

# CURCULIO

An International Newsletter for Curculionoidea Research

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Featured Researcher

**Pamela Horsley**

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(Pamela Horsley at McGill University - Lyman Entomological Museum)

### Academic Background

Bachelor of Science, Department of Biology, University of Ottawa, Ottawa, Canada - 2005  
Master of Science, Department of Natural Resource Sciences - Entomology, McGill University, Montreal, Canada - 2008

### Research Interests

Taxonomy, Systematics, and Biodiversity of Curculionidae, with an emphasis on the Mexican and Central American leaf litter and ground fauna.

I first became interested in entomology during my undergraduate studies at the University of Ottawa in 2004. I enrolled in an introductory entomology course, somewhat on a whim, thinking it would be fun and interesting. Needless to say, I was hooked after the first class.

I decided to continue with this interest in insects and was fortunate enough to have Bob Anderson (Canadian Museum of Nature) take me on as a student for my undergraduate thesis. He provided me with a few options for projects and I decided upon a taxonomic revision of the Mexican and Central American genus *Trachyphloeomimus* (Coleoptera: Curculionidae, Entiminae). I received my four drawers of *Trachyphloeomimus* that primarily Bob had collected over the years, and got to work. I spent the first month just looking at what seemed like millions of brown, scaly, miniature elephant-like

creatures, trying to see if I could find any differences. Two months passed and I found the more I looked at my specimens, the more concerned I was that there was way too much for me to do. Bob shared that concern. So we re-evaluated the project, and much to my relief scaled it back to a review of the genus, but concentrating on the species from Honduras. After eight months work, I produced a taxonomic review with 10 new species from Honduras, including species descriptions, habitus

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## Editorial Comments

Welcome to volume 54 - the *June 2007* issue - of CURCULIO. After several uncomfortably late publishing dates, I have decided to move the months when CURCULIO comes out each year to June and December, respectively. This also means that the second volume will be scheduled late enough to report weevil news from the Entomological Society of America's (ESA) Annual Meetings. Our featured researcher this time is Pamela Horsley, who is studying the systematics of Central American *Trachyphloeomimus* with Robert Anderson. Horace Burke has produced a new valuable retrospective of the life and work of the North American weevil specialist Lee Buchanan (page 5). Robert Anderson contributes two reports; one on a recently funded project to document the leaf litter weevils of Mesoamerica (find out what the project acronym "LLAMA" stands for on page 8), and another on his visit to the New Zealand Arthropod Collection (page 9). Our permanent sections - the Bulletin Board, Recent Publications, and Directory of Researchers - complete the issue.

Among other significant news, we have succeeded in positioning a dedicated weevil symposium on the schedule of the upcoming ESA Meeting to be held in San Diego, from December 9 to 13, 2007 (for more information on the Meeting itself, see [http://www.entsoc.org/annual\\_meeting/index.htm](http://www.entsoc.org/annual_meeting/index.htm)). The idea originated at last year's informal weevil meeting, and Robert Hamilton and I took the lead in presenting the proposal to ESA's organizing committee. We ended up with a slot for a regular Section A Symposium, under the theme "New Minds for Weevil Systematics - Building Bridges Between Generations and Regions". In line with the theme, the list of presenters includes several graduate students or recent graduates, as well as some of the more established specialists, with a non-exclusive focus on taxa from the Americas. An informal evening meeting will round out the schedule and provide opportunities for more discussions.

These are fairly dynamic times for our weevil community. We hope that the symposium will reflect these positive developments, attract a large audience, and thereby foster new projects and collaborations. A *preliminary* line-up of presenters and topics is listed in the right column (in alphabetical order).

1. **Anderson, Robert S.**, Canadian Museum of Nature - "Biodiversity of Costa Rican leaf litter weevils from sea level to mountain peak"
2. **Crane, Samuel N.**, American Museum of Natural History - "Curculionidae phylogenetics"
3. **Davis, Steven R.**, University of Kansas - "Phylogeny of Madopterini"
4. **Franz, Nico M.**, University of Puerto Rico at Mayagüez - "Reproductive trade-offs in a specialized cyclanth weevil pollination system (Coleoptera: Curculionidae)"
5. **Hamilton, Robert W.**, Loyola University Chicago - "Systematics of Central American and West Indies leaf-rolling weevils"
6. **Haseeb, Muhammad & O'Brien, Charles, W.**, Florida A&M University & Green Valley, Arizona - "Classical taxonomy and Expert Information Systems - systematics in the modern world"
7. **Horsley, Pamela J.**, McGill University - "Systematics of *Trachyphloeomimus*"
8. **Hulcr, Jiri**, Michigan State University - "Contemporary state of classification of Xyleborina (Coleoptera: Curculionidae: Scolytinae)"
9. **Marvaldi, Adriana E.**, Instituto Argentino de Investigaciones de Zonas Áridas, Argentina - "Phylogeny of Curculionoidea"
10. **Mermudes, José Ricardo M.**, Universidade do Estado do Rio de Janeiro, Brazil - "Current advances in the phylogenetic reconstruction of the Anthribidae"
11. **Setliff, Gregory P.**, University of Minnesota - "Systematics of *Asyteta*"

Many thanks as always to everyone who contributed to the new CURCULIO volume!

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### Pamela Horsley (continued)

photographs, and genitalia sketches. Throughout this time, I had been contemplating continuing on with my studies and completing a Masters degree. I decided, instead of starting right away, I would take eight months off and work at the Canadian Museum of Nature.

During these eight months at the Museum, I was hired for part of the time as a Junior Insect Collection Technician. My main duties included the curation of weevil specimens in the collection and processing of loan requests and returns. Through

this experience, I worked closely with Bob Anderson and was able to increase my knowledge of weevil taxonomy and gain a better understanding of the Museum as a workplace. During the remaining few months, I worked on contract for Andrew Smith (a scarab beetle systematist), mainly databasing, mounting, and labeling specimens as part of the National Science Foundation "Southern South America Scarab Biodiversity Project". This opportunity broadened the scope of my insect knowledge to include some groups of scarab beetles, and I realized the importance of databasing as a tool to increase the organization and utility of insect collections around the world.

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## Pamela Horsley (end)



*Trachyphloeomimus* spp. nov. from Central America; photos by Pamela Horsley

My time at the CMN was invaluable and has helped me greatly in continuing on with my Masters program.

Since January of 2006, I have been studying at McGill University in the Lyman Entomological Museum (Montreal, Canada). My Masters project is a continuation of my under-

graduate systematic work on *Trachyphloeomimus*, extending it to a full revision of all species found in Mexico and Central America. Included in the revision will be a species-level phylogeny which will allow me to infer evolutionary relationships among the approximately fifty species found in the New World.

The distribution of *Trachyphloeomimus* extends from central Mexico to northern Costa Rica. Specimens are found in mid-high elevation forest leaf litter or under rocks at these elevations. Sorting to species, so far, has led me to believe the center of diversity to be in the Sierra Madre del Sur Mountains, located in the state of Oaxaca, Mexico. There are a number of good morphological characters that are easily used to differentiate species of *Trachyphloeomimus*. Some examples of these characters are: size and arrangement of tubercles found on the elytra; presence of long setae and/or flange on inner tibiae of males; shape, arrangement of sclerotized portions, and type of flagellum of the male aedeagus; shape of the pronotum; and degree of expansion of interval 8 behind the humeri, to name a few.

Currently, my plans are to finish my thesis by 2008. I will likely publish the full revision and phylogeny in a Journal such as *Zootaxa*, where there will be no limitations on the number of illustrations I can include. After this is completed, I am interested in working with Bob Anderson, in conjunction with his current National Science Foundation grant (LLAMA - Leaf Litter Arthropods of MesoAmerica; see also page 8 of this volume), to look at distribution patterns and biogeography of leaf litter weevils in Mexico and Central America. Preliminary work suggests that the distributions of *Trachyphloeomimus* species are correlated to those of Bob's "pet genus" *Theognete*, the revision of which he assures me will be completed soon. With increased collection efforts over the next few years on Bob's part throughout Central America, there will be many new taxonomic revisions needed and general patterns to be investigated.

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## Research Activities and Requests for Specimens

**Steve Davis** (USA: steved@ku.edu). Is conducting a morphological phylogenetic analysis of the weevil tribe Madopterini (Baridinae), and **would much appreciate any and all baridine specimens preserved in alcohol for future molecular analyses.**

**Guadalupe del Río** (Argentina: gdelrio@fcnym.unlp.edu.ar). Is **looking to receive material of Naupactini from the high Andes of northern South America** (Colombia, Venezuela, Ecuador, and Peru), for a planned revision of *Amitrus*, *Amphideritus*, and *Asymmathetes*.

**Nico Franz** (USA: franz@uprm.edu). Has recently completed a revision adding six new species to *Cotithene*, a previously monotypic genus of Neotropical derelomine flower weevils. A manuscript describing two new species of *Dryophthorus* from Puerto Rico is in progress. Has received an award from the National Science Foundation in April 2007 (Phylogenetic Systematics, DEB-0641231, two years duration), for a project entitled "Towards a systematic and evolutionary synthesis of the Neotropical *Exophthalmus* genus complex (Coleoptera: Curculionidae: Entiminae)". The project will fund two M.Sc. students to conduct morphological and molecular work on species of the closely related *Exophthalmus*, *Diaprepes*, and *Compsus* (see photo to the right). Field work is planned for Puerto Rico, the Dominican Republic, Jamaica, and Guadeloupe. Shorter term undergraduate research projects are also part of the grant. The resulting phylogenetic analysis will inform inferences about the biogeographic history of these entimine weevils in the Caribbean archipelago. Jennifer Girón, a graduate of the Universidad del Valle, Colombia (see CURCULIO 52: 6-7), will commence one of the two graduate student positions in August 2007. The other **M.Sc. position is still vacant**, and potential candidates are encouraged to establish contact via e-mail with a letter of interest and CV. **Kindly requesting specimens (whether adequately preserved for DNA sequencing, or not) of *Exophthalmus*, *Diaprepes*, *Compsus*, and *Lachnopus* to be used for the project.**

**Malcolm Furniss** (USA: mfurniss@uidaho.edu). Is completing a study of the biology of *Dendroctonus murrayanae* Hopkins, and **would like to communicate with anyone who has personal familiarity with this rare bark beetle in nature**, especially in northeastern North America.

**Robert Hamilton** (USA: rhamilt@luc.edu). Continuing his work on the taxonomy of *Temnocerus* weevils of Central America. A manuscript on "*Euscelus* weevils of the West Indies" has just come out in *Zootaxa*. **Requesting to loan, purchase, or exchange**

**attelabid weevils from northeastern South America** (i.e., French Guyana, Guyana, Surinam, and Venezuela).

**Michael Morris** (United Kingdom: mgmorris.ent@virgin.net). Since retiring from remunerated work as an insect ecologist/administrator, has been concentrating on completing his Handbooks to the British weevil fauna and researching/publishing on them, and also on the Curculionoidea of the Canary Islands. Being a Scientific Associate at the Natural History Museum has helped to keep him in touch. Has visited various "Insektenbourse" (mostly in Prague) with Natural History Museum colleagues. His fourth Handbook on the British Ceutorhynchinae is still awaiting publication, though in the editors' hands for over a year.

**Semyon Volovnik** (Ukraine: volovnik@mv.org.ua). Continuing his work on the Lixinae (= Cleoninae) - geography, taxonomy, ecology, origin, evolution, and economic importance. **Would be grateful for literature and any another information on this subject;** and is prepared to send his papers on Lixinae in exchange.



*Compsus maricao* Wolcott, a Puerto Rican entimine; photo by Nico Franz

**Nikolai Yunakov** (Russia: omias@mail.ru). Has completed a paper - now in press - on the taxonomic position of the weevil genus *Araxia*, with description of a new genus and two species closely related to *Araxia* and *Aomus* from Northeast Turkey, Transcaucasia, and Turkmenistan. Studies on the Middle Asian *Otiiorhynchus* species and Caucasian *Urometopus* are in progress. Is conducting a postdoctoral research project at the Zoological Institute RAS, Saint Petersburg, with the topic "Morphological-ecological adaptations and main evolutionary trends in the broad-nosed weevils (Entiminae)".

## Notable Weevil Specialists of the Past

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

As with those of William D. Pierce, Frank H. Chittenden, and William H. Anderson previously treated in this column, **Lee L. Buchanan's** contributions to the taxonomy of the weevils were made during his employment with the United States Department of Agriculture (USDA). We are fortunate that an obituary of Buchanan was written by colleagues (Warner *et al.* 1958) who knew him well and were thus able to provide first-hand information about his personal and professional life. The salient points they made about Buchanan's life are abstracted here for the convenience of the reader as well as to provide a basis for additional discussion of his scientific contributions to the knowledge of the Curculionioidea.

### Lee L. Buchanan (1893-1958)

Lee Buchanan was born October 27, 1893 in the small town of Solon, Iowa. As a young boy his rural surroundings afforded him the opportunity to hike, fish, hunt, and camp in fields and woods and along streams in the area. However, unlike many youth that experienced the outdoors and developed an entomological interest at an early age, there is no indication that at that stage in his life Buchanan was attracted to insects or to any other aspect of natural history. As Warner *et al.* (1958) put it, he "was not a boy naturalist." He did have an early and intense interest in sports, especially baseball, and made an attempt to learn all he could about the special techniques of the game. His competitiveness in sports and inclination for study of the intricate details of sports in which he participated (for example, golf and billiards) remained behavioral trademarks throughout his life.

After completion of grade school in Solon, Buchanan attended high school in Cedar Rapids, Iowa. Upon completion of high school he enrolled in 1912 at the University of Iowa at Iowa City. He was awarded the A.B. degree from that university in 1916. Buchanan was well into his college career before he enrolled in a course in entomology. This decision was made more to complete his course of study than to pursue a personal interest in insects. This introductory course opened up a new world (as such courses have for many other students before and after him) for Buchanan and he quickly discovered that the study of entomology was much to his liking. Not only was the subject matter interesting and challenging but his instructor, the well known coleopterist Henry F. Wickham, provided encouragement to continue the study of insects. During the short period between his introduction to entomology and graduation he concentrated his interest in entomology and not surprisingly, given the influence of coleopterist Wick-

ham, decided to study the taxonomy of beetles. An early confirmation of his choice was a paper he published on a chrysomelid beetle while still an undergraduate. By the time he graduated from the University of Iowa, Buchanan had decided that he wanted to pursue a career in entomology and weevils were selected as a group on which he wished to conduct long term study. The encouragement and advice of mentor Henry Wickham had firmly taken root.

Wickham not only influenced Buchanan in choice of a career and insect specialty, but helped him to obtain a position in the United States Biological Survey in Washington, D.C. His first job, beginning in October 1917, was to maintain card records on the stomach analysis of 200,000 bird stomachs that had been accumulated on a project investigating food habits of birds and other vertebrates and their possible effect upon natural control of insects. Keeping such a mass of records was obviously a tedious task, but Buchanan's ability to concentrate on the problem at hand and improve upon pre-computer methods of handling data resulted in a workable system. However, he must have been quite delighted to later be able to spend increasing amounts of time on the identification of weevil fragments found in the bird stomachs. He was eventually allowed to spend full time on the weevil identification aspect of the project. The painstaking work required in the Biological Survey job must have suited his personality and work habits because, according to Warner *et al.* (1958), he considered his tenure there to be "the best years of his life - his golden years."

Following brief service in the United States Army in 1918-1919 during World War I, Buchanan resumed work with the Biological Survey. On April 1, 1926 he became a half-time employee of the Survey and spent the other half of his work time sorting and rearranging the large Thomas L. Casey Collection of Coleoptera that had been donated to the Smithsonian Institution. The difficulties encountered in deciphering Casey's labels and curating specimens are described in a paper he wrote on the subject (Buchanan 1935). This paper reveals much about Casey and his taxonomic work as well as about Buchanan's ability to handle such a difficult task of curation. The Biological Survey was discontinued in 1929, and Buchanan was transferred at that time to the USDA Bureau of Entomology and Plant Quarantine to conduct taxonomic work on the Curculionidae. He continued to work part-time on the Casey Collection project until its completion in 1931. At that time, Buchanan became a fulltime employee of the Bureau of Entomology.

Buchanan was appointed to the Smithsonian Institution for a short period in 1935 when he was involved in transferring the H. F. Wickham Collection from the University of Iowa to

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## Lee L. Buchanan (continued)

Washington, D.C. The remaining years of his active career were spent working on weevils in the Bureau of Entomology. In the late 1930s, for unknown reasons, his health began to deteriorate and as a consequence he was forced to retire in 1949. After retirement, his health worsened until he reached the point in 1951 where he was not expected to live. Remarkably, he survived to experience periods when his health fluctuated from poor to somewhat improved. He donated his personal entomological library of 3400 items to the Smithsonian Institution in 1956, and at that time felt healthy enough to continue some taxonomic work. He was appointed as Honorary Research Associate of the Smithsonian and worked on the Carabidae in the Casey Collection. This work was continued on an irregular basis until his death on February 15, 1958 after collapsing on a street in Washington, D.C.

A glance at the list of publications of L. L. Buchanan indicates a broad interest in the taxonomy of the curculionoids. Given his responsibility for weevil identification in the U.S. Biological Survey and later in the Bureau of Entomology, USDA, it is not surprising that several of the papers he wrote grew out of questions raised by material submitted for identification because of their supposed or actual economic importance, or to satisfy the needs of various survey projects. He described new species-group taxa in nearly 30 genera scattered widely throughout Curculionidae (also one species of *Apion*) as well as proposing 13 new genus-group names. Most of his papers were short and descriptive, but newly described species/genera were often placed in identification keys with several of their closest relatives, thus extending their usefulness and continuing importance. Many of these keys published in the late 1920s and 1930s constitute the most complete ones currently available on the group at hand. A large majority of the new taxa Buchanan described occur in the continental United States, the few others being from Cuba, the Dominican Republic and Puerto Rico. His descriptions were carefully done, sufficiently detailed and were generally accompanied with supporting illustrations.

Buchanan revised the entimine genera *Panscopus* and *Mesogroicus* and treated some other genera synoptically with keys, descriptions of new taxa, and taxonomic and distributional notes. But among the groups of weevils he studied, the Naupactini received the most detailed attention. His revision of *Pantomorus* (Buchanan 1939) is arguably the most signifi-

cant of his publications. This genus, as Buchanan defined it at that time, contains mostly parthenogenetic species, of which some, such as the white-fringed beetles (e.g., *Naupactus leucoloma* Boheman), have become widespread pests. These species present considerable taxonomic problems with which Buchanan wrestled for several years. According to Warner *et al.* (1958), he conducted extensive morphometric studies on thousands of specimens in order to determine their species limits and taxonomic relationships. *Graphognathus*, one of the two subgenera he described as new in *Pantomorus*, was later elevated to generic rank by him to contain the white-fringed beetles. *Graphognathus* has now been synonymized with *Nau-*



Lee L. Buchanan; cf. source: Proceedings of the Entomological Society of Washington 60: 292.

*pactus* (Lanteri and Marvaldi 1995), but for many years entomologists recognized this as the genus to which the white-fringed beetle belonged. The *Pantomorus-Naupactus* complex has been extensively studied by Analia Lanteri and associates (Lanteri 1990, Lanteri and O'Brien 1990, Lanteri and Marvaldi 1995, etc.), and considerable change has taken place in generic arrangement and species status in the tribe. Of the 10 species-group names Buchanan proposed in Naupactini, three are still recognized as valid and seven have been synonymized (see Warner 1975, and Lanteri *et al.* cited above). The fact that the preponderance of the new names he proposed in the tribe are now considered synonyms may lead one to believe that his work is of poor quality, but it should be remembered that his was a pioneer study of this taxonomically difficult group, and even today, after considerable

additional research has been conducted, much remains to be learned about these weevils.

Overall, Buchanan's ability to recognize new taxa was exceptionally good. Of the 66 new species-group names he proposed, 10 are now considered to be synonyms, and seven of these occur in the Naupactini, as discussed above. Outside of the *Pantomorus-Naupactus* complex, only three of the 56 new species he described are now considered as synonyms. His success continued at the genus/subgenus level as only one (here again in Naupactini) of the 13 genus-group names proposed by him has been synonymized. Buchanan's obvious ability to process detailed taxonomic data, coupled with his familiarity with a wide diversity of weevils in the Thomas Casey Collection and in other collections of the Smithsonian Institution, served him well in making decisions concerning the status of taxa. Lee Buchanan was a dedicated and hard-working student of weevils who quietly and diligently proceeded to make con-

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## Lee L. Buchanan (continued)

tributions to the group. With the exception of his intensive work on the genus *Pantomorus*, and to a lesser degree on a few other genera, he did not produce comprehensive publications, although some of the contributions he made on certain genera and species groups are still the most recent available. Given the time he spent on curatorial and identification responsibilities and the fact that for many years his health was poor, the totality of his contributions to the knowledge of weevils is certainly noteworthy. His name may not be in the forefront of weevil specialists of the past, but for 27 years he "labored in the vineyards" of weevil study adding "bricks" to the building of our present storehouse of knowledge of the group. To Buchanan and the many other such dedicated, but often unheralded, individuals of the past who were driven by their love for study of weevils we owe a huge debt of gratitude.

### Publications by Lee L. Buchanan on the Curculionoidea

- Buchanan, L. L. 1992. Notes on *Apion*, with descriptions of two new species (Coleop., Curculionidae). *Proceedings of the Entomological Society of Washington* 24: 82-84.
- Buchanan, L. L. 1923a. Two European weevils established in North America (Coleoptera: Curculionidae). *Entomological News* 34: 280-281.
- Buchanan, L. L. 1923b. The European *Amalus haemorrhous* Hbst. in the United States (Curculionidae). *Proceedings of the Entomological Society of Washington* 25: 79.
- Buchanan, L. L. 1926. A new otiorhynchid with single tarsal claws (Coleoptera). *Proceedings of the Entomological Society of Washington* 28: 179-181.
- Buchanan, L. L. 1927a. A short review of *Notaris* (Coleoptera: Curculionidae). *Bulletin of Brooklyn Entomological Society* 22: 36-40.
- Buchanan, L. L. 1927b. Synonymical notes on several otiorhynchid weevils (Coleoptera). *Canadian Entomologist* 59: 183-184.
- Buchanan, L. L. 1927c. Notes on some light-attracted beetles from Louisiana (Coleop.). *Entomological News* 38: 165-170.
- Buchanan, L. L. 1927d. A review of *Panscopus* (Coleoptera: Otiorhynchidae). *Proceedings of the Entomological Society of Washington* 29: 25-36.
- Buchanan, L. L. 1929a. A new *Agronus* from Canada (Coleoptera: Otiorhynchidae). *Proceedings of the Entomological Society of Washington* 31: 102-104.
- Buchanan, L. L. 1929b. North American species of the weevils of the otiorhynchid genus *Mesagroicus*. *Proceedings of the United States National Museum* 76: 1-14.
- Buchanan, L. L. 1930. Table of North American species of *Piesocorynus* [pp. 23-26]. In: *Studies of the North American weevils belonging to the Superfamily Platystomoidea* (W. D. Pierce, editor). *Proceedings of the United States National Museum* 77: 1-34 + 5 plates.
- Buchanan, L. L. 1931. Synopsis of *Perigaster* (Coleoptera: Curculionidae). *Journal of the Washington Academy of Sciences* 21: 320-325.
- Buchanan, L. L. 1932a. A new barine curculionid injurious to sugarcane in Louisiana with synopses of *Anacentrinus* and *Oligolochus* (Coleop.). *Annals of the Entomological Society of America* 25: 328-336.
- Buchanan, L. L. 1932b. The parsley and carrot weevil, *Listronotus latiusculus* Boheman. *Bulletin of the Brooklyn Entomological Society* 27: 7-8.
- Buchanan, L. L. 1934a. A new North American *Magdalis* from blue spruce (Coleoptera: Curculionidae). *Proceedings of the Entomological Society of Washington* 36: 85-87.
- Buchanan, L. L. 1934b. An apparently new species of North American *Hylobius*, with synoptic key (Coleoptera: Curculionidae). *Proceedings of the Entomological Society of Washington* 36: 252-256.
- Buchanan, L. L. 1935a. Notes on the generic synonymy [sic.] of *Collabismodes cubae* Boh. (Coleoptera: Curculionidae). *Bulletin of the Brooklyn Entomological Society* 30: 125-126.
- Buchanan, L. L. 1935b. Systematic notes on the Trachodinae (Coleoptera: Curculionidae). *Proceedings of the Entomological Society of Washington* 37: 178-183.
- Buchanan, L. L. 1935c. A new genus and species of orchid weevils (Coleoptera, Curculionidae, Barinae). *Proceedings of the Hawaiian Entomological Society* 9: 45-48.
- Buchanan, L. L. 1935d. Thomas Lincoln Casey and the Casey collection of Coleoptera. *Smithsonian Miscellaneous Collections* 94: 1-15. [iii-iv, Foreword by Alexander Wetmore]
- Buchanan, L. L. 1936a. Synopsis of *Lepidophorus* (Coleoptera, Curculionidae). *Bulletin of the Brooklyn Entomological Society* 31: 1-10.
- Buchanan, L. L. 1936b. The pacificus group of *Cossonus* (Coleoptera: Curculionidae). *Pan-Pacific Entomologist* 12: 111-116.
- Buchanan, L. L. 1936c. Nomenclature of *Listroderes obliquus* Klug (the vegetable weevil) (Coleoptera: Curculionidae). *Proceedings of the Entomological Society of Washington* 38: 204-208.
- Buchanan, L. L. 1936d. A new genus and four new species of West Indian Curculionidae (Coleoptera). *Memorias de la Sociedad Cubana de Historia Natural* 10: 145-152.
- Buchanan, L. L. 1936e. The genus *Panscopus* Schoenherr (Coleoptera: Curculionidae). *Smithsonian Miscellaneous Collections* 94: 1-18.
- Buchanan, L. L. 1937a. A new species of *Ceutorhynchus* from North America (Coleoptera: Curculionidae). *Bulletin of the Brooklyn Entomological Society* 32: 205-207.

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## Lee L. Buchanan (end)

- Buchanan, L. L. 1937b. Notes on Curculionidae (Coleoptera). *Journal of the Washington Academy of Sciences* 27: 312-316.
- Buchanan, L. L. 1939a. Changes of names in Carabidae and Rhynchophora (Coleoptera). *Proceedings of the Entomological Society of Washington* 41: 79-82.
- Buchanan, L. L. 1939b. The species of *Pantomorus* of America north of Mexico. United States Department of Agriculture, Miscellaneous Publication 341: 1-39.
- Buchanan, L. L. 1940. Three new species of the *longulus* group of *Cylindrocopturus* (Coleoptera: Curculionidae). *Proceedings of the Entomological Society of Washington* 42: 177-181.
- Buchanan, L. L. 1941a. A new species of *Metamasius* from Cuba (Coleoptera: Curculionidae). *Memorias de la Sociedad Cubana de Historia Natural* 15: 169-172.
- Buchanan, L. L. 1941b. A new species of *Smicronyx* from Saskatchewan, and synonymical notes (Coleoptera: Curculionidae). *Proceedings of the Entomological Society of Washington* 43: 29-32.
- Buchanan, L. L. 1942a. Four new species of white-fringed beetles (subgenus *Graphognathus*) from the southeastern part of the United States (Coleoptera: Curculionidae). *Bulletin of the Brooklyn Entomological Society* 37: 107-110.
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## LLAMA Project Funded by NSF

By Robert S. Anderson (Canada: randerson@mus-nature.ca)

No, it is not a study about llamas, but rather LLAMA is the acronym that stands for "Leaf Litter Arthropods of MesoAmerica", a joint project on leaf litter ants and weevils being undertaken by Jack Longino of Evergreen College in Olympia, Washington and me. For those of you who do not know, Jack Longino was one of the principal investigators on the hugely successful ALAS (Arthropods of La Selva) project

centered in Costa Rica from the early 1990's to last year (see the project website at <http://viceroy.eeb.uconn.edu/ALAS/ALAS.html>). Jack's interest is Costa Rican ants but last year we discussed the idea of collectively looking at the different diversity patterns in ants and weevils throughout Central America, in particular those inhabiting the leaf litter. The proposal was submitted in July of 2006 and funding was announced in December of 2007.

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## LLAMA Project (end)

The main objectives of the proposal are:

1. Species discovery and description through intensive sampling of ants and weevils in wet forest leaf litter throughout Mesoamerica.
2. Discovery of patterns of endemism and species turnover for montane versus lowland arthropods and for local versus regional scales.
3. Elucidation of geographic variation and the nature of species boundaries, using both morphological and molecular evidence.
4. Training of graduate and undergraduate students in taxonomy and systematics.
5. Improving international scientific collaboration and developing taxonomic resources and infrastructure in Latin America.

The project strongly emphasizes undergraduate and graduate student training as part of the discovery process. Each year, graduate students from the USA and from the host country will form a critical part of the field sampling team. Two graduate students are involved; the ant student is Michael Branstetter of the University of California at Davis, and the weevil student is Jesús Luna Cozar from ECOSUR in Chiapas, Mexico (i.e., the featured researcher of CURCULIO 52, March 2006).

In 2007 our plans are for a three-week trip to Chiapas and Guatemala to scout sites for sampling and to establish logistics for the field sites, accommodations, working facilities, etc. It will also be an excellent opportunity for myself and Jack to work closely with our in-country collaborators. In 2008, sampling will start in Chiapas, Mexico continuing in Guatemala in 2009. Honduras in 2010 and Nicaragua in 2011 will follow. It promises to be an exciting project and one that will generate lots of specimens for taxonomic study.



Species pertaining to an undescribed cryptorhynch genus occurring from Honduras to southern Mexico; photo by Robert Anderson



Species pertaining to an undescribed lymanthine genus occurring from Honduras to southern Mexico; photo by Robert Anderson

A website has been established at <http://llama.evergreen.edu/>, and more details are available there. If you are interested in participating as an undergraduate field assistant, please visit the website and follow the appropriate instructions.

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## Visit to Landcare Research - Auckland, New Zealand

By Robert S. Anderson (Canada: randerson@mus-nature.ca)

At the invitation of Dr. Richard Leschen, Coleopterist at Landcare Research in Auckland, I was privileged to visit and work in the New Zealand Arthropod Collection (NZAC) from January 15 to February 14, 2007. My task during this visit was to work with the Willy Kuschel weevil collection and to coordinate the transfer of the collection from the "Schmidt type" storage boxes that had been employed for many years by Willy, to the standard Cornell drawers used by Landcare Research.

It was also required that the collection be organized and curated during the process of the transfer, that names be checked and verified, types be recorded, and that a species level inventory of the collection be undertaken and made available in electronic format.

The Kuschel collection was housed in hundreds of these "Schmidt type" boxes. Boxes were well labeled and specimens were in generally excellent condition. On introduction to the collection I was surprised (and I must admit, somewhat over-

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## Visit to NZAC (continued)

whelmed) at the size and diversity of the collection, but after formulating a strategy to proceed in an orderly fashion, excellent progress was made during my stay. I was assisted by Oliver Hannaford, a university student, undergoing his co-op work placement, and also by Steven Thorpe, a volunteer at Landcare Research.



Willy Kuschel and Robert Anderson - Auckland (NZ), II-11-2007

Upon my arrival, most of the 'boxes' had already been placed in Cornell drawers, two to a drawer. This occupied some 648 drawers. It was decided that we record all species names in an Excel spreadsheet, along with a notation if any of the specimens present were types. We started with the Anthonominae, continuing with Cyclominae, Molytinae, and a variety of smaller groups. As I noted, the collection is substantial and during my one month stay we were unable to undertake work on the Baridinae, Cryptorhynchinae, Cossoninae, and Entiminae; the Conoderinae were only partially completed. These groups all remain in their original boxes, two to a Cornell drawer and will be curated upon a future visit.

In the NZAC, the weevil collection is housed in a separate room on floor 1, removed from the rest of the collection located on floor 2. Appropriately referred to as the 'vault', this is a climate and access controlled room in which the specimens are very secure. All NZAC primary types (including weevils) are stored in locked cabinets with those from the rest of the NZAC on floor 2. The weevils are organized geographically, with two banks of cabinets devoted to the wonderful New Zealand fauna, and the rest devoted to the Kuschel collection. In total, over 190 drawers of specimens were curated and 2039

names electronically captured. Of these species, 261 were represented by type specimens, generally by paratypes.

In all, this is an excellent collection, but then I would not have expected otherwise. I was just not anticipating the quantity and diversity of specimens and species represented. Most of the specimens are from South America, particularly Chile and Bolivia, and were collected by Willy himself during the late 1940s through the early 1960s. All are nicely mounted and prepared and many (especially those collected by Willy) have host plant or habitat information and are in often very long series. Also present are many specimens (including types and vouchers) originating from the Hustache collection, with whom Willy associated during his early years. These include an extensive set of vouchers from Hustache's work on the weevils of Guadeloupe. There are also older specimens, derived from old European collections, including those of Heller and Fielder. These are usually named to the species level and even though very few have any detailed locality data (other than country), they represent important vouchers for those species identifications as these were usually compared with the original types by Willy.

Most of the specimens in the collection are identified to species, and perhaps the most laborious part of my task was to decipher, verify spellings and authors, and to transcribe the identifications (generally handwritten in pencil on small pieces of yellow paper) onto new labels and enter them into the Excel file. Even if specimens were not identified to species, many of those pertaining to groups Willy had published on or had an interest in were nicely sorted to morphospecies, and some were even given manuscript (unpublished) names. I prioritized groups that had been studied to some extent by Willy, figuring that the level of curation and numbers of names in these groups would be the greatest and the best initial investment of my time. Very well represented groups were the Cyclominae, especially the Listorderina; the Hylobiini of the Molytinae (*Helipodus*, *Helius*, *Hilipinus*, etc); and the Cholini. A quick perusal of the Entiminae showed they were also highly diverse and well-represented, however time just did not allow their inclusion. My reasons for leaving the baridines and cryptorhynchs for later were that many of these were fully unsorted (as they are in most collections), except to the subfamily level.

It needs to be noted by specialists working on the South American fauna, that this is an important collection. For example, Juan José Morrone has published extensively on the Listroderina of southern South America. During my work I examined numerous listroderine groups in which the Kuschel collection held more material alone (including new species and likely also genera) than had been examined by Morrone during his studies. Especially important will be groups such as *Cylydrorhinus*, *Cholus*, and the Hylobiini. It is hoped that with the organization of the collection into the new storage system and

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## Visit to NZAC (end)

with the preparation of a detailed list of collection holdings, that the collection will be more frequently consulted during future systematic studies.

Needless to say, during the visit I also spent a couple of days with Willy Kuschel and his wife Beverly Holloway. Willy is working actively on weevils from New Caledonia, including some strange new Molytinae with wonderful waxy ornamentation on the pronotum. He is also working to finish up the New World Nemonychidae. He appears to be in excellent health and walking with a cane, accompanied me on two local collecting trips. Beverly Holloway just completed a Fauna of New Zealand Handbook on the Lucanidae.

Aside from my work in the collections, I was also fortunate

to be able to 'escape' into the local bush on a few occasions to collect some representatives of the very interesting and diverse weevil fauna. Dr. Robert Hoare, a microlepidopterist, was a wonderful host on these day trips taken to a variety of nearby forested habitats. Litter collecting was excellent and many hundreds of specimens of a variety of species were collected. Some of these will be passed on for inclusion in the Beetle Tree of Life Project.

In all it was an exciting and stimulating trip. I would like to thank especially Rich Leschen and Elena Hilario for letting me stay in their house during my visit. I also thank Grace Hall, Leoni Clunie, Trevor Crosby, and David Choquenot - all from Landcare Research - for their assistance during my stay. Requests to borrow material or for information should be directed to Dr. Richard Leschen at leschenr@landcareresearch.co.nz.

## The Bulletin Board

### News About Weevils

**Robert Anderson** (Canada: randerson@mus-nature.ca) informs that **Carlos Bordón's Curculionoidea collection has moved from Maracay, Venezuela, to Turin, Italy.** According to a corresponding note in the June 2003 of CHRYSEMELA: "One of the largest private collections in South America, the Bordón collection has been transferred from Maracay to the Museo Regionale di Scienze Naturali in Turin. This 250,000-specimens collection of insects (primarily Coleoptera) has heavy concentrations of weevils (Bordón's specialty), chrysomelids, tenebrionids, and scarabs. The collection contains many Bechyné types."

**Laibale Friedman** (Israel: laibale@post.tau.ac.il) reports that his Indian colleague, **Kumar Ghorpadé**, an expert on Syrphidae and Editor of the Journal *Collemania*, **is offering weevil specimens present in his collection for taxonomic research.** Please send specific requests to Dr. Kumar Ghorpadé, Systematic Entomology, University of Agricultural Sciences, Krishi Nagar, Dharwar 580 005, INDIA; or e-mail: kumarghorpade@yahoo.co.uk.

**Vasily Grebennikov** (Canada: grebennikovv@inspection.gc.ca) **is looking to recruit a motivated postdoctoral researcher** to study the systematics and biology of phytophagous beetles primarily from the North Asian Pacific Region posing a risk to Canadian plant resources. The successful candidate will be located in Dr. Grebennikov's lab at the Neatby Building in Ottawa, with ready access to the Canadian National

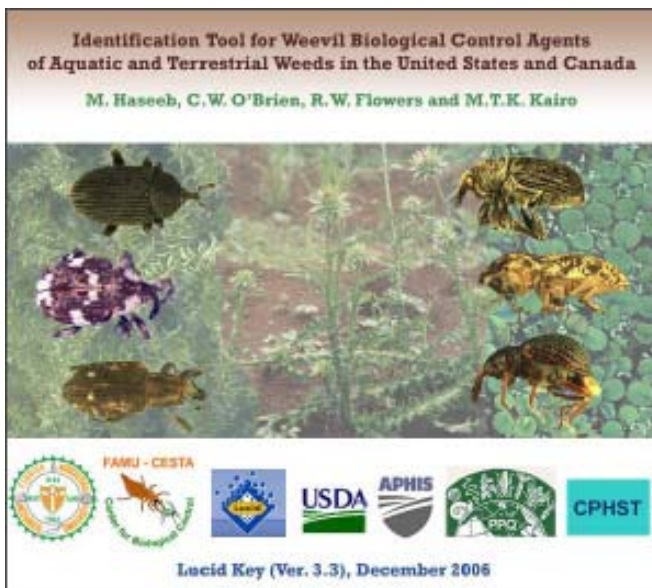
Collection of Insects and comprehensive entomology library; both the largest of their kinds in Canada. Familiarity with the DNA-based research, as well as some ability to speak Chinese/Russian, is helpful although not required. For additional information please contact Dr. Grebennikov via e-mail.

**Muhammad Haseeb** (USA: muhammad.haseeb@famu.edu) announces the publication of the **Identification Tool for Weevil Biological Control Agents of Aquatic and Terrestrial Weeds in the United States and Canada** (acronym: WBCA), a new Lucid® interactive identification tool, by Muhammad Haseeb, Charles O'Brien, Wills Flowers, and Moses Kairo. The following passages were adapted from a promotional document. WBCA was created through a long-term federal-state partnership between USDA-APHIS and Florida A&M University, an 1890's Historically Black University. USDA-CSREES provided additional support for the project. The Lucid tool (see [www.lucidcentral.org](http://www.lucidcentral.org)) was developed by FAMU's Center for Biological Control to support a diversity of users, including taxonomists, field personnel, and students, who must identify and require information on beneficial insects (native and non-native) in the United States and Canada. WBCA covers 38 beneficial weevil species in 28 genera, of which 36 species are exotic and two are endemic in the United States and Canada. The tool provides detailed species information and over 140 images showing diagnostic characters and the dorsal and lateral habitus for each species. WBCA can readily be accessed

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## Bulletin Board (end)

at: <http://www.famu.org/weeviltool>. The interactive key component requires the installation of Java Runtime Environment, version 1.4.2 or greater; Lucid software is not necessary to access and use the tool. WBCA will also be made available on CD later this year. For those wishing to receive the tool on CD, please send a request to: Center for Biological Control, 310 Perry-Paige Building (South), Florida A&M University, Tallahassee, Florida 32307-4100, USA. The authors of WBCA would appreciate receiving any comments about the value and usefulness of this tool and any problems encountered when accessing or using the tool.



**Michail Mandelshtam** (Russia: [michail@MM13666.spb.edu](mailto:michail@MM13666.spb.edu)) reports sad news that the **well-known Russian weevil researcher Alexej Isaev has deceased in 2006.**

**Michael Morris** (United Kingdom: [mgorris.ent@virgin.net](mailto:mgorris.ent@virgin.net)) draws attention to the **publication of the following book: Antonio Machado Carillo, 2006: T. Vernon Wollaston (1822-1878). Un Entomólogo en la Macaronesia.** Fundación César

Manrique. Lanzarote, Canary Islands. ISBN: 84-88550-69-3. Wollaston published much important work on Curculionoidea in Macaronesia, and was a specialist in Cossoninae, in particular. Reviews of this new publication (written in Spanish) would be welcome; copies may be solicited from the Fundación César Manrique at the following address: Taro de Tahiche, 35507, Teguise, Lanzarote, Islas Canarias, Spain.

**Jirislav Skuhrovec** (Czech Republic: [jirislav@email.cz](mailto:jirislav@email.cz)) announces the venue of the **2007 Immature Beetles Meeting, to be held on October 4-5, 2007, in Prague, Czech Republic.** Abstracts of papers are accepted until July 31. For more information please refer to the Meeting website at [http://web.natur.cuni.cz/zoologie/entomologie/meeting/IBM\\_2007.htm](http://web.natur.cuni.cz/zoologie/entomologie/meeting/IBM_2007.htm).

**Guillermo Wibmer** (USA: [gwibmer@comcast.net](mailto:gwibmer@comcast.net)) reports on the **Presence of *Rhinocyllus conicus* (Froelich) in Uruguay:** "During my last trip to Uruguay in November 2006, I collected a cleonine on "cardo negro" ("bull thistle"), *Cirsium vulgare* (Savi) Tenore, a common introduced weed. I collected series of the weevils at three localities, only a few kilometers apart along Ruta 21, 6.5-10 km north-northwest of Colonia del Sacramento. Although I had collected often in those areas in the past I had never encountered this species, which was clearly new to the fauna of Uruguay. I suspected that it was *Rhinocyllus conicus* (Froelich), and my friend Charles W. O'Brien confirmed my tentative identification.

The species is not known to have been introduced intentionally in Uruguay, according to my friend Carlos S. Morey (pers. comm.). However, since the species was introduced and has become established in northeastern Buenos Aires Province and southeastern Santa Fe Province, Argentina (Molinari et al, 1994), I suspect that the weevil has spread to southwestern Uruguay on its own."

See also the following reference:

Molinari, A. M., Feldman, S. R., and J. L. Vesprini. 1994. Establecimiento de *Rhinocyllus conicus* (Froelich) (Coleoptera: Curculionidae) en un área del sudeste de la Provincia de Santa Fe (Argentina). *Revista de la Sociedad Entomológica Argentina* 53: 21-23.

## Recent Publications on Curculionoidea

**Alziar, G. 2007.** The Curculionoidea-Fauna of Cyprus. *Le Charançon: Catalogues & Keys*, No. 3. CURCULIO-Institute, Mönchengladbach. [see [http://www.curci.de/illustrated\\_catalogue/curculionoidea-fauna\\_of\\_cyprus/](http://www.curci.de/illustrated_catalogue/curculionoidea-fauna_of_cyprus/)]

**Alziar, G., and Ch. Makris. 2006.** Description de *Trogloorhynchus triantisi* n. sp. de l'île de Chypre (Curculionidae: Otio-

hynchinae). *Snudebiller* 7: 76-78.

**Anderson, R. S., C. W. O'Brien, G. A. Salsbury, and S. J. Krauth. 2007.** *Orchestes alni* (L.) newly discovered in North America (Coleoptera: Curculionidae). *Journal of the Kansas Entomological Society* 80: 78-79.

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## Recent Publications (continued)

- Beaver, R. A. 2007.** A new Oriental genus of pinhole borer (Coleoptera: Curculionidae: Platypodinae). *Entomologist's Monthly Magazine* 143: 17-25.
- Borovec, R., and F. Bahr. 2006.** Revision des Genus *Cathormiocerus* Schoenherr, 1842 - 2. Teil: Die *Cathormiocerus excursor*-Gruppe (Curculionidae: Entiminae: Trachyphloeini). *Snudebiller* 7: 79-151.
- Conord, C., G. Lempérière, P. Taberlet, and L. Després. 2006.** Genetic structure of the forest pest *Hylobius abietis* on conifer plantations at different spatial scales in Europe. *Heredity* 97: 46-55.
- Curculio Team. 2006a.** Digital-Weevil-Determination for Curculionidea of West Palaearctic. *Transalpina: Sitona* (Entiminae: Sitonini). *Snudebiller* 7: 14-20. [English]
- Curculio Team. 2006b.** Digital-Weevil-Determination der westpaläarktischen Curculionidea. *Transalpina: Sitona* (Entiminae: Sitonini). *Snudebiller* 7: 21-27. [German]
- Davis, S. R., and M. S. Engel. 2006a.** A zygopine weevil in early Miocene amber from the Dominican Republic (Coleoptera: Curculionidae). *Caribbean Journal of Science* 42: 253-256.
- Davis, S. R., and M. S. Engel. 2006b.** A weevil of the genus *Caulophilus* in Dominican amber (Coleoptera: Curculionidae). *Polskie Pismo Entomologiczne* 75: 101-104.
- Davis, S. R., and M. S. Engel. 2006c.** Dryophthorine weevils in Dominican amber (Coleoptera: Curculionidae). *Transactions of the Kansas Academy of Science* 109: 191-198.
- del Río, M. G., and A. A. Lanteri. 2007.** Taxonomic revision of *Melanocyphus* Jekel (Coleoptera: Curculionidae). *Studies on Neotropical Fauna and Environment* 42: 127-132.
- Elgueta, M., and A. E. Marvaldi. 2006.** Lista sistemática de las especies de Curculionidea (Insecta: Coleoptera) presentes en Chile, con su sinonimia. *Boletín del Museo Nacional de Historia Natural, Chile* 55: 113-153.
- Foster, A. P., M. G. Morris, and P. F. Whitehead. 2001.** *Ixapion variegatum* (Wencker, 1864) (Col., Apionidae) new to the British Isles, with observations on its European and conservation status. *Entomologist's Monthly Magazine* 137: 95-105.
- Fowles, A. P., and M. G. Morris, M. G. 1994.** *Apion (Helianthemapion) aciculare* Germar (Col., Apionidae), a weevil new to Britain. *Entomologist's Monthly Magazine* 130: 177-181.
- Fowles, A. P., and M. G. Morris. 1999.** *Datonychus arquatus* (Herbst, 1795) in the British Isles. *The Coleopterist* 8: 117-119.
- Franz, N. M. 2007.** Pollination of *Anthurium* by derelomine flower weevils (Coleoptera: Curculionidae). *International Journal of Tropical Biology* 55: 269-277.
- Germann, Ch., and P. E. Stüben. 2006.** Neue Erkenntnisse zur Taxonomie, Biologie und Ökologie der Cryptorhynchinae von den Makaronesischen Inseln. 2. Beitrag: Kanaren/La Gomera. *Snudebiller* 7: 161-181.
- Guerrero Rodríguez, E., J. A. Lezcano Barrozo, V. M. Sánchez Valdez, J. Corrales Reynaga, and J. Landeros Flores. 2004.** Biología del picudo de la yema de manzano *Amphidees latifrons* (Sharp) (Coleoptera: Curculionidae). *Acta Zoológica Mexicana* 20: 265-272.
- Guix, J. C. 2006.** Complex plant-disperser-pest interactions in NW Amazonia: beetle larvae and companions travelling inside *Attalea maripa* palm nuts. *Orsis* 21: 83-90.
- Hamilton, R. W. 2007. *Euscelus* species of the West Indies (Coleoptera: Attelabidae). *Zootaxa* 1495: 1-34.
- Kirkendall, L. R., and B. H. Jordal. 2006.** The bark and ambrosia beetles (Curculionidae, Scolytinae) of Cocos Island, Costa Rica and the role of mating systems in island zoogeography. *Biological Journal of the Linnean Society* 89: 729-743.
- Lyal, C. H. C., and M. A. Alonso-Zarazaga. 2006.** Addenda and corrigenda to 'A World Catalogue of Families and Genera of Curculionidea (Insecta: Coleoptera)'. 2. *Zootaxa* 1202: 21-31.
- Lyal, C. H. C., D. A. Douglas, and S. J. Hine. 2006.** Morphology and systematic significance of sclerolepidia in the weevils (Coleoptera: Curculionidea). *Systematics and Biodiversity* 4: 203-241.
- Machado, A. 2006.** The type material of the species of *Laparocerus* Schönherr, 1834 (Coleoptera, Curculionidae, Entiminae). *Journal of Natural History* 40: 2001-2055.
- Machado, A. 2007.** New species of *Laparocerus* Schönherr, 1834 (Coleoptera, Curculionidae) from the island of Tenerife (Canary Islands). *Zootaxa* 1457: 35-48.
- Majka, C. G., R. S. Anderson, D. F. McAlpine, and R. P. Webster. 2007.** The weevils (Coleoptera: Curculionidea) of the Maritime Provinces of Canada, I: new records from New Brunswick. *Canadian Entomologist* 139: 378-396.
- Majka, C. G., R. S. Anderson, and D. B. McCorquodale. 2007.** The weevils (Coleoptera: Curculionidea) of the Maritime Provinces of Canada, II: new records from Nova Scotia and Prince Edward Island and regional zoogeography. *Canadian Entomologist* 139: 397-442.
- Mandelshtam, M. Yu. 2006.** New synonymies and new combinations in Scolytidae from the Kuril Archipelago and continental territories of the Russian Far East (Coleoptera). *Zoosystematica Rossica* 15: 323-325.
- Mandelshtam, M. Yu., and A. Yu. Isaev. 2006.** Bark-beetles (Coleoptera, Curculionidea: Scolytidae) of the Uluanovsk Province. *Samarskaya Luka, Bulletin* 17: 90-100.
- Mann, D. J., G. Hancock, and M. G. Morris. 2005.** History of the genus *Lixus* Fabricius (Curculionidae) in Britain with comments on nomenclature. *The Coleopterist* 14: 65-80.

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## Recent Publications (continued)

- Mantillieri, A. 2007.** Trois nouvelles espèces de Microtrachelizini Zimmerman, 1994, de Malaisie (Coleoptera, Brentidae). Bulletin de la Société entomologique de France 112: 5-8.
- Morris, M. G. 1993.** Some species of weevils recorded erroneously from Ireland, and others whose status requires confirmation (Coleoptera: Curculionoidea). Irish Naturalists' Journal 24: 325-328.
- Morris, M. G. 1994.** A new hostplant record for *Cionus scrophulariae* (L.) (Col., Curculionidae). Entomologist's Monthly Magazine 130: 186.
- Morris, M. G. 1995a.** The function of the dilated hind femora in male *Deporaus betulae* (L.) (Col., Attelabidae). Entomologist's Monthly Magazine 131: 114.
- Morris, M. G. 1995b.** An enquiry into the status and biology of *Hypera ononidis* (Chevrolat) (Col., Curculionidae). Entomologist's Monthly Magazine 131: 141-150.
- Morris, M. G. 1995c.** Surface swimming in some Curculionidae. Memoirs of the Entomological Society of Washington 14: 129-136.
- Morris, M. G. 1995d.** Recent advances in the higher systematics of Curculionoidea as they affect the British fauna. The Coleopterist 4: 21-30.
- Morris, M. G. 1995e.** A note on *Acalles misellus* Boheman (Curculionidae). The Coleopterist 4: 55.
- Morris, M. G. 1996.** *Polydrusus chrysomela* (Olivier) not a British species (Curculionidae). The Coleopterist 5: 26-27.
- Morris, M. G. 1997a.** New records of Irish weevils (Insecta, Coleoptera, Curculionoidea). Bulletin of the Irish Biogeographical Society 20: 155-178.
- Morris, M. G. 1997b.** Broad-Nosed Weevils. Coleoptera: Curculionidae (Entiminae). Handbooks for the Identification of British Insects 5(17a): 1-106.
- Morris, M. G. 1997c.** The Iris weevil in Dorset. Recording Dorset 6: 23.
- Morris, M. G. 1997d.** Some recent checklists and catalogues of European Coleoptera, with particular reference to Curculionoidea. The Coleopterist 6: 57-60.
- Morris, M. G. 1998.** Comparative aspects of the biology of three species of *Dorytomus* (Col., Curculionidae) associated with Aspen, *Populus tremula* L. Entomologist's Monthly Magazine 134: 197-213.
- Morris, M. G. 1999a.** The British species of *Glocianus* Reitter (Curculionidae: Ceutorhynchinae). The Coleopterist 8: 49-56.
- Morris, M. G. 1999b.** Some records of weevils (Curculionoidea) from Sutherland and Caithness, Northern Scotland. The Coleopterist 8: 57-62.
- Morris, M. G. 2000a.** *Rhynchaenus hirtellus* (Miller) (Coleoptera: Curculionidae) in Crete, with some comments on its probable life-history. Entomologist's Gazette 51: 203-204.
- Morris, M. G. 2000b.** The identification of *Polydrusus splendidus* (Herbst) (Curculionidae) - errors in current keys. The Coleopterist 9: 14.
- Morris, M. G. 2000c.** *Thryogenes fiorii* Zumpt (Eriirrhinidae) at Woodwalton Fen, Cambridgeshire. The Coleopterist 9: 101.
- Morris, M. G. 2002a.** True Weevils (Part I). Coleoptera: Curculionidae (Subfamilies Raymondionyminae to Smicronychinae). Handbooks for the Identification of British Insects 5(17b): 1-149.
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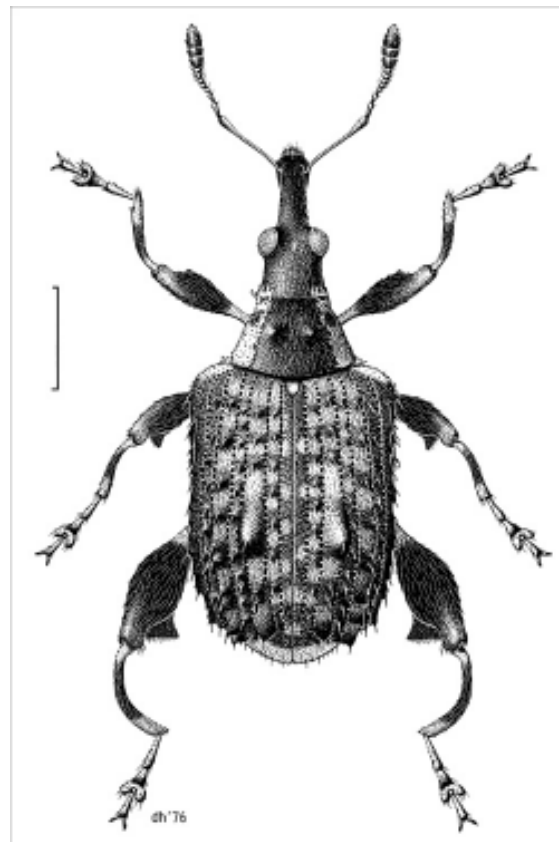
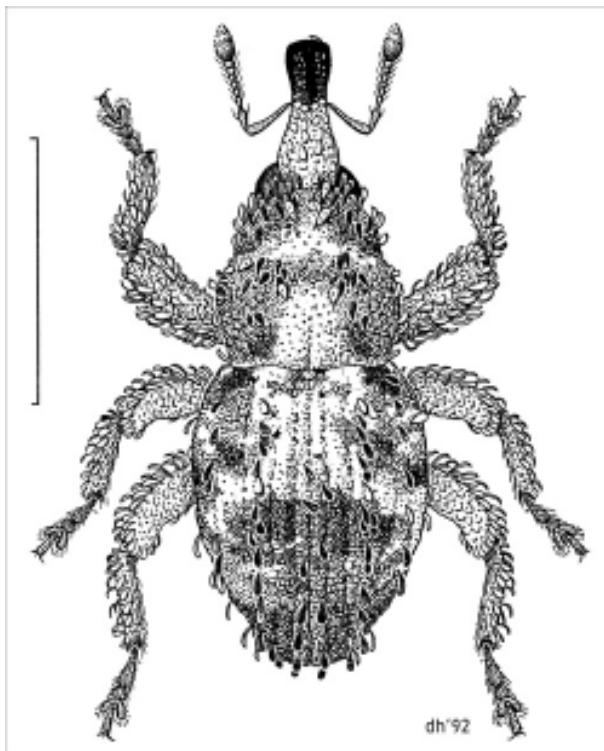
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New Zealand weevil species (see also NZAC report on page 9) - *Adstantes rudis* (Broun) (Cryptorhynchini; left) and *Amylopterus* sp. (Eugnomini; right); copyright Landcare Research, New Zealand



## This Just In

### Taxonomy of the Weevil Subfamily Cryptorhynchinae: Integrating Molecules and Morphology

By **Jonas Astrin** (j.astrin.zfmk@uni-bonn.de) and **Peter Stüben** (p.stueben@t-online.de)

In close cooperation and sharing their respective expertise and facilities, members of the CURCULIO-Institute (CURCI; Germany: Mönchengladbach) and the Zoological Research Museum Alexander Koenig (ZFMK; Germany: Bonn) have recently begun to address the task of **revisiting and expanding the taxonomy of Cryptorhynchinae** (Coleoptera: Curculionidae). Our focus lies on **Central and Western European species as well as with species from the Macaronesian islands** (especially Canary Isles), where we will cooperate with the University of La Laguna and with an expert in canopy fogging.

**In an integrative approach to taxonomy we intend to link analyses of phenotypical characters with DNA sequences.** In some cases, we will also include crossbreeding experiments. In many well-investigated groups of western Palearctic Curculionidae we have long since reached the "morphological limits" of our efforts in producing differential diagnoses. Sometimes, the keys resulting from such efforts can only be understood by specialists. We believe it is time to bring together traditional morphological and ecological knowledge with the potent tools of molecular systematics in order to overcome the obstacles each approach would meet by itself. DNA sequence analysis provides a nearly unlimited number of characters that are easy to quantify and reproduce, discrete, and which can be homologized over long phylogenetic distances. It is an ideal method to complement morphological research with.

First, we plan to establish a very rough phylogenetic reconstruction at genus/subgenus level of Western Palearctic Cryptorhynchinae as a framework for subsequent taxonomic work. This will be done with molecular markers that can also be used in the second (and main) stage of our project, in which we will revise the classification of selected groups of Cryptorhynchinae at the species level, addressing the many open questions they still entail. Finally, we plan to develop a **DNA barcoding system that will allow the fast and straightforward molecular identification of the analyzed species.** Larvae or females have so far often been impossible to identify in European Cryptorhynchinae, and the painstaking dissection of the

male genital apparatus - only mastered by a handful of specialists - may still deliver ambiguous results. Thus, we hope to make the taxonomy of Cryptorhynchinae accessible to the non-specialist, including workers in ecology, forestry and conservation, who should be empowered to make use of these weevils' potential as bioindicators for old forests, at least in Central Europe. This has so far been impeded by the group's morphological crypticness.

**We are still looking for additional specimens of European Cryptorhynchinae (and surrounding regions) preserved in >90% ethanol only. Any of these will be very welcome, but we would also be glad to receive Cryptorhynchinae from other regions (e.g., tropics) as outgroups!**



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