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Jessica E. Bird



Torsten Dikow



2012 Hymenoptera Systematics Course (Sweden)

EntNews for August - December, 2012

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ANNOUNCEMENTS:

The 1157th Regular Meeting of the **Entomological Society of Washington** was held at the Insect Zoo on November 1st. Michael Branstetter, NMNH Peter Buck Postdoctoral Fellow in Hymenoptera, presented "Tales from the leaf litter: project LLAMA and the systematic and natural history of Mesoamerican *Stenamma* (Hymenoptera: Formicidae).

The 1158th Regular Meeting of the **Entomological Society of Washington** was held at the Insect Zoo on December 6th. Mark Hoddle, Extension Specialist Director of the Center for Invasive Species Research, UC-Riverside, presented a review of efforts to control insect pests in California.

Torsten Dikow has recently become a Research Entomologist with the Department of Entomology. He received his M.Sc. at the Universitaet Rostock, Germany, and his PhD at Cornell University. His expertise is with the dipteran families Asilidae, Mydidae and Apoceraidae. He has described sixty-two new fly species, including one fossil robber fly from Dominican Amber.

In October 2012 **Jessica Bird** joined the Collections Information Management group as Data Manager. Together with Cynthia Murphy, Jessica's role will be to upload data into EMu. Jessica has formal training in Entomology through a Bachelor's degree from Purdue University and a Master's degree from University of Florida, her specialty is in Hymenoptera-Cynipidae. Jessica is coming from the private sector, where her duties in data analysis for a financial institution provided her with the necessary skills for the job ahead: analyzing software programs to keep current; reporting; cataloguing and maintenance of archival records and documents; reviewing and tracking information from different projects for quality control and adherence to company policy; she also coordinated the implementation of new database systems. She comes with a reputation of being reliable, inquisitive and a self starter. Originally from Indiana she likes baseball and she is a cookie-monster of sorts. We welcome her on board.

Lauren Helgen has recently completed her trust position for Scott Miller, and will be missed as a member of the combined entomological staff. Margaret Rosati, who was both an intern and a contractor working with Scott and Lauren during the past

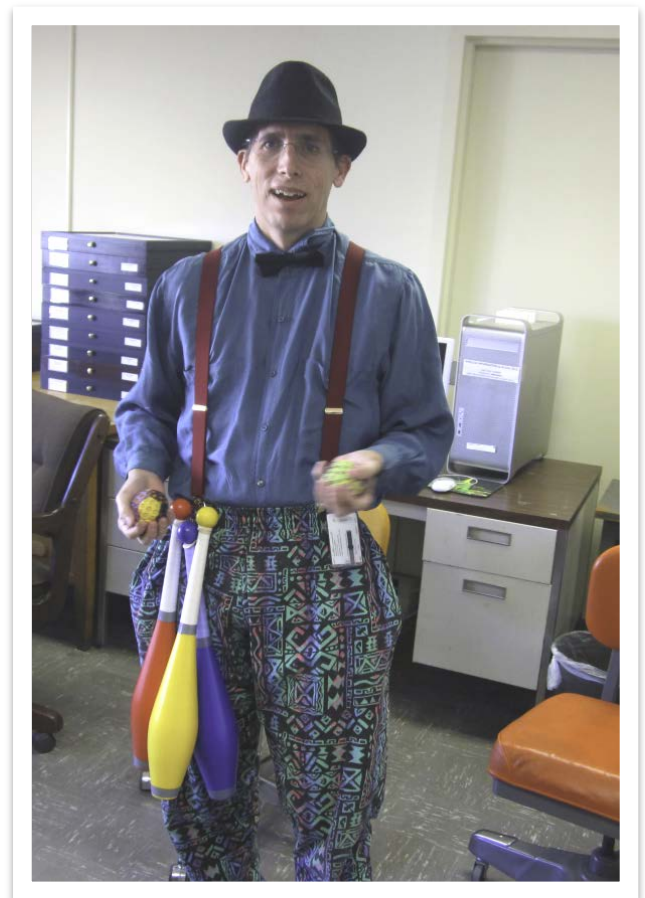
few years, has taken over Lauren's responsibilities as Scott's new full-time research assistant.

In late November, **Jens Prena** accepted a position as Professor in the Distinguished Research Fellows Program in Beijing, funded by the Chinese Academy of Science. The appointment will be for one year, and will primarily involve weevil identifications.

Congratulations to **Taina Litwak**, whose artwork and career was highlighted in a November issue of *Science News*. To view this article, go to:

www.sciencenews.org/view/generic/id/346179/description/The_Science_Life .

At a Hallowe'en festivity that had limited attendance due to the timing of Hurricane Sandy, **Stu McKamey** appeared in full regalia, sporting the costume and appropriate articles of a juggler. Stu even briefly demonstrated his juggling skills, leaving his colleagues in a state of surprise and admiration.



During a recent visit to Thailand, **Vichai Malikul** took time to present a course in illustration techniques to a local school.



And, during the Senate of Scientists Lightning Talks presented in November when members of the NMNH Board of Directors were also here, Vichai managed to snap a photograph of the new Sant Director of NMNH, Kirk Johnson, together with retired Supreme Court Justice Sandra Day O'Connor.



OUTREACH:

Matt Buffington, Michael Gates and Robert Kula, researchers from the U.S.D.A.'s Systematic Entomology Lab, co-taught a one-week course in August on hymenopteran systematics at a field station in Sweden. The course consisted of nine instructors from three countries teaching 27 students from seven countries. Students learned about Hymenoptera classification and natural history, as well as how to collect,

identify, and curate wasps, bees, and ants. Lectures were given during the day, and specimen identification sessions were held at night. The course included a symposium in which scientists from Denmark, Sweden, and the United States presented talks on various aspects of hymenopteran systematics.

PUBLICATIONS:

Attasopa, K. & **Warrit, N.** 2012. Redescription, subgeneric position and distribution of the Oriental burrowing bee, *Amegilla fimbriata* (Hymenoptera: Apidae: Anthophorini). Pan-Pac. Entomol. 88(3): 281-291.

--abstract-- *Amegilla fimbriata* (Smith, 1897) (Hymenoptera; Apidae; Anthophorini) is redescribed with detailed study of the male genitalia. Ambiguity concerning the subgeneric placement of *A. fimbriata* in the subgenus *Glossamegilla* is discussed. Lectotype of *A. fimbriata* is designated.

Boughton, A.J., **Kula, B.R., Gates, M., Zhang, Y., Nunez, M., O'Connor, J., Whitfield, J.B., & Center, T.D.** 2012. Parasitoids attacking larvae of a recently introduced weed biological control agent, *Neomusotima conspurcatalis* (Lepidoptera: Crambidae): key to species, natural history, and integrative taxonomy. Ann. Entomol. Soc. Am. 105(6): 753-767.

--abstract-- The extent to which introduced weed biocontrol agents are subject to attack by generalist natural enemies within the area of introduction is believed to be an important determinant of program success. We monitored larval populations of a recently introduced weed biocontrol agent, *Neomusotima conspurcatalis* Warren, at field sites in Florida to investigate parasitism by native parasitoids and to assess the overall rate of parasitism. Of six native parasitoid species reared from wild larvae of *N. conspurcatalis*, five, *Rhygoplitis choreuti* (Viereck), *Stantonia pallida* (Ashmead), *Elasmus apanteli* Gahan, *Hyphantrophaga sellersi* (Sabrosky), and an unidentified *Cotesia* sp. were primary parasitoids of the biocontrol agent. The sixth species, *Mesochorus apantelis* Dasch, is likely a hyperparasitoid of *R. choreuti*. From 1,100 *N. conspurcatalis* larvae collected from three sites, adult parasitoids emerged from 6.8% of those larvae and 73.6% of the *N. conspurcatalis* developed to adulthood. *R. choreuti* was the most common parasitoid, accounting for 81% of adults reared. Photographs of parasitoid species are provided, aspects of their natural histories and host ranges are described, and accumulation of native parasitoids on introduced weed biocontrol agents is discussed.

Buffington, M.L., Brady, S.G., Morita, S.K., and Van Noort, S. 2012. Divergence estimates and early evolutionary history of Figitidae (Hymenoptera: Cynipoidea). Systematic

Entomology 37: 287-304.

---abstract--- We examine the phylogenetic relationships of Figitidae and discuss host use within this group in light of our own and previously published divergence time data. Our results suggest Figitidae, as currently defined, is not monophyletic. Furthermoe, Mikeiinae and Pycnostigminae are sister-groups, nested adjacent to Thrasonae, Plectocynipinae and Euceroptinae. The recovery of Pycnostigminae as sister-group to Mikeiinae suggests two major patterns of evolution: (i) early Figitidae lineages demonstrate a Gondwanan origin (Plectocynipinae: Neotropical; Mikeiinae and Thrasoninae: Australia; Pycnostigminae; Africa); and (ii) based on host records for Mikeiinae, Thrasoninae and Plectocynipinae, Pycnostigminae are predicted to be parasitic on gall-inducing Hymenoptera. The phylogenetic position of *Parnips* (Parnipinae) was unstable, and various analyses were conducted to determine the impact of this uncertainty on both the recovery of other clades and inferred divergence times; when *Parnips* was excluded from the total evidence analysis, Cynipidae was found to be sister-group to [Euceroptinae + (Plectocynipinae (Thrasoninae + (Mikeiinae + Pycnostigminae)))]], with low support. Divergence dating analyses using BEAST indicate the stem-group node of Figitidae to be c. 126 Ma; the dipteran parasitoids (Eucoilinae and Figitinae), were estimated to have a median age of 80 and 88 Ma, respectively; the neuropteran parasitoids (Anachariinae), were estimated to have a median age of 97 Ma; sternorrhychan hyperparasitoids (Charipinae), were estimated to have a median age of 110 Ma; the Hymenoptera-parasitic subfamilies (Euceroptinae, Plectocynipinae, Thrasoninae, Mikeiinae, Pycnostigminae and Parnipinae), ranged in median ages from 48 to 108 Ma. Rapid radiation of Eucoilinae subclades appears chronologically synchronized with the origin of their hosts, Schizophora (Diptera). Overall, the exclusion of *Parnips* from the BEAST analysis did not result in significant changes to divergence estimates. Finally, though sparsely represented in the analysis, our data suggest Cynipidae have a median age of 54 Ma, which is somewhat older than the age of *Quercus* spp. (30-50 Ma), their most common host.

Buffington, M.L. & Sandler, R.J. 2012. The occurrence and phylogenetic implications of wing interference patterns in Cynipoidea (Insecta: Hymenoptera). *Invert. Syst.* 25: 586-597.

---abstract--- Wing interference patterns (WIPs) are a potentially rich source of taxonomic data. We surveyed a broad range of Cynipoidea (Hymenoptera) for the presence of these patterns. Further, we used phylogeny to investigate the evolutionary patterns of WIPs throughout the superfamily. We also documented that WIPs occur across nearly all species sampled, in both the hindwing and forewing; in many

instances, the forewing WIP is carried over to the hindwing. Only *Austrocynips mirabilis* Rick lacked WIPs. Among species that possess WIPs, we were able to recognize four distinct categories; radiform (radiating), striatiform (longitudinally striate), campiform (continuous field) and galactiform (amorphous mixture of colours). Wing interference patterns are not found in infusate wings or areas of infuscation on otherwise hyaline wings, and are reduced on large wings. Within Figitidae, WIPs are more phylogenetically conservative, especially at the tribal level; within Cynipidae the phylogenetic conservatism of WIPs is somewhat less clear, though all Synergini sampled had a very consistent WIPs. For certain genera, such as *Ganaspidium* and *Andricus*, WIPs may prove useful for species-level discrimination.

Buffington, M.L., van Noort, S. 2012. Revision of the Afrotropical Obertherellinae (Cynipoidea, Liopteridae). *ZooKeys* 202: 1-154.

---abstract--- The Afrotropical Obertherellinae are revised, and new dichotomous and multi-entry keys to the species of *Obertherella*, *Tessmannella*, and *Xenocynips* are provided. All previously described species in these genera are redescribed; descriptions are augmented by color images of the holotype for each species. The following 11 species are described as new: *Obetherella cyclopi* Buffington & van Noort; *O. eschara* Buffington & van Noort; *O. kibalensis* van Noort & Buffington; *O. pardolatus* Buffington & van Noort; *O. sharkeyi* Buffington & van Noort; *O. samba* Buffington & van Noort; *Tessmannella copelandi* Buffington & van Noort; *T. kiplingi* Buffington & van Noort; *T. roberti* Buffington & van Noort; *Xenocynips rhotion* Buffington & van Noort; and *X. ronquisti* Buffington & van Noort. We provide identification keys to the genera and species occurring in the Afrotropical region. Online dichotomous and interactive Lucid keys to genera and species are available:

<http://www.waspweb.org/Cynipoidea/Keys/index.htm>

Chamorro, M.L., Volkovitch, M.G., Poland, T.M., Haack, R.A., & Lingafelter, S.W. 2012. Preimaginal stages of the emerald ash borer, *Agrilus planipennis* Fairmaire (Coleoptera: Buprestidae): and invasive pest on ash trees (*Fraxinus*). *Agricul. & Forest Entom.* 7(3): 1-12.

---abstract--- This study provides the most detailed description of the immature stages of *Agrilus planipennis* Fairmaire to date and illustrates suites of larval characters useful in distinguishing among *Agrilus* Curtis species and instars. Immature stages of eight species of *Agrilus* were examined and imaged using light and scanning electron microscopy. For *A. planipennis* all preimaginal stages (egg, instars I-IV, prepupa and pupa) were described. A combination of 14 character states were identified that swerve to identify larvae

of *A. planipennis*. Our results support the segregation of *Agrilus* larvae into two informal assemblages based on characters of the mouthparts, prothorax, and abdomen: the *A. viridis* and *A. ater* assemblages, with *A. planipennis* being more similar to the former. Additional evidence is provided in favor of excluding *A. planipennis* from the subgenus *Uragrilus*.

Cline, A.R. & Shockley, F.W. 2012. A new species of *Fallia* Sharp (Cucujoidea: Discolomatidae) from the West Indies, with a world checklist for *Fallia*. *Coleop. Bull.* 66 (2): 93-99.

---abstract--- A new discolomatid species, *Fallia iviei* Cline and Shockley, new species, is described from the Dominican Republic. A distribution map, habitus and character images, and discussion of its biology are provided. The new species represents the first known member of the genus from the West Indies. A species checklist for all nine described species of *Fallia* Sharp is presented.

Coddington, J.A., Kuntner, M., & Opell, B.D. 2012. Systematics of the spider family Deinopidae with a revision of the genus *Menneus*. *Smiths. Contr. Zoology*, Number 636, pp. 1-61.

---abstract--- The enigmatic and rare spiders of the family Deinopidae are known for their extremely large ocelli and their unique habit of casting their small cribellate webs over nocturnal pedestrian or aerial prey. Although the monophyly of the family has not been controversial, deinopid descriptive systematic has been neglected since the original species descriptions. The first goal of this monograph is to test the monophyly of Deinopidae and its genera and thus to establish a phylogenetically informed taxonomy of the species. We provide the first phylogeny of this family on the basis of 53 morphological and 3 behavioral characters scored for 17 deinopid species and 2 outgroups. Extant deinopid spiders belong to two general the larger pantropical *Deinopis* MacLeay, 1838, diagnosed by the extreme size of their posterior median eyes, and the smaller *Menneus* Simon, 1876, of the Old World (sub)tropics with normally sized eyes. *Avella* Pickard-Cambridge, 1877, and *Avellopsis* Purcell, 1904, are junior synonyms of *Menneus* as their type species are nested throughout *Menneus* phylogeny. The second goal is to revise the non-*Deinopis* species of Deinopidae. Here, we recognize, diagnose, illustrate, describe, and phylogenetically place the 14 known *Menneus* species. Africa currently has six species: *Menneus camelus* Pocock, 1902, from South Africa; *M. capensis* (Purcell, 1904) new combination from Western Cape, South Africa; *M. darwini* new species from Tanzania; *M. dromedaries* Purcell, 1904 (removed from synonymy of *M. camelus*), from South Africa and Madagascar; *M. samperi* new species from Kenya, Tanzania, and Uganda; and *M. tetragathoides* Simon, 1876 (*M. affinis* Tullgren, 1910 new

synonym), from Angola, Malawi, and Tanzania. Australasia currently has eight species: *M. aussie* new species from eastern Australia and New Caledonia; *M. bituberculatus* new species from Queensland and Indonesian West Papua; *M. superciliosus* (Thorell, 1881) from eastern Australia; *M. nemesio* new species from New South Wales; *M. neocaledonicus* (Simon, 1889) from New Caledonia, *M. quasimodo* from Western Australia; *M. trinodosus* Rainbow, 1920 (*Deinopis insularis* Rainbow, 1920, new synonym), from Queensland and New South Wales; and *M. wa*, new species, from Western Australia. We propose *Avella angulata* L. Koch, 1878, *Avella despiciens* O.P.-Cambridge, 1877, and *Avella unifasciata* L. Koch, 1878, as nomina dubia. *Paleomicrmeneus lebanensis* Pennery, 2003, the earliest known fossil, is similar to *Menneus*. *Menneus* is phylogenetically sister to *Deinopis*, and within *Menneus* we recover a grade of Australasian species that includes the African *M. capensis*, followed by a distal clade of African species with peculiar asymmetric somatic morphology.

Davis, D.R., Davis, M.M., & Mannion, C. 2012. Neotropical Tineidae IX: a review of the West Indian *Xystrologa* and biology of *Xystrologa grenadella* (Wlsm.), an invasive pest of cultivated greenhouse plants in southern Florida, USA and Germany (Lepidoptera: Tineoidea). *Proc. Entomol. Soc. Wash.* 114(4): 439-455.

---abstract--- Only two species, *Xystrologa grenadella* (Walsingham) and *Xystrologa nigrovitta* (Walsingham), of the predominantly Neotropical genus *Xystrologa* are known to occur in the West Indies. *Xystrologa antipathetica* (Forbes), originally described from Puerto Rico but also reported from the United States (Florida), is considered a junior synonym of *X. grenadella*. The adults of both species and the larva and pupa of *X. grenadella* are described and illustrated. The larval habits of the genus are reported for the first time as a general detritivore, feeding on woody refuse, the bark of *Ficus* trees (in Florida, USA), fungi, and the roots of orchids, and pineapple (in Puerto Rico). The injury that larvae of *X. grenadella* can inflict upon cultivated orchids in Florida is summarized. The introduction of *X. grenadella* is reported for the first time in the Old World, as a pest of greenhouse plants in Germany.

Davis, D.R. & Landry, J.-F. 2012. A review of the North American genus *Epimartyria* (Lepidoptera, Micropterigidae) with a discussion of the larval plastron. *ZooKeys* 183:37-83.

--abstract--The indigenous North American micropterigid genus *Epimartyria* Walsingham, 1898 is revised. Three species are recognized, including *E. auricrinella* Walsingham, 1889 which occurs widely over much of the northeastern United States and Canada, a new species, *E. bimaculella*

Davis & Landry from northwestern United States and Canada, and *E. pardella* (Walsingham, 1880) from northern California to northern Oregon. The larva of *E. auricrinella* is described in detail, supplemented with illustrations of the external structure of the larval integument. The larval plastron is described and illustrated for *Epimartyria*, and this is compared with the plastrons of *Neomicropteryx* Issiki, 1931 and *Micropteryx* Hubner, 1825. COI barcode sequences show that the three species are genetically distinct, congruent with morphological differences. Marked haplotype divergence within some *E. auricrinella* populations appears to be unrelated to morphology, geography or phenology.

Erwin, T.L. & Ball, G.E. 2012. *Hybopteroides*, a new genus in the Cryptobatida group of subtribe Agrina, with three new species and notes on their way of life (Insecta: Coleoptera, Carabidae, Lebiini). Pan-Pac. Entomol. 88(2): 188-201.

--abstract-- *Hybopteroides* gen. nov., with three new species in the Cryptobatida group of subtribe Agrina, Lebiini, living in the lowland rain forest canopy of Ecuador and Peru are diagnosed, described and illustrated. The new genus is likely the adelphotaxon of *Hyboptera* Chaudoir 1872 + *Thoasia* Liebke 1939. *Hybopteroides biolat* sp. nov., the type species, is now known from the Rio Manu watershed in Peru; *Hybopteroides karolynae* sp. nov. is now known from the Rio Tambopata watershed in Peru; and *Hybopteroides penrosei* sp. nov. is now known from the upper and mid Rio Napo watershed in Ecuador. The species of this new genus are known from insecticidal fogging collections from the rainforest canopy and upper understory and from two specimens collected by E.S. Ross at his ecotourism lodge at Alinahui, Ecuador, found in his live embiid colonies.

Erwin, T.L., Micheli, C.J. & Hevel, G.F. 2012. The beetle family Carabidae of Guyane (French Guyana): the tribes, genera, and number of species known, with notes on their ways of life. (Insecta: Coleoptera: Adephaga). Supplement au Tome 15 du Bulletin "Le Coleopteriste," 1-88.

---abstract---Ongoing biotic inventories in reserved areas of Guayane have resulted in captures of hundreds of adults of the beetle family Carabidae. A study of these specimens collected in flight intercept traps (FITs) provides an initial snapshot of the carabid fauna of the country. Literature records indicate that 296 species in 95 genera are currently known from the country. The recent biotic inventories to date have found 452 morphospecies in 71 genera, 24 of these genera are new country records, thus Guyane now is known to have 118 genera of carabid ground-beetles. In addition, three undescribed genera have been discovered (in Hellaonini, Perigonini, and Ozaenini). Numbers of species, notes on their ways of life, adult length (range in millimeters), and overall

distribution of each genus are provided, as well as keys for identification at the generic level.

Faynel, C., Busby, R.C., & Robbins, R.K. 2012. Review of the species level taxonomy of the neotropical butterfly genus *Oenomaus* (Lycaenidae, Theclinae, Eumaeini). ZooKeys 222: 11-45.

--abstract—Seven new species of the Neotropical hairstreak genus *Oenomatus* are described: *O. mancha* Busby & Faynel, sp. n. (type locality Ecuador); *O. gwenish* Robbins & Faynel, sp. n. (type locality Panama); *O. lea* Faynel & Robbins, sp. n. (type locality Ecuador); *O. myrteana* Busby, Robbins & Faynel, sp. n. (type locality Ecuador); *O. mentirosa* Faynel & Robbins, sp. n. (type locality Peru); *O. andi* Busby & Faynel, sp. n. (type locality Ecuador) and *O. moseri* Robbins & Faynel, sp. n. (type locality Brazil, Santa Catarina). For each new *Oenomaus* species, we present diagnostic characters and notes on its habitat and biology. We illustrate adults, genitalia, and distribution. New distributional and biological data are presented for 21 previously described *Oenomaus* species. *Oenomaus melleus guyanensis* Faynel, 2008 is treated as new synonym of *O. m. melleus* (Druce, 1907). Females are described and associated with males for ten species using a variety of factors, including mitochondrial COI CAN "barcode" sequences. We summarize the reasons why the number of recognized *Oenomaus* has grown in the past decade from one species to 28 species. Finally, we overview the habitats that *Oenomaus* species occupy and note that the agricultural pest on Annonaceae, *O. ortygus*, is the only *Oenomaus* species that regularly occurs in greatly disturbed habitats.

**Flint, O.S., Jr. 2012. Two new *Oecetis* of the *reticulata* group from Micronesia (Trichoptera: Leptoceridae). Pan-Pac. Entomol. 88(3): 299-303.

--abstract--- Two new species of the *reticulata* group of the widespread genus *Oecetis* McLachlan 1877 are described from Pohnpei. *Oecetis mackenziei*, sp. nov., and *O. squamifera*, sp. nov., are the first species described from Micronesia after the poorly known *Triaenodes esakii* Tsuda 1941, known from Koror and Babelthuap, Palau. Figures are presented of the male and female genitalia of *O. mackenziei*, and the male only of *O. squamifera*: wing photographs of males of both species are included.

Gibbs, J, Brady, S.G., Kanda, K., & Danforth, B.N. 2012. Phylogeny of halictine bees supports a shared origin of eusociality for *Halictus* and *Lasioglossum* (Apoidea: Anthophila: Halictidae). Mole. Phylog. & Evolution 65(3): 926-939.

--abstract—The halictid bees are excellent models for the study of social evolution because greater social diversity and

plasticity are observed in the tribe Halictini than in any other comparable taxonomic group. We examine the evolutionary relationships within the subfamily Halictinae ("sweat bees") to investigate the origins of social behavior within the tribe Halictini. We present a new phylogeny of the subfamily Halictinae based on three nuclear genes (elongation factor-1 alpha, wingless, and long-wavelength rhopsin) and one mitochondrial gene (cytochrome c oxidase 1) sequenced for 206 halictine bees. We use model-based character reconstruction to infer the probability of a shared eusocial ancestor for the genera *Halictus* and *Lasioglossum*, the two genera of Halictini which display eusociality. Our results suggest a high probability for a single origin of eusociality for these two genera, contradicting earlier views of separate origins within each taxon. Fossil-calibrated divergence estimates place this ancestor at approximately 35 million ago, about 14 million years earlier than previous estimates of eusocial origins in the halictid bees.

Giorgi, J.A., & Vandenberg, N.J. 2012. Review of the lady beetle genus *Phaenochilus* Wiese (Coleoptera: Coccinellidae: Chilocorini) with description of a new species from Thailand that preys on cycad aulacaspis scale, *Aulacaspis yasumatsui* Takagi (Hemiptera: Sternorrhyncha: Diaspididae). *Zootaxa* 3478: 239-25.

--abstract-- Species of the genus *Phaenochilus* are reviewed, keyed, and illustrated, and an annotated checklist provided. A new species, *Phaenochilus kashaya* n. sp., is described from Thailand. This species feeds on an invasive pest of cycads, the cycad aulacaspis scale, *Aulacaspis yasumatsui* Takagi (Hemiptera: Sternorrhyncha: Diaspididae). The economic importance of cycads and cycad aulacaspis scale is discussed. A taxonomic history of *Phaenochilus* is provided.

Gotzek, D., Brady, S.G., Kallal, R.J. & LaPolla, J.S. 2012. The importance of using multiple approaches for identifying emerging invasive species: the case of the raspberry crazy ant in the United States. *PLoS ONE* 7(9): e 45314.

--abstract-- In the past decade, Houston, Texas, has been virtually overrun by an unidentified ant species, the sudden appearance and enormous population sizes and densities of which have received national media attention. The Raspberry Crazy Ant, as it has become known due to its uncertain species status, has since spread to neighboring states and is still a major concern to pest control officials. Previous attempts at identifying this species have resulted in widely different conclusions in regards to its native range, source, and biology. We identify this highly invasive pest species as *Nylanderia fulva* (Mayr) using morphometric data measured from 14 characters,

molecular sequence data consisting of 4,669 aligned nucleotide sites from six independent loci and comparison with type specimens. This identification will allow for the study and control of this emerging pest species to proceed unencumbered by taxonomic uncertainty. We also show that *N. fulva* has a much wider distribution than previously thought and has most likely invaded all of the Gulf Coast states.

Hara, H. **Smith, D.R. 2012. *Nesodiprion orientalis* sp. nov., *N. japonicas*, and *N. biremes*, with a key to species of *Nesodiprion* (Hymenoptera, Diprionidae). *Zootaxa* 3503: 1-24.
--abstract-- *Nesodiprion japonicas* (Marlatt, 1898), the type species of *Nesodiprion*, from Japan, Korea, and Taiwan, and *N. biremis* (Konow, 1899) from China are redescribed based on their type specimens. Lectotypes are designated for both. *Nesodiprion orientalis* Hara & Smith, sp. nov. is described from Thailand and Yunnan Province, China. Larvae of all three species feed on *Pinus*. Generic characters of *Nesodiprion* are discussed, and a provisional key to species of the genus is given.

Heidema, M., **Smith, D.R., & Shinohara, A. 2012. Taxonomy of *Dolerus subfasciatus* auct. and *D. subfasciatus* F. Smith with notes on the sawfly subgenus *Equidolerus* (Hymenoptera, Tenthredinidae). *Zootaxa* 3525: 1-17.

--abstract-- *Dolerus (Equidolerus) subfasciatus* F. Smith 1874 is a valid species. *Dolerus subfasciatus* auct. is shown to include three distinct species: the Nearctic *D. (Equidolerus) neoaprilis* MacGillivray, 1908, spec. rev. and two Palaearctic species, *D.(E.) pseudoanticus* Malaise, 1931, spec. rev. and *D. (E.) rhodogaster* Zhelochovtsev, 1935, stat. nov. Distribution records and imaginal diagnostic characters of the species are provided, and the male of *D. (E.) subfasciatus* is described. Lectotypes are designated for *Dolerus picinus* Marlatt, 1898, *D. picinus rhodogaster* Zhelochovtsev, 1935, *D. pseudoanticus* Malaise, 1931, and *D. yokohamensis* Rohwer, 1925. *Dolerus lucidus* Freymuth, 1870 and *D. purus* Jakowlew, 1891 are associated with the subgenus *Equidolerus* and *D. glabratus* Wei, 2002 is transferred from *Equidolerus* to *Dolerus* s. str.

Henry, T.J. 2012. Dr. J.E. McPherson, educator and researcher extraordinaire; biographical sketch and list of publications. *Great Lakes Entomol.* 45(3/4): 111-123.

Henry, T.J. & Carpintero, D.L. 2012. Review of the jumping tree bugs (Hemiptera: Heteroptera: Miridae: Isometopinae) of Argentina and nearby areas of Brazil and Paraguay, with descriptions of nine new species. *Zootaxa* 3245: 41-58.

--abstract-- Nine new species of jumping tree bugs, or Isometopinae, from Argentina, Paraguay, and southern Brazil

are described. The genus *Arisotelesia* is revised and the two new species *A. fuscata* (from Brazil) and *A. medialis* (from Argentina) are described, and the Argentine and Paraguayan species of *Myiomma* are reviewed and the seven new species *M. apicalis* (from Paraguay), *M. argentinensis* (from Argentina and Paraguay), *M. binotata* (from Argentina), *M. pallidopteura* (from Argentina), *M. pallipes* (from Argentina), *M. scutellata* (from Paraguay), and *M. uniformis* (from Argentina) are described. Previously published records of isometopines from Argentina are clarified. Color photographs, illustrations of the parameres of *M. argentinensis*, and keys are provided to help distinguish species.

Henry, T.J., Caldwell, D.L., & Halbert, S.E. 2012. *Tropidosteptes forestierae* (Hemiptera: Heteroptera: Miridae: Mirinae): A new species of plant bug injuring ornamental Florida swampprivet, *Forestiera segregata* (Oleaceae), in South Florida. *Insecta Mundi*. 0240:1-10.

---abstract--- The mirine plant bug *Tropidosteptes forestierae*, n. sp. is described from Collier County, Florida, where it was found causing serious injury to an extensive ornamental hedge of Florida swampprivet, *Forestiera segretata* (Jacq.) Krug & Urb. (Oleaceae). Adults, the fifth instar, and egg are described; color images of the adults, nymph, egg, and injury, scanning photomicrographs of selected adult structures, and illustrations of male genitalia are provided; and a key to help distinguish the 16 species of *Tropidosteptes* known to occur in southeastern United States is given.

Jenidek, E. & Chomorro, L. 2012. Six new species of *Agrilus* Curtis 1825 (Coleoptera, Buprestidae, Agrillinae) from the Oriental Region related to the emerald ash borer, *A. planipennis* Fairmaire, 1888 and synonymy of *Sarawakita* Obenberger, 1924. *ZooKeys* 239: 71-94.

---abstract--- Six new species of *Agrilus* Curtis, 1825 with affinities to the emerald ash borer, *A. planipennis* Fairmaire, 1888, are described from the Oriental Region: *A. crepuscularis* sp. n. (Malaysia); *A. pseudolubopetri* sp. n. (Laos); *A. sapphirinus* sp. n. (Laos); *A. seramensis* sp. n. (Indonesia); *A. spineus* sp. n. (Malaysia); and *A. tomentipennis* sp. n. (Laos). The genus *Sarawakita* Obenberger, 1924 syn. Nov. is considered a junior synonym of *Agrilus*.

Jones, T.H., Adams, R.M.M., Spande, T.F., Garraffo, H.M., Kaneko, T., & Schultz, T. 2012. Histronicotoxin alkaloids finally detected in the ant. *J. Nat. Prod.* 75(11): 1930-1936.

---abstract--- Workers of the ant *Carebarella bicolor* collected in Panama were found to have two major poison-frog alkaloids, cis- and trans-fused decahydroquinolines (DHQs) of the **269AB** type, four minor **269AB** isomers, two minor **269B** isomers, and three isomers of DHQ **271D**. For the first

time in an ant, however, the DHQs were accompanied by six histronicotoxins (HTXs), viz., **283A**, **285A**, **285B**, **285C**, **287A**, and **287D**. This co-occurrence of the TX and DHQ alkaloids is the usual pattern seen in dendrobatid frogs. This finding contrasts with our earlier study, where workers of a Brazilian ant, *Solenopsis (Diplorhoptrum)* sp., were found to have a very similar DHQ complex but failed to show HTXs. Several new DHQ alkaloids of MW 271 (named in the frog as **271G**) are reported from the above ants that have both m/z 202 and 204 as major fragment ions, unlike the spectrum seen for the poison-frog alkaloid **271D**, which has only an m/z 204 base peak. Found also for the first time in skin extracts from the comparison frog *Oophaga granulifera* of Costa Rica is a trace DHQ of MW 273. It is coded as **273F** in the frog; a different isomer is found in the ant.

Kallal, R.J. & LaPolla, J.S. 2012. Monograph of *Nylanderia* (Hymenoptera: Formicidae) of the world, Part II: *Nylanderia* in the Nearctic. *Zootaxa* 3508: 1-64.

---abstract--- The taxonomy of the Nearctic *Nylanderia* fauna is revised. Three new species are established, bringing the total number of native species from the region to 14. The new species are: *N. magnella*, *N. querna*, and *N. trageri*. Several species possess workers that are difficult to distinguish from each other and the presence of males is required for morphological identification. This is particularly the case with *N. vividula* and *N. terricola*. Two subspecies are synonymized: *N. vividula mjobergi* is considered a junior synonym of *N. vividula* and *N. vividula antillana* is considered a junior synonym of *N. guatemalensis*. At least five *Nylanderia* species have been introduced to the Nearctic region, including: *N. bourbonica*, *N. flavipes*, *N. fulva*, *N. pubens*, and *N. steinheili*. Another species, *N. guatemalensis*, is also included because its wide distribution across the Caribbean and Central America suggest it could become introduced to the Nearctic region. Identification keys are provided for the workers of native and introduced species and the males of native species. Distribution maps are provided for native and introduced species. Photomontage images are provided for the worker of each introduced species and all castes of the native species.

LaPolla, J.S., Kallal, R.J. & Brady, S.G. 2012. A new ant genus from the Greater Antilles and Central America, *Zatania* (Hymenoptera: Formicidae), exemplifies the utility of male and molecular character systems. *Syst. Entomol.* 37(1): 200-214.

---abstract--- The ant genus *Prenolepis* (Hymenoptera: Formicidae) is the nominal member of the recently established *Prenolepis* genus-group within the subfamily Formicinae. Our molecular phylogenetic analyses using fragments from five nuclear genes (*arginine kinase*, *carbomoylphosphate synthase*, *elongation factor 1-alpha F1*, *elongation factor 1-*

alpha F2, wingless) and one mitochondrial gene (*cytochrome oxidase1*) indicate that this genus is polyphyletic. Although the majority of *Prenolepis* species, all found in either Central America or the Greater Antilles, was robustly inferred to comprise a distinct lineage that is sister to the Old World genus *Parapatrechina*, here we describe this newly discovered lineage within the larger *Prenolepis* genus-group clade. The genus *Zatania*, gen. n. is composed of five extant species (*Zatania albimaculata*, *Zatania cisipa*, *Zatania gibberosa*, *Zatania gloriosa*, sp.n. and *Zatania karstica*) and one Dominican amber fossil species (*Zatania electra*, sp.n.). These are medium-sized ants (generally between 2.5 and 3 mm in total length) that are characterized by having long scapes and legs, and elongated mesosomata. A reliance on worker-based taxonomy has previously prevented the discovery of this new lineage because of worker convergence consisting of various combinations of elongated mesosomata, long scapes and legs, and a constriction immediately behind the pronotum, observed in several distinct lineages within the *Prenolepis* genus-group. However, we did find that male morphology complements our molecular results in revealing important diagnostic and potentially phylogenetically informative characters. Our study highlights the value for ant systematics to expand beyond its traditional foundation of worker-based morphology and embrace character systems from other castes and molecular data.

Lee, C-F., J. Świętojańska, & C. L. Staines. 2012. A review of the genus *Callispa* Baly, 1858, in Taiwan (Coleoptera: Chrysomelidae: Cassidinae: Callispini), with a description of their immature stages and notes on their bionomy. *Zoological Studies* 51(6): 832-861.

--**Abstract**-- Taiwanese species of the genus *Callispa* Baly, 1858 are reviewed. The adults, eggs, larvae and pupae of 2 species, *C. houjayi* sp. nov. and *C. tsoui* sp. nov. are described as new to science. The latter species was originally misidentified as *C. ruficollis* Fairmaire, 1889. Immature stages of both new species present 2 distinct types and are compared with other known *Callispa* immatures.

Lingafelter, S.W. & Wappes, J.E. 2012. A new species of *Trichoxys* Chevrolat (Cerambycidae: Cerambycinae: Clytini) from Mexico, with a key to known species. *Pan-Pac. Entomol.* 88(2): 154-162.

---**abstract**-- The cerambycine genus *Trichoxys* Chevrolat is diagnosed and a new species from Mexico, *T. penrosei* Lingafelter & Wappes, is described. *Trichoxys ochraetheoides* Linsley 1935 is a new synonym of *T. hirtellus* (Chevrolat 1860). Photos of the elytra of all 15 *Trichoxys* species are provided, along with a key to species.

Linnen, C.R. & **Smith, D.R.** 2012. Recognition of two additional pine-feeding *Neodiprion* species (Hymenoptera: Diprionidae) in the Eastern United States. *Proc. Entomol. Soc. Wash.* 114(4): 492-500.

---**abstract**-- DNA sequence studies revealed two additional species of *Neodiprion* in eastern United States, and morphological studies support their recognition. One, which is sympatric with and morphologically similar to *Neodiprion abbotii* (Leach) in southeastern United States, is recognized as *Neodiprion fabricii* (Leach), revised status. The larvae feed on *Pinus taeda* L. and *P. echinata* Miller. The other, described as *Neodiprion knereri* Linnen and Smith, n. sp., on *Pinus clausa* (Chapm. Ex Englem.) in Florida, is close to *Neodiprion virginiana* Rohwer.

Linzmeier, A.M. and **Konstantinov, A.S.** 2012. A new genus of leaf litter inhabiting Neotropical Monoplatina (Coleoptera: Chrysomelidae: Galerucinae: Alticini). *Zootaxa* 3260: 19-32.

---**abstract**--- A new genus (*Andersonaltica*) containing five new species (*A. denticulata*, *A. elongata*, *A. peci* – the type species of the genus, *A. tyberosa*, and *A. valens*) from Central America is described and illustrated. It is compared to *Aedmon* Clark, *Apleuraltica* Bechyne, *Distigmoptera* Blake, *Hypolampsis* Clark, and *Pseudolampsis* Horn and a key to identification of these genera is provided.

Mathis, W.N. and Zatwarnicki. 2012. Review of the shore-fly genus *Oedenopiforma* (Diptera: Ephydriidae). *Canad. Entomol.* 144(1): 81-92.

--**abstract**-- The shore-fly genus *Oedenopiforma* Cogan is reviewed, including new information on *Oedenopiforma vockerothi* (sp. nov. from United Arab Emirates). Structures of the male terminalis of these three species, a diagnosis of the genus, and a key to the included genera of Dryxini and species of *Oedenopiforma* are presented.

Mathis, W.N., Rung, A., & Jitrbam N, 2012. A revision of the genus *Planinasus* Cresson. *ZooKeys* 225: 1-83.

--**abstract**-- The genus *Planinasus* Cresson is revised and includes 18 extant and one fossil species. We clarify the status of the three previously described species and describe 15 new species as follows (type locality in parenthesis): *P. aenigmaticus* (Colombia. Bogota: Bogota (04° 35.8'N, 74° 08.8'W)), *P. neotropicus* (Panama. Canal Zone: Barro Colorado Island (09° 09.1'N, 79° 50.8'W)), *P. kotrbae* (Ecuador. Orellana: Rio Tiputini Biodiversity Station (0° 38.2'S, 76° 8.9'W)), *P. miradorus* (Brazil. Maranhao: Parque Estadual Mirador, Base da Geraldina (06° 22.2'S, 44° 21.8'W)), *P. tobagoensis* (Trinidad & Tobago. Tobago. St. John; Pariatuvier (11° 17.9'N 60° 39'W)), *P. xanthops* (Ecuador. Orellana: Rio Tiputini Biodiversity Station (0° 38.2'S, 76° 8.9'W)), *P.*

argentifacies (Peru. Madre de Dios: Rio Manu, Pakitza (11° 56.6'S, 71° 16.4'W; 250 m)), *P. insulanus* (Dominican Republic. La Vega; near Jarabacoa, Salto Guasara (19° 04.4'N, 60° 39'W, 680 m)), *P. nigritarsus* (Guyana. Conservation of Ecological Interactions and Biotic Associations CEIBA, ca. 40 km S Georgetown; 06° 29.9'N, 58° 13.1'W)), *P. atriclypeus* (Brazil. Rio de Janeiro; Rio de Janeiro, floresta da Tijuca (22° 57.6'S, 43° 16.4'W)), *P. atrifrons* (Bolivia: Santa Cruz: Ichilo, Buena Vista (4-6 km SSE; Hotel Flora y Fauna; (17° 29.95'S, 63° 33.35'W; 4-500 m)), *P. flavicoxalis* (West Indies. Dominica. St. David. 1.6 km N of junction of roads to Rosalie and Castle Bruce (15° 23.8'N, 61° 18.6'W)), *P. calpineorum* (Mexico. Chiapas; Cacahoatan (7 km N; 15° 04.1'N, 92 07.4'W)), *P. nigrifacies* (Brazil. Sao Paulo; Mogi das Cruzes, Serra do Itapeti (23° 31.5'S, 46° 11.2'W)), *P. obscuripennis* (Peru. Madre de Dios; Rio Manu, Erika (near Salvacion; (12° 50.7'S, 71° 23.3'W; 550 m)). In addition to external characters, we also describe and illustrate structures of the male terminalia and for *P. kotrbae* sp. n., the internal female reproductive organs. Detailed locality data and distribution maps for all species are provided. For perspective and to facilitate genus group and species group recognition, the family Periscolididae and subfamily Stenomicroinae are diagnosed and for the latter, a key to included genera is provided.

Mathis, W.N. & **Zatwarnicki, T.** 2012. A revision of the new world species of *Gymnoclasiopa* Hendel (Diptera: Ephydriidae). ZooKeys 248 (special issue), 1-69.

---abstract--- Species of the shore-fly genus *Gymnoclasiopa* Hendel from the New World are revised, including *G. grecorum*, n. sp. (Alaska. Juneau: Gastineau Channel, Thane Road (S. Juneau; 58° 16.9'N, 134° 22.4'W)) and *B. matanuska*, sp. n. (Alaska. Matanuska-Susitna: Palmer (Matanuska River; 61° 36.5'N, 149° 04.1'W)). We also clarify the status of previously described species, including those now discovered to have Holarctic distributions and/or for which sexual dimorphism was not appreciated and the species was described twice, including *G. montana* (Cresson) as a syn. N. of *G. bohemanii* (Becker). Two species, *G. bella* (Mathis), comb. n., and *G. chiapas* (Mathis), comb. n., are transferred from *Ditrichophora* to *Gymnoclasiopa*, and *D. cana* Cresson rev. stat. and *D. canifrons* Cresson stat. rev. are returned to *Ditrichophora*, the genus in which Cresson originally described them. A neotype is designated for *G. Tacoma* to stabilize the nomenclature of this species. The two excluded species, *D. cana* and *D. canifrons*, are diagnosed and distributional data are also provided. For all known New World species of *Gymnoclasiopa*, structures of the male terminalia are described for the first time and are fully illustrated. Detailed locality data and distribution maps are also included. To

provide context and also to facilitate identification, diagnoses are included for the tribe Discocerini and genus in addition to a key to the genera and species occurring in the New World.

Medeiros, M.J. & **Adamski, D.** 2012. Three new species of Hawaiian moths from Kahoolawe Island (Lepidoptera: Crambidae & Coleophoridae). Zootaxa 3341: 59-63.

---abstract--- Three new species of Hawaiian Lepidoptera are described herein: *Pilgriitia uuku* sp. nov. (Coleophoridae: Blastobasinae), *Orthomecyna keoniae* sp. nov. (Crambidae), and *Tamsica kawikae* sp. nov. (Crambidae) from Kahoolawe Island.

Mehdiabadi, N.J., **Mueller, U.G.**, **Brady, S.G.**, **Himler, A.G.**, & **Schultz, T.R.** 2012. Symbiont fidelity and the origin of species in fungus-growing ants. Nature Communications 3, Article 840, 31 pp.

---abstract--- A major problem in evolutionary biology is explaining the success of mutualism. Solving this problem requires understanding the level of fidelity between the interacting partners. Recent studies have proposed that fungus-growing ants and their fungal cultivars are the products of 'diffuse' coevolution, in which single ant and fungal species are not exclusive to one another. Here we show for ants and associated fungi in the *Cyphomyrmex wheeleri* species group that each species has been exclusively associated with a single fungal cultivar 'species' for millions of years, even though alternative cultivars are readily available, and that rare shifts to new cultivars are associated with ant speciation. Such long-term partner fidelity may have facilitated 'tight' and fungus coevolution, and shifts to new fungal cultivars may have had a role in the origin of new ant species.

Moreira, G.R.P., **Goncalves, G.L.**, **Eltz, R.P.**, **San Blas, G.**, & **Davis, D.R.** 2012. Revalidation of *Oliera* Brethes (Lepidoptera: Cecidosidae) based on a redescription of *O. argentinana* and DNA analysis of Neotropical cecidosids. Zootaxa 3557: 1-19.

---abstract--- Larvae of *Oliera argentinana*, Brethes 1916 (Lepidoptera: Cecidosidae) were rediscovered inducing spindle-shaped galls enclosed within swollen stems of *Schinus* (Anacardiaceae) in central Argentina and Rio Grande do Sul, the southernmost state of Brazil. Male, female, immature stages, and plant galls of *O. argentinana* are redescribed, using optical and scanning electron microscopy. The genus *Oliera* Brethes, 1916, previously a junior synonym of *Cecidoses* Curtis, 1835, is revalidated, by comparing morphological characteristics within the family and through an analysis of mitochondrial (COI) (DNA) sequences, including putative members of the four Neotropical cecidosid genera. Information on preliminary Cecidosidae phylogeny and taxonomy is also provided.

Paretas-Martinez, J, Forshage, J., **Buffington, M.**, Fisher, N., LaSalle, J. and Pujade-Villar, J. 2012. Overview of Australian Cynipoidea (Hymenoptera). *Austr. J. Entomol.*

---abstract--- An overview of all families, subfamilies, genera and species of Cynipoidea present in Australia is presented. The Australian cynipoid fauna is very poorly known, with 37 genera recorded: one each for Austrocynipidae, Ibalidae and Liopteridae; two for Cynipidae; and 32 for Figitidae. The first Australian records are given for the following genera of Eucoilinae: *Aganaspis* Lin, *Areaspis* Lin, *Chrestosema* Forster, *Didyctium* Riley, *Endecameris* Yoshimoto, *Ganaspis* Forster, *Leptolamina* Yoshimoto, *Micreriodes* Yoshimoto, *Micreriodes* Yoshimoto, *Pseudodiranchis* Yoshimoto, *Sinochresta* Lin and *Weldia* Yoshimoto. Nine new combinations, two new synonymies and one reinstatement are made: Eucoilinae (Figitidae): *Hexacola aemilia* comb. n., *Hexacola florentia* comb. n., *Hexacola Julia* comb. n., *Hexacola mozarti* comb. n., *Hexacola thoreauini* comb. n., *Kleidotoma marguerite* comb. n., *Leptopilina lonchaeae* comb. n., *Leptopilina maria* comb. n., *Trybliographa australiensis* stat. rev. (*Rhoptromeris unimaculus* syn. n.); Thrasorinae (Figitidae): *Thrasorus berlesi* comb. n. (*Thrasorus rieki* Paretas-Martinez & Pujade-Villar 2011 sy. n.). Aspects on the systematic, distribution, biology and morphology of all cynipoid families and figitid subfamilies in Australia are given. A multi-character online key to the genera of Australian Cynipoidea is available:

http://www.ces.csiro.au/keys/Hymenoptera/Australian_Cynipoidea/Australian-Cynipoidea-Keys.html

Prena, J. & Hammon, R.W. 2012. *Hesperobaris suavis* Casey (Curculionidae) is a potential pest of cultivated *Penstemon* (Plantaginaceae). *Proc. Entomol. Soc. Wash.* 114(4): 513-515.

Quicke, D., Smith, A., **Miller, S.**, Hrcek, J., & Butcher, B. 2012. *Colastomion* Baker (Braconidae, Rogadinae): nine new species from Papua New Guinea reared from Crambidae. *J. Hymenop. Res.* 28: 85-121.

---abstract--- Nine new species of *Colastomon* Baker are described, illustrated and keyed based on series of specimens reared from caterpillars of crambid moths, from lowland Papua New Guinea plus one additional field collected specimen, viz. *C. cheesmanae* Quicke sp. n., *C. crambidiphagus* Quicke sp. n., *C. gregarious* Quicke sp. n., *C. maclayi* Quicke sp. n., *C. madangensis* Quicke sp. n., *C. masalayi* Quicke sp. n., *C. parotiphagus* Quicke sp. n., *V. pukpuk* Quicke sp. n. and *C. wanang* Quicke sp. n. Most species are morphologically easily distinguished but DNA barcoding additionally reveals a pair of exceedingly similar species (*C. pukpuk* sp. n. and *C. maclayi* sp. n.) that might otherwise have gone unrecognized. The new species each appear to be relatively specialized on their host species, and all parasitize only caterpillars of Lepidoptera:

Crambidae: Spilomelinae.

Quicke, D.L.F., Smith, M.A., van Achterberg, C., **Miller, S.E.**, & Hrcek, J. 2012. A new genus and three new species of parasitoid wasp from Papua New Guinea and redescription of *Trigonophatnus* Cameron (Hymenoptera, Braconidae, Rogadinae). *J. Nat. Hist.* 46, Issue 21-22: 1369-1385.

--abstract--- *Vojtechirogas novotnyi* gen. nov. & sp. nov., *V. heberti* sp., nov., and *V. wantok* so, nov. reared from *Philiris Helena* (Snellen) (Lepidoptera: Lycaenidae) feeding on *Macaranga* spp., in northern lowland Papua New Guinea, are described and illustrated. Based on molecular data, on the modified vein 2-SC+R of the hind wing and the inclivous vein r-m of the forewing, *Vojtechirogas* gen. nov. appears most closely related to the monotypid genus *Trigonophatnus* Cameron, 19074. Cameron, P. 1907. Hymenoptera of the Dutch expedition to New Guinea in 1904 and 1905. *Part II: Parasitic Hymenoptera. Tijdschr Ent*, 50: 27-57, view all references, also from Papua New Guinea. These two genera differ from one another markedly in many characters usually considered important in Rogadinae systematics such as the presence/absence of a subbasal lobe of the claws, of the mediolongitudinal carina of the metanotum and of the basal triangular area of the second metasomal tergite. *Trigonophatnus* is redescribed and illustrated and is reported as a parasitoid of *Hypochrysops chrysgyrus* (Lepidoptera: Lycaenidae) based upon molecular analysis of host remains. Additional specimens of *Vojtechirogas* gen. nov. are ported but not assigned to species because of lack of molecular data in this morphologically uniform genus.

Quicke, D.L.J., Smith, M.A., Janzen, D.H., Hallwachs, W., Fernandez-Triana, J., Laurence, N.M., Zaldivar-Riveron, A., Shaw, Broad, G.R., Klopstein, S., Shaw, S.R., Hrcek, J., Hebert, P.C.N., **Miller, S.E.**, Rodriguez, J.J., Whitfield, J.B., Sharkey, M.J., Sharanowski, B.J., Jussila, R., Gauld [Deceased], I.D., Chesters, D. and Vogler, A.P. 2012. Utility of the DNA barcoding gene fragment for parasitic wasp phylogeny (Hymenoptera: Ichneumonoidea): data release and new measure of taxonomic congruence. *Molecular Ecol. Resources* 12: 676-685.

---abstract--- The enormous cytochrome oxidase subunit I (COI) sequence database being assembled from the various DNA barcoding projects as well as from independent phylogenetic studies constitutes an almost unprecedented amount of data for molecular systematic, in addition to its role in species identification and discovery. As part of a study of the potential of this gene fragment to improve the accuracy of phylogenetic reconstructions, and in particular, exploring the effects of dense taxon sampling, we have assembled a data set for the hyperdiverse, cosmopolitan parasitic wasp

superfamily Ichneumonoidea, including the release of 1793 unpublished sequences. Of approximately 84 currently recognized Ichneumonoidea subfamilies, 2500 genera and 41,000 described species, barcoding 5'-COI data were assembled for 4168 putative species-level terminals (many undescribed), representing 671 genera and all but ten of the currently recognized subfamilies. After the removal of identical and near identical sequences, the 4174 initial sequences were reduced to 3278. We show that when subjected to phylogenetic analysis using both maximum likelihood and parsimony, there is a broad correlation between taxonomic congruence and number of included sequences. We additionally present a new measure of taxonomic congruence based upon the Simpson diversity index, the Simpson dominance index, which gives greater weight to morphologically recognized taxonomic groups (subfamilies) recovered with most representatives in one or a few contiguous groups or subclusters.

Rey, O., Estoup, A., Vonshak, M., Loiseau, A., Blanchet, S., Calcaterra, L., Chifflet, L., Rossi, J-P., Kergoat, G.J., Orivel, J., Leponce, M., **Schultz, T.**, & Facon, B. 2012. Where do adaptive shifts occur during invasion? A multidisciplinary approach to unraveling cold adaptation in a tropical ant species invading the Mediterranean area. *Ecology Letters* 15: 1266-1275.

---abstract--- Evolution may improve the invasiveness of populations, but it often remains unclear whether key adaptation events occur after introduction into the recipient habitat (i.e., post-introduction adaptation scenario), or before introduction within the native range (i.e. prior-adaptation scenario) or at a primary site of invasion (i.e. bridgehead scenario). We used a multidisciplinary approach to determine which of these three scenarios underlies the invasion of the tropical ant *Wasmannia auropunctata* in a Mediterranean region (i.e. Israel). Species distribution models (SDM), phylogeographical analyses at a broad geographical scale and laboratory experiments on appropriate native and invasive populations indicated that Israeli populations followed an invasion scenario in which adaptation to cold occurred at the southern limit of the native range before dispersal to Israel. We discuss the usefulness of combining SDM, genetic and experimental approaches for unambiguous determination of eco-evolutionary invasion scenarios.

Robbins, R.K., Anderson, R.A., & Sullivan, J.B. 2012. The Nicaraguan hairstreak butterfly fauna (Theclinae: Eumaenini), its biogeography, and the history of Nicaraguan collectors. *J. Lepid. Soc.* 66(2): 61-75.

---abstract--- The hairstreak butterfly fauna of Nicaragua has not been comprehensively updated since Godman and Salvin listed 71 species in the *Biologia Centrali-Americana* over a

century ago. Based primarily on Eumaenini in the Anderson and Sullivan Collections (Smithsonian Institution), we treat 149 thecline species recorded from Nicaragua with their localities and months of capture. None are endemic to Nicaragua, but 15 species have the northern or southern limit of their known distribution in Nicaragua. We relate the distributions of these 15 species, many of which are figured, to the life zones and physical features of Nicaragua and adjoining countries. Those eumaenine names for which Nicaragua is a type locality are noted, and a few unresolved taxonomic problems among the Nicaraguan fauna are pointed out. We list another 73 hairstreak species that are recorded both to the northwest and southeast of Nicaragua, but not in Nicaragua. Finally, we present brief historical comments on the collectors of Nicaraguan hairstreaks.

Robbins, R.K., Martins, A.R.P., Busby, R.C. & Duarte, M. 2012. Loss of male secondary sexual structures in allopatry in the Neotropical butterfly genus *Arcas* (Lycaenidae: Theclinae: Eumaenini). *Insect Systematics & Evolution* 43: 35-65.

---abstract--- Male secondary sexual characters in Lepidoptera may be present or absent in species that otherwise appear to be closely related, an observation that has led to differences of opinion over the taxonomic usefulness of these structures above the species level. An evolutionary issue raised by this debate is whether male secondary sexual characters (1) can be regained after being lost evolutionarily, (2) are not lost after being involved, or (3) are 'switched on and off' by genes that regulate development. A second evolutionary issue is the conditions under which male secondary sexual characters might be lost or gained evolutionarily. Because these structures are thought to promote species recognition, theory predicts evolutionary losses to be most likely in allopatry; evolutionary gains to be most likely during the process of secondarily establishing sympatry or during sympatric speciation. We updated the species-level taxonomy of the brilliant emerald-winged Neotropical lycaenid butterfly genus *Arcas* and performed an analysis of phylogenetic relations among species to assess these evolutionary issues. We morphologically detail a scent pouch on the ventral hindwing of *Arcas* and report that six species possess the pouch with androconia, one possesses the pouch without androconia, and the remaining two species have neither pouch nor androconia. In addition, eight *Arcas* species have a morphologically species-specific male forewing scent pad, and one lacks a scent pad. This variation appears to be the result of three evolutionary losses and no gains of male secondary sexual organs. The four *Arcas* species lacking a scent pouch or a scent pad are allopatric with their closest phylogenetic relatives while four of five with both of these structures are sympatric. Although *Arcas* is a small genus,

these results are significantly more extreme than predicted by chance. For taxonomy, this study provides a rationale for the evolutionary loss of male secondary sexual structures and suggests that their absence, by itself, does not indicate a lack of relationship above the species level.

Seltmann, K., Yoder, M., Miko, I., Forshage, M., Bertone, M., Agosti, D., Austin, A., Balhoff, J., Borowie, M., **Brady, S.**, Broad, G., Brothers, D., Burks, R., **Buffington, M.**, Campbell, H., Dew, K., Ernst, A., Fernandez-Triana, **Gates, M.**, Gibson, G., Jennings, J., Johnson, N., Karlsson, D., Kawada, R., Krogmann, L. **Kula, R.**, Mullins, P., Ohl, M., Rasmussen, C., Ronquist, F., Schulmeister, S., Sharkey, M. Talamas, E., Tucker, E., Vilhelmsen, L., Ward, P.S., Wharton, R., & Deans, A. 2012. A hymenopterists' guide to the Hymenoptera Anatomy Ontology: utility, clarification, and future directions. *J. Hymen. Res.* 27: 67-88.

---abstract---Hymenoptera exhibit an incredible diversity of phenotypes, the result of ~ 240 million years of evolution and the primary subject of more than 250 years of research. Here we describe the history, development, and utility of the Hymenoptera Anatomy Ontology (HAO) and its associated applications. These resources are designed to facilitate accessible and extensible research on hymenopteran phenotypes. Outreach with the hymenopterist community is of utmost importance to the HAO project, and this paper is a direct response to questions that arose from project workshops. In a concerted attempt to surmount barriers of understanding, especially regarding the format, utility, and development of the HAO, we discuss the roles of homology, "preferred terms", and "structural equivalency". We also outline the use of Universal Resource Identifiers (URIs) and posit that they are a key element necessary for increasing the objectivity and repeatability of science that references hymenopteran anatomy. Pragmatically, we detail a mechanism (the "URI table") by which authors can use URIs to link their published text to HAO, and we describe an associated tool (the "Analyzer") to derive these tables. These tools, and others, are available through the HAO Portal website (<http://portal.hymao.org>). We conclude by discussing the future of the HAO with respect to digital publication, cross-taxon ontology alignment, the advent of semantic phenotypes, and community-based curation.

Skevington, J.H. & **Thompson, F.C.** 2012. Review of New World *Sericomyia* (Diptera: Syrphidae), including description of a new species. *Canad. Entomol.* 144(2): 216-247.

---abstract--- The 19 New World species of *Sericomyia* Meigen are reviewed, including one new to North America (*Sericomyia jakutica* (Stackelberg)) and one previously undescribed species (*Sericomyia vockerothi* Skevington sp.

nov. from Alberta, Minnesota, Northwest Territories, Quebec, and Yukon Territory). *Mallota powelli* Naya and Cole is recognized as a junior synonym of *Sericomyia flagrans* (Osten Sacken). A description and illustrations of *S. vockerothi* and an illustrated key to New World *Sericomyia* are presented. DNA barcode data are presented for 14 New World species and a cytochrome oxidase subunit I gene tree is presented and discussed. Genetic evidence supports the contention that the subgenera of *Sericomyia* are not monophyletic. *Arctophila* Schiner and *Conosyrphus* Frey are thus proposed as junior synonyms of *Sericomyia*.

Sohn, J.-C. & **Lewis, J.A.** 2012. Catalogue of the type specimens of Yponomeutoidea (Lepidoptera) in the collection of the United States National Museum of Natural History. *Zootaxa* 3573: 1-17.

---abstract--- The collection of the United States National Museum of Natural History includes 183 type specimens of Yponomeutoidea: 106 holotypes, 24 lectotypes, 2 neotypes and 14 species described from syntypes. The primary type specimens of Yponomeutoidea are catalogued with annotations of their collecting data, specimen condition and, if any, uncertainty involving the type series. Lectotypes are designated for 23 species comprising six Argyresthiidae: *Argyresthia alternatella* Kearfott, 1908, *A. bolliella* Busck, 1907, *A. castaneella* Busck, 1915, *A. fuscata* Busck, 1916, *A. laricella* Kearfott, 1908, *A. libocedrella* Busck, 1907; two Attevidae: *Atteva exquisite* Busck, 1912, *Oeta comptana* var. *floridana* Neumoegen, 1891; Bedelliidae: *Bedellia minor* Busck, 1900; two Glyphipterigidae: *Abrenthia cuprea* Busck, 1915, *Glyphipterix semiflavana* Issiki, 1930; two Heliodinidae: *Lamprolophus lithella* Busck, 1900, *Scelorthus pisoniella* Busck, 1900; three Lyonetiidae: *Leucoptera erythrinella* Busck, 1900, *L. pachystimella* Busck, 1904, *L. smilaciella* Busck, 1900; Praydidae: *Eucatagma amyrisella* Busck, 1900; three Yponomeutidae: *Swammerdamia castaneae* Busck, 1914, *Zelleria celastrusella* Kearfott, 1913, *Z. gracilariella* Busck, 1904; three putative yponomeutoids: *Pliniaca bakerella* Busck, 1907, *Pl. sparsisquamella* Busck, 1907, *Podiasa chiococcella* Busck, 1900.

Sohn, J.-C., Labandeira, C., **Davis, D.R.**, & Mitter, C. 2012. An annotated catalog of fossil and subfossil Lepidoptera (Insecta: Holometabola) of the world. *Zootaxa* 3286: 1-132.

---abstract--- In this catalog, we attempt to assemble all fossil records of Lepidoptera described formally or informally in the world literature. A total of 667 records dealing with at least 4,568 specimens have been compiled. They include descriptions of 131 fossil genera and 229 fossil species, as well as 72 extant genera and 21 extant species to which some of these fossils supposedly belong or show superficial

similarity. Replacement names of two fossil genera are proposed to avoid homonymy: *Baltopsyche* Sohn, gen. nov. for *Paleopsyche* Sobezyk and Kobbert, 2009 and *Netoxena* Sohn, gen. nov. for *Xena* Martins-Neto, 1999. New generic combinations are proposed for: *Tortrix? Destructus* Cockerell, 1916, *Tortrix florissantanus* Cockerell, 1907, and *Tortrix* sp. sensu Gravenhorst (1835), all three to *Torticites* Kozlov, 1988; *Pterophorus oligocenicus* Bigot, Nel and Nel, 1986 to *Merrifieldia* Tutt, 1905; *Aporia* sp. sensu Branscheid (1969) to *Pierites* Heer, 1849; *Noctua* spp. *Sensu* Hope (1836) and Lomnicki (1894), both to *Noctuites* Heer, 189. Eleven names improperly proposed for lepidopteran fossils are invalidated; *Baltonides roeselliformis* Skalski in Kosmowska-Ceranowicz and Popielek, 1981; *Barbarothesa* Scudder, 1890; *Lepidopterites* Piton, 1936; *Paleozygaena* Reiss, 1936; *Psamateia calipsa* Martins-Neto, 2002; *Saxibatinca meyi* Skalski in Kristensen and Skalski, 1998; *Spaltalistiforma submerge* Skalski, 1976; *Thanatites juvenalis* Scudder, 1875; *Torticibaltia diakonoffi* Skalski, 1976, and *Zygaenites* Reiss, 1936. An unnecessary subsequent type designation for *Pierites* Heer, 1849, is discussed. A total of 129 records include lepidopteran fossils which cannot be placed in any taxonomic rank. There also exist at least 25 fossil records which lack any evidence of the supported lepidopteran association. Misidentified specimens, including 18 fossil genera, 29 fossil species and 12 unnamed fossils, are excluded from Lepidoptera. All the known lepidopteran fossils are annotated by fossil type, specimen deposition, excavation locality, association with plants when present, and geological age. A bibliographic list of lepidopteran fossils is provided.

Staines, C.L. & Staines, S.L. 2012. The Carabidae (Coleoptera) of Eastern Neck National Wildlife Refuge, Maryland. *Banisteria* 38: 71-84.

--abstract-- We documented 80 species of Carabidae during inventory work conducted at Eastern Neck National Wildlife Refuge, Rock Hall, Maryland from April to September 2003. *Chlaenius erythropus* Germar and *Clivina striatopunctata* Dejean are reported from Maryland for the first time. This increases the total number of Carabidae recorded from Maryland from 368 to 370.

Staines, C.L. & Zamorano. 2012. Two new genera of hispines (Coleoptera: Chrysomelidae; Cassidinae) from Ecuador. *Insecta Mundi* 0232:1-6.

---abstract--- *Bicristispa gracilis*, new genus and new species, and *Orbispa confluens*, new genus and new species, both from canopy fogging material from Ecuador are described and illustrated. Comparative notes distinguishing them from similar genera are provided.

Sutton, B.D., Steck, G.J., & **Norrbom, A.L.** 2012. New species of *Gymnocarena* (Diptera: Tephritidae) from eastern North America and Guatemala, and the redescription of *G. mississippiensis*. *Canad. Entomol.* 144(2): 248-265.

--abstract-- We describe three new species of fruit flies (Tephritidae: Tephritinae) (*Gymnocarena defoei* sp. nov. and *Gymnocarena norrbomi* sp. nov., from eastern North America and *Gymnocarena monzoni* sp. nov. from Guatemala) and redescribe *Gymnocarena mississippiensis* Norrbom. *Gymnocarena monzoni* is the first *Gymnocarena* species to be recorded from Guatemala. This brings the total number of named species in this genus to 19. New larval host plant (Asteraceae) records for *Gymnocarena* include *Verbesina helianthoides* Michx. For *G. mississippiensis* and *G. norrbomi*, *Verbesina alternifolia* (L.) Britton ex Kearney for *G. norrbomi*, and *Viguiera cordata* (Hook. and Arn.) D'Arcy for *G. monzoni*. The latter represents the first record for *Gymnocarena* in *Viguiera* Kunth. *Gymnocarena* larvae were also recorded from *Verbesina virginica* L. but not identified to species. A revised key to the known species of *Gymnocarena* and additional information on larval host plants and biology are provided.

Veijalainen, A., Saaksjavi, I.E., **Erwin, T.L.**, Gomez, I.C., & Longino, J.T. 2012. Subfamily composition of Ichneumonidae (Hymenoptera) from western Amazonia: insights into diversity of tropical parasitoid wasps. 2012. *Insect Conservation and Diversity*.

--abstract-- 1. Previous studies have found the parasitoid wasp family Ichneumonidae (Hymenoptera) to have an exceptional latitudinal species richness gradient that peaks at mid-latitudes instead of the tropics; however, insufficient tropical sampling and species description may have biased the conclusions. It has been unclear which sub-families might be species rich in tropical lowland rain forests.

2. This study reports the subfamily abundance composition of a large ichneumonid data set (>30,000 individuals in 20 subfamilies) collected by Malaise traps and insecticidal canopy fogging in Amazonian Ecuador and Peru and suggests which subfamilies would be important for future study.

3. Relative abundance data from one Peruvian site are computed to similar lowland samples from Costa Rica and Georgia (USA).

4. Contrary to a common assumption, a number of ichneumonid subfamilies are very abundant and presumably species rich in western Amazonia. Cryptinae and Orthocentrinae are noticeably the two most abundant subfamilies, and a number of koinobiont lepidopteran parasitoids, which are generally thought to be scarce in the tropics, are also surprisingly abundant (e.g. Anomaloniinae, Bancvhiinae and Cremastinae). However, the subfamilies whose primary hosts are rare in the tropics (e.g.

Stenopelmatinae, Tryphoninae) can be expected to be more diverse in the temperate than in tropical zone.

5. Further research on the latitudinal species richness gradient within different ichneumonid subfamilies is encouraged to help understand what factors determine macroecological species richness patterns and what is the total number of ichneumonid species on earth.

Versteirt, V., Pecor, J.E., Fonseca, D.M., Coosemans, M., & Van Bortel, W. 2012. Confirmation of *Aedes koreicus* (Diptera: Culicidae) in Belgium and description of morphological differences between Korean and Belgian specimens validated by molecular identification. *Zootaxa* 3191: 21-32.

---abstract--- In 2008, specimens resembling *Aedes* (*Finlaya*) *koreicus* (Edwards) (also *Ochlerotatus koreicus* or *Hulecoeteomyia koreica*) were found in Belgium during a national mosquito survey (MODIRISK). Small but consistent differences were, however, observed between the specimens described from Peninsula KJorea and those found in Belgium. To achieve the correct identification a detailed morphological comparison was made between the Belgian specimens and reference material from Korean mainland and island populations housed at the Smithsonian Institution (Walter Reed Biosystematics Unit (WRBU), Washington, USA). The identification was furthermore supported by molecular evidence based on the ND4 region (mtDNA) of available Korean and Belgian mosquito specimens. Morphological and molecular comparison confirmed the initial identification of *Aedes koreicus*. Based on morphological characteristics, the species collected in Belgium most likely originated from Jeju-do, an island south of the Korean Peninsula. The observed dissimilarities between Korean and Belgian specimens resembled a number of morphological differences mentioned previously between female adults collected on the Korean Peninsula and Jeju-do. This is the first report of *Aedes koreicus* outside its natural distribution range. A correct and rapid identification of new invading and spreading vector species is crucial for the implementation of effective control measurements. Hence a correct and easy accessible description of all possible variations of species arriving in new areas is highly recommended. Therefore, a comparative morphological study on the Smithsonian material of the species from Korean mainland, island population and from Belgium is given, pictures of the main aberrant characteristics and scanning electron microscope images of all stages of the species are included and molecular confirmation of the identification based on the mtDNA ND4 region is provided.

Wappes, J.E. & Lingafelter, S.W. 2012. A new species of *Melzerella* Lima from Bolivia (Coleoptera: Cerambycidae: Lamiinae: Aerenicini) with a key to known species. *Zootaxa*

2805:31-35.

---abstract--- A new species of *Melzerella* Lima is described from Santa Cruz Department, Bolivia. A key to the four known species is provided, along with color photographs documenting their vibrant patterns.

Warrit, N., Michener, C.D. & Lekprayoon, C. 2012. A review of small carpenter bees of the genus *Ceratina* subgenus *Ceratinidia*, of Thailand (Hymenoptera, Apidae). *Proc. Entomol. Soc. Wash.* 114(3): 398-416.

---abstract--- The taxa of small carpenter bees belonging to subgenus *Ceratinidia* Cockerell and Porter, 1899, of the genus *Ceratina* Latrille, 1802, are recorded from Thailand. One new species, *C. chianmaiensis*, is described. *Ceratina lepida* var. *sutepensis* Cockerell is elevated to full species status as *C. sutepensis* Cockerell. *Ceratina lepida* var. *sublepida* is synonymized under *C. sutepensis*. Lectotypes are designated for *Ceratina cognata* Smith, *C. compacta* Smith, and *C. sutepensis* Cockerell. Collecting records and brief taxonomic comments on *Ceratinidia* species in Thailand are presented, together with keys to the species.

Zahniser, J.N., McKamey, S.H., & Dmitriev, D.A. 2012. Nomenclatural changes and notes in the Deltocephalinae (Hemiptera: Cicadellidae). *Pan-Pac. Entomol.* 88(3): 356-364.

---abstract--- Nomenclatural changes and clarifications are provided for names in the leafhopper subfamily Deltocephalinae. The replacement names *Cicadula vilbastei* nom. nov., *Eutettix harlani* nom. nov., *Macrosteles raoi* nom. nov., *Maiestas chalami* nom. nov., *Maiestas viraktamathi* nom. nov., *Opsius emeljanovi* nom. nov., *Paradoryldium naudei* nom. nov., *Penthimia alba* nom. nov., *Penthimia evansi* nom. nov., and *Penthimia walker* nom. nov. are given for species-group homonyms. Four new synonyms are recognized for previous replacement names that are no longer valid. The status of *Acinopterus angulatus* Lawson nomen protectum is discussed. *Paramacrosteles* Dai, Li & Chen status reinstated is reinstated as valid on taxonomic grounds. Priority is clarified for two species of Deltocephalinae, five new combinations in *Balclutha* Kirkaldy are given, and two original spellings are fixed.

VISITORS:

Patrice Bouchard from the Canadian National Collection visited Floyd Shockley and the Coleoptera Collection November 30-December 02.

Daniel Breakiron from Virginia Polytechnic Institute and University visited Charles Staines and the Coleoptera Collection on November 17.

Charles Brock from the Natural History Museum in London visited **David Furth** and the Coleoptera Collection September 23-28.

Deborah Brosnan from the Brosnan Center for Scientific Solutions visited **Terry Erwin** and the Coleoptera Collection November 27-December 20, 2012.

Jimmy Cabra Universidad de Sao Paulo, Brazil, visited **Dana DeRoche** and the Arachnida Collection November 28 through December 17.

Diego Dolibaina from Universidade Federal do Parana visited **Robert Robbins** and the Butterfly Collection November 06-26.

Jason Dombroskie from Cornell University visited **John Brown** and the Lepidoptera Collection November 16-19.

Jose Adriana Giorgi from Pernambuco began a visit with **Natalia Vandenberg** and the Coccinellidae Collection November 19, and was here until the end of the year.

Luis Gonzales from the Embassy of Peru visited **Gary Hevel** on May 23.

Alejandro Gonzalez-Hernandez from Universidad Autonoma de Nuevo Leon, Mexico visited **Matt Buffington** and the Hymenoptera Collection December 03-07.

James Hayden from Florida Dept. Agriculture and Consumer Services, Gainesville, visited **Alma Solis** and the Lepidoptera Collection December 10-14.

Caitlyn Kingry from Virginia Polytechnic Institute and University visited **Charles Staines** and the Coleoptera Collection on November 17.

Sangmi Lee from Arizona State University visited **John Brown** and the Lepidoptera Collection December 03-07.

Shiloh McCollum from Colorado State University visited **Steve Lingafelter** and the Coleoptera Collection December 04-06.

Eugenio Nearns from the University of New Mexico visited **Steve Lingafelter** and the Coleoptera Collection December 19-24.

Oxana Nesterova from Belorussian State University visited **Alexander Konstantinov** and the Coleoptera Collection November 12 through December 09.

Christian Rabeling from the Museum of Comparative Zoology, Harvard University, visited **Ted Schultz** and the Formicidae Collection December 08-13.

Brian Scholtens from the College of Charleston, South Carolina visited **Alma Solis** and the Lepidoptera Collection

November 03-06.

Simeao Souza Moraes from Museu de Zoologia da Universidade de Sao Paulo visited **Robert Robbins** and the Butterfly Collection December 03-24.

Bo Sullivan visited **John Brown** and the Lepidoptera Collection December 21-31.

Christopher Wirth from Randolph-Macon College, Virginia, visited **Floyd Shockley** and the Coleoptera Collection November 30-December 02.

TRAVEL:

Sean Brady attended the Hennig Society Meeting June 23-26 at Riverside, California, and presented the paper "Accounting for possible sources of error in applying divergence dating to systematics." He also was an organizer of the symposium "Divergence dating."

The **International Congress of Entomology** was held in Daegu, Korea, 19-25 August. Members of the combined Entomology staff known to have attended are as follows:

Sean Brady. Presented three papers: "Phylogeny and social evolution of the Halictidae" [co-authors K. Kanda & B. Danforth]; "Global genome initiative: Building a synoptic collection of earth's genomic resources: Evolutionary insights from divergence dating studies on Hymenoptera"; and "Phylogenetic perspectives on social evolution and co-evolution in ants". He also co-organized the symposium "Dates and rates: Diversification and dating methods and their applications to entomology."

Desmond Foley. Attended and presented posters.

Matt Buffington. Co-organized a symposium entitled "Globalized insect taxonomy in the 21st century; current accomplishments, future prospects." Presented a co-authored paper with Mike Gates entitled "From field to screen and beyond: new methods for the collection, curation and illustration of parasitic Hymenoptera (Insects)."

Steve Lingafelter. Co-organized a symposium entitled "Systematics, biogeography and ecology of Cerambycidae and Buprestidae." Presented a paper entitled "Cerambycidae of Bolivia," and was co-author of another presentation entitled "Cerambycidae of Vietnam."

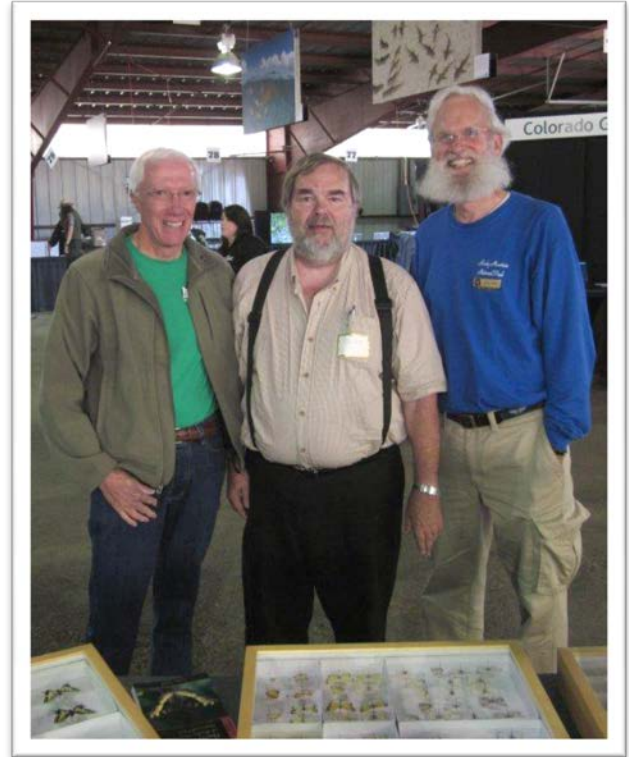
Lourdes Chamorro presented a co-authored paper entitled "Phylogeny of the invasive *Agilus planipennis* Fairmaire (emerald ash borer – EAB) and its relatives (Coleoptera: Buprestidae)."

Alma Solis. Was invited to present "A molecular phylogeny for the pyraloid moths (Lepidoptera) and its implications for higher-level classification.

David Furth. Presented a talk entitled "Diversity of Alticinae in

Oaxaca, Mexico: a preliminary study (Coleoptera: Chrysomelidae)" as part of the 8th International Symposium on the Chrysomelidae.

Research Collaborator **Gary Hevel** participated in two BioBlitz events during late September and October. At Rocky Mountain National Park near Estes Park, Colorado, he joined many researchers and citizen scientists from various U.S. facilities to collect or observe all species of flora and fauna during a 24-hour period. This annual event, sponsored by the National Geographic Society and the National Park Service, has come to be known as "The National BioBlitz," and is held annually near a large U.S. city. Students are bussed from local schools for the educational value of meeting scientists and observing biodiversity. Hevel, accompanied by his wife, Julie, displayed twelve drawers of insects collected from their backyard in Silver Spring, Maryland, as a demonstration of the surprising numbers of species (4000+) of insects that can be found in a backyard. Upon arrival at the Science Tent for the event, a major surprise awaited in the appearance of retired Smithsonian scientist Dwayne Hope, an original native of the area, who was functioning as a volunteer at the BioBlitz. Dwayne was kind to watch the backyard survey display while the Hevels collected insects for a couple of hours in the Park. During the two hours, the Hevels collected more than 200 species of insects for the BioBlitz "snapshot" of flora and fauna. After returning from Colorado, Hevel had a couple of weeks at the office before driving to Oklahoma for the annual Oklahoma BioBlitz, this year at Foss State Park in the western part of the state. Although this event was smaller than the "National BioBlitz," it was a great combination of scientists, students and interested families. For the past two years or so, Oklahoma has been suffering from a general drought, so hopes were not high for a good biodiversity count of flora and fauna. At the summary, however, it was announced that a record was accomplished, bettering all previous Oklahoma BioBlitz records, over 800 species observed or collected in the 24-hour period. The Hevels engaged in additional collecting in other parts of Oklahoma and in Texas over a three-week period, with over 4500 miles on the odometer of the Honda Odyssey. An important element of participation in BioBlitz events is the opportunity to collect outside the timeframes of such events, which enhances the National Collection of Insects. Over the years, Hevel has returned from such road trips with new distribution records, and in some instances, species of insects new to science.



Dwayne Hope, Gary Hevel and Richard Bray

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