, or from village to village. Collecting activities should be restricted to one side of the rivers Banyuc and Teribe, unless one intends to challenge the current (there are some fords for crossing the water by foot). One trail leads to the mountains with primary forest, and park wardens or locals will be happy to act as guides and go as far as desired. This is perhaps an interesting venture to undertake for a small group of enthusiastic people. Alternatively, one can easily walk the nature trail next to the field station.

Due to the advanced dry season, my collecting efforts were of rather moderate success. The few baridine weevils I got were part of the typical Atlantic fauna, with a single specimen of a local subpopulation previously known from Valle de Estrella, Limón. Nevertheless, it was quite an experience and the place surely is worth to be visited.

Collection Report - Weevils in Auckland, New Zealand

By **Richard Leschen** (New Zealand: leschenr@landcare.cri.nz) and **Stephen Thorpe** (New Zealand)

New Zealand has a rich curculionoid fauna, and indeed there are approximately 1500 species of Curculionidae, many of them undescribed, making this family the largest in the country (the next largest family is Staphylinidae with 936 species, followed by Carabidae (424 species) and Zopheridae (196 species). However, the number of species will certainly increase as the fauna becomes better documented, but this taxonomic process is slow. There have been few monographic works in recent years, apart from Chris Lyal's (1993) monograph of the genera of cryptorhynchines, Robin Craw's (1999) treatment of the large molytines, and Willy Kuschel's treatment of the 'primitive weevils,' which will be published this year. So, while the basal weevils are well known (see Beverley Holloway's [1982] monograph of the Anthribidae), there is much systematic and taxonomic work that is needed on the New Zealand curculionoids. We thought that we would update CURCULIO readers on what exactly is happening, or will happen, to weevil collections maintained at the **New Zealand Arthropod Collection (NZAC)**, and the smaller, but still significant collection at **Auckland Museum (AMNZ)**, both located in **Auckland**.

Apart from the occasional request for the South American and other foreign material, large loans of New Zealand weevil material have not been made. This is unfortunate, because through the efforts of Willy Kuschel, the weevils make up about 1/3 of the entire NZAC beetle collection, and not only include specimens from New Zealand, but extensive collections from other regions of Australasia, the Pacific, and the Neotropics. To facilitate work on the weevils, we have been

working together to make the collections more accessible to researchers, but credit is due to Stephen Thorpe who has been investing much of his personal time to the project. All of the NZAC material is presently contained in storage boxes, but at a later stage the weevil specimens will be transferred to drawers when the NZAC moves to new facilities on the University of Auckland campus in the coming year or two. The first activity in the weevil collection was to organize the massive amount of material assembled by Kuschel over the last 40 or so years. Much of the collection was scattered in separate locations and arranged by locality, an arrangement that unfortunately existed for much of the NZAC beetle collection. The second activity is to catalogue the species in a spreadsheet with their location in the NZAC - to facilitate loan activity and access. Presently, the isolated collections have been brought together, the New Zealand specimens are sorted at least to tribe, the NZAC catalogue has been completed, and now Stephen Thorpe is in the process of sorting through much of the remaining undetermined material to species level (both undescribed and described). We have listed the number of species of Curculionidae in Table 1.

The AMNZ collection has been arranged in the same way as NZAC, which includes mainly New Zealand material and a small but significant collection of Australian Coleoptera, which includes large Curculionoidea. Half of this Australian material is from the C. E. Clarke Collection of Australian and New Zealand Coleoptera, and the other half is held by the Natural History Museum, London. Meanwhile, the NZAC employed a part time worker Mark Bullians (now at the Ministry of Agriculture and Food, New Zealand) who has recorded the entire holdings of

(continued page 13)

New Zealand Weevils (end)

the beetle alcohol collection for molecular and immature studies. Much of the larval material was included in the curculionoid study by Brenda May (1993). This list includes 643 species of curculionoids, most of which are New Zealand Entiminae. The two lists of alcohol and dry mounted weevil species in the NZAC will be available on the web in the coming months while specific requests for loan or information can be made to Richard Leschen. If you are keen to work on the New Zealand fauna, there are other local private and public collections that have significant weevil holdings including the Entomological Collection (Lincoln University), and you can contact us for more details.

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The following monographs are available from Manaaki Whenua Press (<http://www.mwpress.co.nz/Catalogue/Zoology/Faunaofnz/>).

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Holloway, B. A. 1982. Anthribidae (Insecta: Coleoptera). Fauna of New Zealand 3. 272 pp.

Lyal, C. H. C. 1993. Cryptorhynchinae (Insecta: Coleoptera: Curculionidae). Fauna of New Zealand 29. 308 pp.

May, B. M. 1993. Larvae of Curculionoidea (Insecta: Coleoptera): a systematic overview. Fauna of New Zealand 28. 226 pp.

Table 1. Described species of New Zealand Curculionidae held in the NZAC. Note that there are many undescribed species and those tribes with undescribed genera are indicated by an asterisk (*).

	Genera	Species
Cossoninae		
Araucariini	2	2
Cossonini	1	1
Dryotribini*	18	34
Pentarthrini*	14	40
Phoenicobatini	1	2
Rhyncolini	3	6
Curculioninae		
Cryptorhynchini*	42	258
Eriirhinini*	3	17
Eugnomini*	17	79
Molytini*	34	130
Rhamphini*	1	12
Storeini*	15	67
Entiminae		
Aterpini	4	18
Rhytirhinini	4	44
Tropiphorini*	27	139
Scolytinae		
Hylesinini	3	5
Platypodini	2	4
Scolytini	2	2
Totals	193	860

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Book Review - Keys to Nearctic Genera of Curculionoidea

Robert S. Anderson, Robert W. Hamilton,
David G. Kissinger, Barry D. Valentine, *et al.*

By Horace Burke (USA: hrburke@tamu.edu)

Arnett, Ross, Jr., Michael C. Thomas, Paul E. Skelley, and J. Howard Frank (editors). 2002. American Beetles, volume 2. Polyphaga: Scarabaeoidea through Curculionoidea. CRC Press, Boca Raton. xiv + 861 pp. Cost: 8 1/2" x 11" paperback, \$ 139.95 US.

It has been a long time in coming but thanks to the efforts of many we now have up-to-date keys for the identification of the Nearctic genera of Curculionoidea. Making the two-volume *American Beetles* with its seven chapters on weevils a reality was a stupendous undertaking by a large number of dedicated beetle lovers. While many coleopterists deserve our apprecia-

tion for bringing all of this together, the original impetus for such a work was due primarily to the vision and efforts of one man, the late Ross H. Arnett, Jr. Arnett's 1960-1962 *The Beetles of the United States (A Manual for Identification)* (originally issued in fascicles) was the first publication of its kind for American beetles. Although he paid credit to James C. Bradley's 1930 *Manual of Genera of Beetles of America, North of Mexico* as its predecessor, there is little comparison between the two works in terms of content and importance. We can now count ourselves fortunate that Arnett's initial effort in bringing together information necessary for identification of North American genera of Coleoptera has taken another step.

While Arnett's original beetle manual (and its bound 1968 version) generally served its purpose well over a long period

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Nearctic Weevils (continued)

of time, it comes as no surprise that it was sorely in need of modernization. Even in its heyday, those of us interested in weevils found it less useful than did coleopterists working in many other groups. With the exception of the Anthribidae and Scolytidae, the keys dedicated to curculionoids were essentially modifications of those of Blatchley and Leng (1916), and, to a lesser extent, Bradley (1930). Some weevil specialists provided assistance to Arnett, but the curculionid keys did not reach the level of completeness and modernization achieved for most other beetle groups. Fortunately at the time, David G. Kissinger was writing the *Curculionidae of America north of Mexico - a Key to the Genera*, and when published in 1964 his keys became widely used for identification of Nearctic Curculionidae *sensu lato*. Since Kissinger did not cover the Anthribidae, Scolytidae, and Platypodidae, one had to resort to both his work and that of Arnett for complete coverage of the Curculionoidea. After about 40 years, we now have all of the families conveniently treated under one cover. It can only be hoped that it will not take such a long time for the next version to arrive.

The family classification for weevils in *American Beetles* follows that of Lawrence and Newton (1995). Some may consider this to be a somewhat conservative approach for the time, especially as compared with the family-level scheme of Alonso-Zarazaga and Lyal (1999), but we should remember that this is essentially an identification manual, and not a treatise on higher classification of weevils. Higher classification within the Curculionoidea is presently undergoing changes, and more can be expected in the future. It is of interest to note that some of the authors who contributed to the weevil sections of *American Beetles* actually publish under different family names and arrangements in their revisionary works. Regardless, I believe that the approach taken here with respect to family usage is a wise one, as long as it is recognized by the general user that much study of the classification remains to be done, and further rearrangements of the system will occur. The subfamily and tribal classifications followed here are a mixture of traditional schemes and various relatively new ones.

The identification component is obviously a major part of *American Beetles*, but a considerable amount of general information is also included for each family. This introductory material is presented in a standard format in each chapter, including family and common names, diagnostic characters, a somewhat detailed family description based on both adult and larval (and occasionally pupal) characters, and sections on habits and habitats, status of classification, and general distribution. This material, along with the extensive bibliographies, presents a remarkably effective entry into the accumulated knowledge of the biology and systematics of weevils. I find

the summaries of habits and habitats (biologies) and sections on classification especially useful. Summarized information is also presented on the number of species, general distribution of the genus, hosts, and generic synonymy for each of the genera included.

The dichotomous keys are supported to a varying extent by habitus illustrations and/or line drawings of critical characters. As with all publications of this kind, quality is ultimately determined to a major degree on how well the keys work. Since weevil taxa do not always lend themselves to being easily distinguished by brief descriptive statements of key characters, users of the keys presented here will undoubtedly have difficulties with certain groups. These keys are based on the expertise of the authors, all weevil specialists, and on time-honored practices and improvements through generations of usage. The authors have done an admirable job in combining the new with the old to produce what are the best and most up-to-date keys for Nearctic genera that can reasonably be expected at this time. The key to the families of Curculionoidea is contributed as part of the overall Coleoptera family key by Michael Ivie, on pages 816-835 in the same volume.

The chapters on Curculionoidea in *American Beetles* provide modern keys for use by both specialists and non-specialists for identification of Nearctic genera. They also establish a baseline on which to modify and improve the system in the future. The specialists who wrote these chapters deserve our sincere thanks for their hard work in bringing all of this to fruition, and also for their dedication to the cause of weevil systematics. Such a cooperative effort on weevils is unprecedented. Special recognition should go to Robert Anderson who not only coordinated much of the work, but labored in the actual writing and key construction for five of the seven chapters. To Bob and all of the others we owe you a big debt of gratitude.

Comments on Families

Nemonychidae - Robert S. Anderson, pages 692-694. This family of bipolar distribution has 15 species in five genera represented in the Nearctic region. The group is well known in the area thanks to a paper on this subject by Guillermo Kuschel (1989). The key and accompanying illustrations presented here render the genera easily identifiable.

Anthribidae - Barry D. Valentine, pages 695-700. The Nearctic anthribids keyed here include 30 genera arranged in two subfamilies and 17 tribes. It is stated that 88 described and 32 undescribed species are now known from the area. The excellent quality of the keys is based to a great degree on the extensive work that Valentine himself has done on Nearctic anthribids at the generic level.

Belidae - Robert S. Anderson, pages 701-702. *Rhopalotria* with its two Floridian species is the only generic representative

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Nearctic Weevils (end)

of the family in the Nearctic fauna.

Attelabidae - *Robert W. Hamilton*, pages 703-710. The attelabines, rhynchitines, and pterocolines are grouped together in one family, although the latter two groups are assigned to Rhynchitidae by some authors. As constituted here, the Nearctic fauna of Attelabidae consists of 13 genera and 52 species, most of the genera and species being in Rhynchitinae. Hamilton's own revisionary studies on the attelabids undergird this chapter.

Brentidae - *Robert S. Anderson and David G. Kissinger*, pages 711-719. There is considerable disagreement as to how weevils considered here as brentids should be classified at the family level. The problem revolves mainly around the treatment of the nanophyines and apionines, both of which are recognized by some authors as being distinct and separate families. The situation with the apionines will probably affect the general user most. While many of us in the past were content to refer to the small dark pear-shaped weevils that showed up so frequently in our nets and beating sheets merely as *Apion*, there are now 19 genera, and perhaps more to come, to contend with. Only one species (of uncertain identity) of true *Apion* is known to occur in the Nearctic region. Granted, many of the apionines now recognized as genera have been masquerading as subgenera, but even weevil specialists will now have to retool if they expect to have a generic speaking acquaintance with the group. Such is progress.

Ithyceridae - *Robert S. Anderson*, pages 720-721. The one species of this family is easily enough recognized but its phylogenetic relationships to other curculionoids remains somewhat of a mystery. At least there now seems to be considerable support for recognizing the species as belonging in its own family rather than being placed among the great horde of genera of Curculionidae.

Curculionidae - *Robert S. Anderson et al.*, pages 722-815. The largest and most complex of the curculionoid families is saved to last. As to be expected, the curculionids present the most problems in both identification and classification. An indication

of the classification problem is summarized in general in the following quote: 'The classification of the weevils was regarded by Crowson in 1955 as the last great problem to be clarified within the Coleoptera. While there have been many advances in the classification, much remains to be resolved. The classification used herein largely is that of Alonso-Zarazaga and Lyal (1999), with a few changes in placement and ranking of certain taxa. A total of 18 subfamilies are recognized. Lawrence and Newton (1995), the classification at the family level adopted for this book, recognize only 6 subfamilies within Curculionidae, demoting many subfamilies to tribes within their Curculionidae.' It should be mentioned further that Curculionidae as constituted here contains the scolytines and platypodines.

With the enormous task confronting the author of this chapter, regarding the construction of keys for such a large number of genera (not to mention the difficulty in separating many of these), it is not surprising that he needed some help. To this end, Robert J. Rabaglia contributed the section on the scolytines, modified from an unpublished key by Donald E. Bright. Henry A. Hespeneide provided the key of the Conoderinae. The key to the Ceutorhynchinae was co-written by Boris A. Korotyaev, and Anne T. Howden collaborated on the Entiminae. Robert Anderson produced the keys for all of the other curculionid groups. This chapter is fairly extensively illustrated, which should be of considerable help to the key user.

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The Bulletin Board

News About Weevils

Steven Chown (South Africa: slchown@sun.ac.za) announces the organization of the **IV Southern Connections Conference**, on 19-23 January, 2004, at the University of Cape Town, South Africa. For information see the following website: www.uct.ac.za/conferences/SC2004.

Sharon Collman (USA: collmans@wsu.edu) reports on the following reference: Charles L. Perdue, Jr., Thomas E. Barden, and Robert K. Phillips (editors). 1976. **Weevils in the wheat: interviews with Virginia ex-slaves**. University Press of Virginia, Charlottesville. 405 pp. This from the inside front cover: 'weevils

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in the wheat' (often simply 'bugs in the wheat') was an expression used by slaves to communicate to one another that their plans for a secret meeting or dance had been discovered, and that the gathering was called off. The "weevils" were either members of the patrols that were organized to discourage movement of the slaves off the plantation at night, or fellow slaves who, as part of a loosely organized spy system, were willing to turn informers for small favors granted them by the slaveowners. The use of such a secret code was only one of numerous adaptive strategies developed by the slaves that enabled them to lead relatively full lives - in spite of 'weevils in the wheat.' There are actually few references to insects of any kind so far in the book, other than the piece cited above. But the accounts of slave life are eye-opening and interesting.

Rolf Oberprieler (Australia: rolf.oberprieler@csiro.au) provides an update on the **Phytophaga symposium for the ICE 2004 in Australia**. The organization of the planned joint symposium on Phytophaga for the ICE in Brisbane in 2004 has seen a bit of a bumpy road over the last six months. Partly because the deadline for submission of symposia was extended twice (the last time to March 31, 2003) and left a question mark as to whether the symposium would be approved in the end, and partly because it proved rather difficult to get a committed chrysomeloid collaborator on board. Now the latter has been found in Catherine Duckett of Rutgers University, who has jumped in with both feet and is busy stringing up numerous chrysomelid workers to potentially participate. The structure of the symposium is being finalized at the moment, and will be circulated next month.

The ICE Organizing Committee met in Brisbane a few days ago (on March 20, 2003) to *inter alia* finalize the program structure. The good news is that the Phytophaga symposium got the big tick and is going ahead, the bad news is that these is only half a day instead of the full day planned on originally. All symposia are being limited to half a day to allow room for non-aligned papers that do not fit into any of the symposia. Catherine Duckett and Rolf Oberprieler are now rescoping the joint symposium to fit into the shorter time frame, but will stick to the evolutionary framework as much as possible. The program structure allows for **12 papers of 15 minutes each, for a half-day symposium**, so unfortunately there is not much room to explore all the issues surrounding the evolution of the Phytophaga as originally hoped. Papers being submitted to the symposium will have to be selected.

Weevil or chrysomeloid papers that cannot be fit into the symposium can still be accommodated in the **'non-aligned papers'** part of the Systematics section, and the organizer considers running them straight after the symposium - if there

is a sufficient number forming a block. Also, it is still intended to arrange **evening meetings or workshops on weevils and chrysomeloids**, or both together, to provide an opportunity for further discussion. These workshops may also be able to accommodate small presentations to further elaborate on any relevant issues.

The final program and list of symposia will go onto the ICE website (<http://www.ccm.com.au/icoe/index.html>) in early May, and registration of papers will then commence. However, the organizers will also circulate the Phytophaga symposium to the CURCULIO and CHRYSOMELA mailing lists separately. In the meantime, keep thinking about weevil evolution and visiting Australia.

Alexander Riedel (USA: ariedel@unlserve.unl.edu), the featured researcher in CURCULIO 45, informs about the **critical situation at the Nebraska State Museum**. Due to budget constraints with the state of Nebraska, the governor has mandated that the University reduce its programs by 6-10%. The University of Nebraska State Museum has just been informed by the University Chancellor that all of the research divisions and their staffs (including tenured faculty), are **proposed for elimination**. Termination will be effective July 1, 2003, for all collections managers, preparators, artists, and secretaries. It will become effective in March, 2004, for the tenured faculty curators. The research divisions affected are Entomology (Team Scarab), Zoology, Botany, Parasitology, Anthropology, Vertebrate Paleontology, and Invertebrate Paleontology.

This is not only a personal disaster, but also one for the entire Museum. The decision to close down the research collections needs to be approved by the University President and the state legislature. Thus it is not yet a final one, and every effort is made to change the minds of the responsible people, by providing them with information they may not have had before. There has been protest from the scientific community which appears to be the only strategy to save the Museum.

Anyone who wants to help and participate in this protest should contact Alexander Riedel to receive more comprehensive information, and a list of people who are involved in making the final decision. Some polite letters informing them about the consequences of their decision to our science and the reputation of the State of Nebraska may finally turn the fate of the Museum for the better.

Peter Stüben (Germany: p.stueben@t-online.de) informs on the 4th Annual Meeting of the Curculio-Institute, February 28 to March 2, 2003. The present board members continue their work for the following four years. Since January 1, 2003, there is also an **Eastern Section of the Curculio-Institute in Cracow**.

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The director is Dr. Stanislaw Knutelski (Cracow), who has been elected by all members of the Annual Meeting to assume this position. The Eastern Section is independent financially, and at the same time a member of the *Curculio-Institute*. The relationship is regulated by contract and will have a very positive effect on the development of the *Curculio-Institute*. In the section Curculio-Art, the famous **artist Klaus Fabian** (Essen, Germany) **will present some of his work on weevils** on the homepage of the *Curculio-Institute* in the near future (see website at www.curci.de). This collaboration has been preceded by close contact, common projects, and exhibitions at the great German Museum. After lengthy, successful negotiations, the rights to the *Snudebiller*-program and -development have been protected for the following years. A substantial financial burden has been taken from the shoulders of the board, the authors of *Snudebiller*, and the *Snudebiller* editorial team. With the project '**Digital-Weevil-Determination**' (DWD), the *Curculio-Institute* presents **new opportunities to identify weevils**. The interactive DWD-program makes it possible to compare digital photographs on the screen with the object under the microscope directly! A first step has been made through the

publication of *Snudebiller* 3, which includes a DWD project on the Transalpine Cryptorhynchinae. Suggestions for improvement are welcome.



Stanislaw Knutelski (right) and Peter Stüben (left) elaborate the contract for the Eastern Section of the Curculio-Institute. In the middle: Peter Sprick; photo by H. Winkelmann.

Recent Publications on Curculionoidea

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Mecysmoderes fulvus (Ceutorhynchinae)
on *Rhododendron macrosepalum* bud,
photo by H. Yoshitake (pp. 1-3)