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Hamuli

Newsletter of the International Society of Hymenopterists

In this issue ...

During our expedition to Jaú National Park in Western Amazonia this was our home for about a month. See below.

An Amazon field story and a call to arms

By: *Bernardo F. Santos, National Museum of Natural History, Smithsonian Institution; santosbe@si.edu*

It ain't easy to finish one's Ph.D. After my last field trip to Chile, featured in *Hamuli* in February 2015, I spent over two years without setting as much as a single Malaise trap, due to the need to finish data collecting and writing for my dissertation. So after defending in September 2016, I was looking out for any opportunities to go to the field: the longer and more adventurous the trip, the better.

The opportunity presented itself in the form of a herpetologist: my good friend Pedro Peloso was awarded a grant by the National Geographic Society to do a multitaxon collecting excursion to sample vertebrates at the Jaú National Park in Western Amazonia. At the Rio Negro basin, this pristine park is one of the largest protected areas in South America. He then invited me to join the trip to add an invertebrate component to the expedition, provided that I could help to fund my own costs. Thanks to the Smithsonian's Global Genome Initiative, I was able not only to join but to bring two other invertebrate specialists, and we left no rock unturned in our search for terrestrial arthropods.

No nice field stations or lakeside lodges for us this time. Our four-week long expedition was entirely conducted aboard a river boat that functioned as means of transportation, housing and lab. Electricity was limited to a few hours a day, and three weeks in we had to dry and salt all of out meat to avoid losing it to a crappy freezer. We slept in hammocks the whole time and actually camped in the forest for a few days to sample isolated environments. But oh, did the place make up for it.

We sorted specimens on the deck of the boat as river dolphins greeted us mid-afternoon. Our wildlife encounters included not only our beautiful insects but also tapirs, peccaries, caimans, monkeys, sloths and 200+ species of birds. Before leaving each field site, we played gritty soccer matches with the local indigenous communities that still live in the park (if you really need to know, we were blatantly defeated—you might be surprised to learn that Amazonian hunter-fishermen are in much better shape than urban researchers).

Collecting in the poorly known grassland areas in the middle of the Amazon.

What about our catch? I must say we probably did not arrive in the field at the best time. It was the end of the rainy season, which meant the "biological rush hour" for insects had already passed, though it still rained enough to wash clean some of our pan trap samples. Still, we were able to gather 55 Malaise trap samples, and we'd set about 200 yellow pan traps a day. In addition, we did a lot of leaf litter sifting, vegetation beating and nocturnal active collecting. While the samples are still being sorted, we know that we have at least three new genera of crickets. I'll be surprised if the hymenopteran catches don't include equally precious material.

So here is the deal: I'm inviting the ISH community to help me dig for taxonomic gold in the Jaú samples. The Hymenoptera were sorted at Universidade Federal do Espírito Santo (UFES) under the supervision of professor Marcelo Tavares, and will be soon shipped to me at the Smithsonian. If you are interested in beautiful wasps, ants or bees from remote areas of Western Amazonia, shoot me an email and I may be able to sort your taxon of interest for you.

First fieldwork, then football.

Of course, there is a catch. As I mentioned, the field trip was done under the generous support of the Global Genome Initiative, an ambitious endeavor to capture and understand the Earth's genomic biodiversity. One of the goals is to preserved determined specimens of non-model organisms in biorepositories worldwide and make it accessible to researchers everywhere, with the express intention of eventually collecting and studying genomic data. So the burden that is placed on my shoulders in exchange for the grant is the requirement to add representatives from 200 genera to the GGI's biorepository. So I will gladly sort and send you specimens from our Jaú samples if you can agree to put aside a specimen or two from a few genera and send it back for a perpetual nitrogen-liquid sleep. Formally, all specimens belong to the UFES insect collection—a requirement for our collecting permits in government land—but Marcelo has kindly agreed to offer generous retention terms for researchers willing to study our specimens.

Inspecting a spectacular Malaise trap sample.

I hope this initiative also works as a call to arms. For too long we have been collecting in some of the most

diverse and threatened ecosystems on Earth, sorting out our specimens of interest and leaving all the other material sad and lonely in freezers or collection rooms. With the world becoming a global village connected by instant messaging and social media, and a rampant biodiversity crisis, now more than ever is the time to share!

Coming back "home" in speed boats ("voadeiras") after a long day of work.

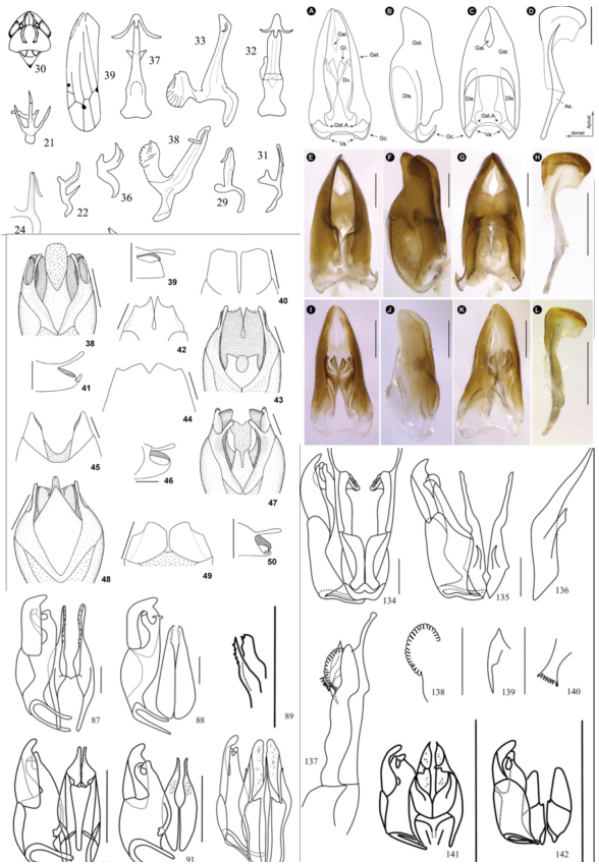
Consider budgeting for specimen sorting services in your next expeditions, and see the amount of available material for taxonomic and evolutionary research go up exponentially for the benefit of all of all of us—and the growth of scientific knowledge! ○

TreatmentBank and Biodiversity Literature Repository: a further steps towards access to the data in scientific publications

By: *Donat Agosti, Plazi, Bern, Switzerland; agosti@amnh.org*

Digitization offers great opportunities for taxonomists. Hymenopterists started early in this area, built one of the first online catalogues for a megadiverse taxon (Nature, 2002), obtained the first grant from Smithsonian's Atherton-Seidall foundation to digitize publications (together with the mosquitoes and *Biologia Centrali Americana* projects) in the pre-Biodiversity Heritage Library era, have been activists calling for open access to taxonomic data for everybody, and the Hymenoptera Name Server is still one of the largest online catalogues for a given large taxon. Time is moving beyond the PDF into sub-article elements and facts of traits. Hymenopterists have been involved in the launch of the first semantically enhanced taxonomic, probably scientific overall, publication Pensoft launched in 2010, using Taxpub, a schema developed together with the National Institutes of Health and Pensoft. Norm Johnson *et al*. (2010) provided at this time the first manuscript produced by a script right off his database.

Norm has also been the first who made use of a follow-up project, the Biodiversity Literature Repository at Zenodo/CERN, and uploaded the first 4,000 publications. This project started as a side project to TreatmentBank, which has its roots in 2002, in an early binational US-NSF-German DFG project to model taxonomic literature. This lead eventually to the foundation of Plazi in 2008 as the institution that took care of developing the text to data conversion tool GoldenGate, maintains Taxpub, and TreatmentBank, the repository for taxonomic treatments. The Biodiversity Literature Repository had originally the role to host all the PDF we used in the data conversion. But soon, we realized its full power. This collaboration with Zenodo/CERN offers not only almost unlimited repository space—you can add your PDFs here too—the highest degree of probability that the archive will not be sold to a commercial publisher or another private enterprise,



Hymenoptera genitalia illustrations recovered from digitized publications; see text for full description.

but it also mints Digital Object Identifiers (DOI) for free, vital today to cite properly scientific articles and data in our publications. Additionally, they also offered space to store illustrations (and provide DOIs), and encouraged the users to add as many links to related items as possible. With its generous and liberal data policy, articles up to year 2000 can be made open access, and small publishers could obtain a DOI for their new articles. For Plazi, this offered a unique opportunity to follow through not only to extract taxonomic treatments, named entities and observation records from articles (Agosti & Egloff, 2009), but also the illustrations (Egloff *et al*. 2017). Together

with the tools at hand, 16 journals are fully automatically harvested daily. Additionally, all the bibliographic references are extracted, as well as the illustrations. The latter are deposited at BLR, are given a DOI, and they are cited from within the treatments in TreatmentBank.

For example, for 2016, from 72 journals 3,223 articles have been processed resulting in 43,739 taxonomic treatments, including those of 5,051 new species, 16,416 figures extracted and deposited on BLR, and 133,447 bibliographic references.

The value of access to scientific illustrations will become obvious, once the new viewer of the illustrations at BLR will be available, which will look like this view of extracted illustrations on Hymenoptera genitalia. (`https://zenodo.org/communities/biosyslit/search?page=1&size=20&q=aedeagus&keywords=hymenoptera`) ○

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Australian Hymenoptera evolution: connecting digitisation and research at the Australian National Insect Collection

By: *Dr. Juanita Rodriguez and Nicole Fisher, Australian National Insect Collection (ANIC)-CSIRO; Juanita.Rodriguez@csiro.au, Nicole.Fisher@csiro.au*

The Australian National Insect Collection (ANIC) is recognized both nationally and internationally as a major research collection. Being the world's largest collection of Australian insects and related groups (*e.g.*, mites and nematodes) we house over 12 million specimens one fourth of which are hymenopterans.

We are currently working on a number of rapid digitization projects comprising bees (∼50,000 specimens), Pompilidae (∼5,000 specimens) and Mutilidae (12,000 specimens). Funding coming from Bush Blitz (Australia's largest nature discovery program) and CSIRO has allowed us to bring a team of 10 casuals and volunteers who are overhauling the curation, imaging and databasing of over 300 collection drawers. Through DigiVol, a crowdsourcing transcription center, which is used in Australia and globally, we are able to retrieve information from the labels transcribed by volunteers.

Juanita collecting specimens in Lago Yelcho, Chilean Patagonia (2017).

During the initiation of these digitisation projects, the main emphasis was on databasing and exposing the collection to research opportunities, and it seems our digitisation efforts are paying off. For example, over 20 drawers of Mutillidae specimens collected in the early 1980s had been left to sit for over 35+ years identified only to family level, and thanks to digitisation they are now finding their way to scientific discovery. We have share image files with overseas taxonomy experts, like Kevin Williams at the California Department of Food and Agriculture (CDFA), who can use the images to identify specimens as best as possible. Researchers can also look at specimen images and decide which specimens to ask on loan.

ANIC specimens curated and digitised ready for research.

But not only have these images served for identification and curation purposes, current research in ANIC is

using coloration characters and distribution records to study the evolution of Müllerian mimicry in Australian velvet ants. The Müllerian mimicry project aims to discover Müllerian mimicry rings with the use of morphological characters, which will be the first step in our understanding the evolution of this mutualistic interaction for this continent. This summer, an undergraduate student will be in charge of gathering morphological characters through specimen imaging and performing statistical analyses. Images and distribution records gathered for thousands of velvet ants from all over Australia are a key component of this study.

Imaging and georeferencing will also be used in various Australian Pompilidae systematics projects, with the aim to study the poorly known Australian spider wasp fauna and include Australian representatives in large molecular phylogenetics datasets. Images are being shared with collaborator James Pitts for identification and to target groups and regions in need of study.

The largest effort in digitisation has been given to the bee collection, which will be used for a pollen metabarcoding project taking place in collaboration with the Australian National Herbarium. The aim is to determine which plants have been visited by pollinators by analyzing molecular information of pollen loads. There are also efforts in place by Australian bee biologists to barcode all Australian native bees.

If this method is something that could support your research projects with access to databased Hymenoptera specimens from Australia—please let us know. We'd be happy to hear what groups we could digitise next. ○

The Life of Paul Dessart

By: *Carolyn Trietsch, Frost Entomological Museum, Department of Entomology, The Pennsylvania State University, USA; carolyntrietsch@gmail.com*

Paul Dessart was the taxonomist who did the majority of the work on Ceraphronoidea from 1962 to 2001. While translating his papers I've come to appreciate the personal touches he added, whether it's a complaint about how the curators wouldn't let him dissect holotype specimens or a joke that doesn't quite translate (the *albo* in *albovarius* doesn't mean "egg"). I know Paul Dessart the taxonomist, but I wanted to know more about Paul Dessart the man. He passed away in 2001, but I spoke to his dear friend, Lubomír Masner, who was able to share some stories that paint a more complete picture of the taxonomist in whose footsteps I've been following.

Paul Dessart was born in La Hulpe in Belgium, just outside of Brussels. He actually started out as a dipterist working on Ceratopogonidae, and was even stationed in the Belgian Congo for a while before coming back to work in Brussels. When he was hired by the Institut Royal des Sciences Naturelles de Belgique, he was told that they needed a hymenopterist, so he switched. He decided to work on Ceraphronoidea because he knew he would be the only one working on the group.

Indeed, Dessart became the "unopposed emperor" of Ceraphronoidea. He had a very productive career, authoring over 100 publications on the superfamily during his lifetime, but the work was not without its frustrations. The more he worked on Ceraphronidae, the more *Ceraphron* and *Aphanogmus* seemed to merge together. This frustration followed him outside of the office. Dessart had a dog named *Ceraphron*, but when he was angry he would sometimes call it *Aphanogmus*. This happened often enough that the dog started to associate that name with his anger, and started to avoid him at the mere mention of the word.

While Dessart was a very good taxonomist, he was not the best curator. When Lubo went to visit him, they both spent more time looking for a specimen than actually studying the specimen because of how disorganized the collection was.

Paul Dessart, 1931–2001.
Photo courtesy of Isabelle Sauvage, Société royale belge d'Entomologie

Dessart married an Italian woman from Naples named Franca. They settled in Brussels and had 5 children, 2 boys and 3 girls. Dessart was very proud of his French heritage (perhaps the reason why most of his papers are published in French), and went to great lengths to preserve it, even correcting local waiters so their grammar would reflect 16th century archaic French.

Dessart was always clean-shaven, and was rather short; his wife was much taller than him. Regardless, he

was a very skilled dancer. Lubo remembers taking Dessart and his wife out to a club one night, where their dancing entranced the entire club. They even cleared everyone else off the dance floor to let them dance, watching them for almost an hour.

Unfortunately, Dessart and his wife separated, and she went back to live in Italy. Dessart spent a few of his summers in Italy after that, but otherwise continued with his work in Brussels. He kept publishing papers, with this last publication being a review of *Dendrocerus* outside Europe and North America (Dessart 2001), the follow-up to a similar paper he published on *Conostigmus* in 1997 (Dessart 1997a).

Dessart seemed hesitant to work on revising *Conostigmus* in the Nearctic, and only published one paper focusing on three species with unique coloration (Dessart 1997b). Lubo once asked him why he didn't do further work on *Conostigmus* in the Nearctic, but he didn't elaborate. I'm not sure that we'll ever know the reason now, but regardless, I am more than happy to pick up where he left off, and I am thankful that we have his papers to guide us in our research. Dessart was the one who discovered that male genitalia characters were the key to distinguishing between species, a principle that still guides our research today. Work on Ceraphronoidea would be much more difficult if not for Paul Dessart. ○

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A special thanks to Lubo Masner for his help and his stories.

Upcoming ISH events

ISH at Entomological Society of America, Denver, Colorado. 5–8 November 2017

The International Society of Hymenopterists Business Meeting will take place 1:30–5:30pm on Sunday 5 November in Convention Center Meeting Room 605. We will organise something pleasantly social afterwards, either a cash bar with bartender, or reserving space in a local establishment, depending on relative costs.

9th Congress of the International Society of Hymenopterists. 23–27 July 2018

The 9th Congress of the Society will be held at Ehime University in Matsuyama City, Japan. Two collecting trips will be organised in connection with the meeting.

The registration fee has not yet been finalised, but will be set at several rates to suit early bird registration, standard rates, and students. Further information regarding accommodation, travel and including details of available students' bursaries, will be announced on the ISH website before our Business Meeting in Denver.

Some information can already be found on the website (still under construction) of the Organizing Committee: `https://sites.google.com/site/ishcongress9/`

Matsuyama is the capital city of Ehime Prefecture on Japan's Shikoku Island. It is known for its central Dōgo Onsen Honkan bathhouse, dating from the Meiji Period (1868–1912), with ornate, tiered wooden buildings. Nearby is Shiki Memorial Museum, dedicated to Masaoka Shiki's haiku poetry (see below). To the west is the restored, feudal-era Matsuyama Castle, with its hilltop gardens and seasonal cherry blossoms.

We are looking forward to seeing you there, as well as in Denver in November.

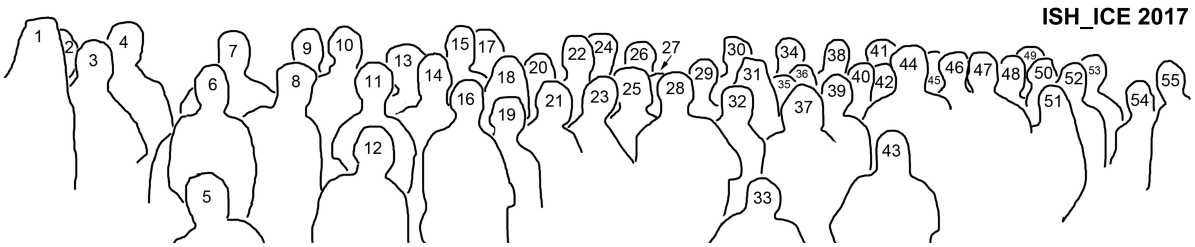
—Andy Polaszek (President), Barb Sharanowski (President-Elect), Craig Brabant (Treasurer) & Natalie Dale-Skey (Secretary). ○

Insect haiku by Masaoka Shiki (1867–1902):

For love and for hate
I swat a fly and offer it
to an ant

Summer sky
clear after rain —
ants on parade

Swatting mosquitoes —
blood stains
on the war tale I'm reading



1. Erica Tucker
2.
3. Roger Burks
4. Lars Krogmann
5. Ana Dal Molin
6. Erin Fagan-Jefferies
7. Robert Kula
8. Jim Whitfield
9. Norm Johnson
10. Elijah Talamas
11. Huayan Chen
12. Bernardo Santos
13. Luciana Musetti
14. Charuwat Taekul
15. Andy Austin
16. Erin Maxson
17. Rob Longair
18. Katherine Neisheim
19. Elizabeth Dabek
20. Barb Sharanowski
21. Carly Tribull
22. Andy Polaszek
23. Kaouro Maeto
24. Mike Sharkey
25. Kathy Schick
26. Istvan Miko
27.
28. Jim Woolley
29. John Huber
30. Jason Mottern
31. Natalie Dale-Skey
32. John Heraty
33. George Japoshvili
34. Michael Hass
35. Sydney Cameron
36. Elizabeth Murray
37. Chia-Hua Lue
38. Ryan Perry
39. Andrea Schomann
40. Marco Gebiola
41.
42. Julia Stigenberg
43. Craig Brabent
44. Miles Zhang
45. Alejandro Zaldivar Riveron
46. Oliver Neihuis
47. Matt Buffington
48.
49. Matt Yoder
50. Hannes Baur
51. Manuela Sann
52. Petr Jansta
53. Patrick Piekarski
54. José Fernández Triana
55. Serguei Triapitsyn

ISH members at the International Congress of Entomology in Orlando, Florida last year. Can you help us match names to faces? If so please contact John Heraty (heraty@ucr.edu) at the University of California at Riverside.

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