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Hamuli

Newsletter of the International Society of Hymenopterists

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*Cover photo by Jessa Thurman: Drilling through 4 centimeters of wood is no challenge for this Braconid wasp (*Virgulibracon endoxylaphagus*). The prize which each female seeks is the Wood Moth caterpillar (*Endoxyla cinerea*) which lays hidden within this* Eucalyptus *tree. If the caterpillar avoids being parasitized, it will grow into the heaviest species of moth in the world.*

From the Editor

Dear hymenopterists,

Happy holidays and I hope you enjoy this gift of a delightfully packed Hamuli. Also, since the next issue won't be out until well into the next year, happy New Year! I think it goes without saying that we will all be glad to see 2020 finished and are hoping for a better 2021.

It was fabulous to see many of you at our virtual ISH symposium in November and I was particularly amazed by the submissions in our multi-time-zone student research symposium. The fact that so many of you have produced amazing research despite the circumstances is inspiring.

I wish all of you excellent publications, delightful field experiences, and personal growth as both researchers and people!

Keep it up, hymenopterists!

P.S., it's always a good reminder to **check that your membership has not expired, and if it has, to renew!** You can do so by going to www.hymenopterists.org/membership.
Stay safe,
Carly Tribull, cmtribull@gmail.com

A Quick Message From the now Past President of ISH, Barbara Sharanowski

It has been a great pleasure serving you over the last two years as President. Lars Krogmann has taken over as President and I am now serving as Past President. We extend a grateful thank you to Andrew Polaszek for his excellent service through the Presidential roles over the last 6 years. José Fernandez-Triana was also elected as President-Elect - congratulations José, we are excited for your leadership and enthusiasm on the Executive.

This has been a difficult year for many with a worldwide pandemic that has taken countless lives, and my heart goes out to everyone who has had to deal with illness, loss, heartbreak, and stress.

On a more positive note, our society has been resilient, as evidenced by the great participation across 3 time zones in our new virtual symposia (we had record participation for an annual meeting). Our members have reached out with generous offers of support to help new members join our society and participate and present their research in these symposia. We have many exciting developments for creating a more inclusive and diverse society across the globe, and we are financially in a stable position with a strong, quality journal.

One of my major goals as President, was to foster increased involvement of researchers and students across the world (not just North America), particularly those from underrepresented groups to create a strong and highly diverse, active, and participatory society. And I feel we have achieved substantial progress in these areas and will continue to do so as our society grows and evolves. I am thrilled that our members are advocating for diversity, equity, and inclusion, through various initiatives: such as the code of conduct, contributing to the ENTOPOC initiative, development of a Regional Representatives Director Position, and the possibility of developing a women's forum. I hope that we continue to create and grow these initiatives to keep our fabulous scientific community strong and exciting.

Thank-you so much for your continued membership, participation, and support. We together can positively grow our society for all those who love Hymenoptera

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Member Artwork

Gonatocerus fuscicornis by Krissy Dominguez, UC Riverside, USA (cdomoi009@ucr.edu)

A message from the new President of ISH, Lars Krogmann

Dear ISH members,

Our society has experienced a difficult year. ISH members throughout the globe were directly or indirectly affected by the coronavirus pandemic. Planned meetings and conferences were canceled or postponed. Despite this crisis, our membership is larger, younger, and more diverse than ever. We all share enthusiasm and passion for an incredibly diverse group of insects and many of us also share concerns that this diversity is under immense threat. We have an important mission. Fortunately, our society is growing and becoming more visible. In the next two years, I want to build on this positive development and ensure that ISH remains a diverse and open research community. Our recent virtual symposia reminded us that the biggest strength of our society has always been its diverse membership. We will continue using virtual platforms for scientific exchange and further support student sponsorships to make sure no one is excluded from our community.

I want to thank Barb Sharanowski and congratulate her for a successful presidency. I am glad that Barb will remain on the Executive Committee as past-president. Great thanks are also due to Andy Polaszek, who will leave the Executive Committee after six successful years. I look forward to closely working together with our enthusiastic and highly professional ISH officers and I congratulate our new president-elect José Fernández-Triana!

I want to thank you all for your support towards our society and wish you all the best for the holiday season and a happy and healthy new year!

Best wishes,
Lars

Mischocyttarus alfkenii (Vespidae). Trinidad, West indies. When disturbed on the nest, members of this and some closely related species adopt this distinctive posture, which presumably functions to make the colony appear larger and/or more menacing. Photo by Chris Starr, ckstarr@gmail.com

Member announcement

Dr. Joseph Monks has recently joined the Natural History Museum, London as a curator of Hymenoptera. He will be taking over the groups previously curated by David Notton, with a particular focus on the Apoidea. For enquiries relating to the collections, please contact him at joseph.monks@nhm.ac.uk.

Just launched! GBOL III: Dark Taxa, a large research initiative focusing on German and Central European parasitoid wasps (and lower Diptera)

Jessica Awad, Amelie Höcherl, Jeremy Hübner, Samin Jafari, Marina Moser, Mehdi Parsa, Jonathan Vogel, Stefan Schmidt, Lars Krogmann, Ralph S. Peters

Germany ranks among the best-studied countries in terms of animal biodiversity and has a centuries-long tradition of natural history research. However, when looking in detail at the species-level diversity, the knowledge is prevalently shockingly small. There are many "Dark Taxa" that lack all or most of the basic features of knowledge, i.e., reliable characterization of species, identification keys, regional check lists, molecular and morphological reference collections, ecological data, and availability of taxonomic experts. The insect dark taxa alone sum up to presumably at least one quarter of the total German fauna and constitute more than 50% of all flying insect specimens.

The most severe knowledge gaps are found in the insect orders Diptera and Hymenoptera (about 20,000 described species in Germany). Diptera are a fascinating group and some (certainly crazy) people suggest that they might even challenge Hymenoptera as the most interesting and species-rich insects; in our *Hamuli* newsletter, we'd of course like to focus on Hymenoptera and the hymenopteran group that comprises most "Dark Taxa" – the parasitoid wasps. Parasitoid wasps are among the most understudied animal taxa and their true species number is recognized to be x-fold higher than the number of described species. And even the ones that are described are often only known from the type material, lacking any additional information on biology, biogeographic range or intraspecific variation, and remain taxonomically unrevised for decades or even centuries.

The fact that there are so many dark taxa in such a diverse, abundant and important group like parasitoid wasps has far-reaching consequences on all of our biodiversity research. Biodiversity research has three main goals, i.e., (1) understanding biodiversity in ecology and evolutionary biology, (2) safeguarding and fostering biodiversity in conservation and biodiversity monitoring, and (3) benefiting from biodiversity through ecosystem services, pharmaceutical research and recreation. All of these goals will be potentially flawed when excluding the majority of parasitoid wasps or – in other words – when not specifically targeting parasitoid wasps in dedicated research

initiatives.

Arguably the most important and urgent of the above mentioned research goals is conservation, with rapid and severe biodiversity loss and especially insect decline in many areas of the world, including Germany and Central Europe. While actions taken to protect biodiversity still lag miles behind, we fortunately have a pretty broad consensus among most of the public and politicians in Germany that we need to care more about biodiversity and that we need to increase and promote insect biodiversity research. As parasitoid wasps directly depend on their (dwindling) insect host populations, there is growing concern that they might be even more severely affected by insect decline. Therefore, we designed and proposed the project GBOL III: Dark Taxa.

This project, now funded by the Federal Ministry of Education and Research (BMBF) since July 2020, aims at targeting dark insect taxa to increase the knowledge on the German insect fauna, improving the size and quality of the German DNA barcode reference library and training a new generation of taxonomists. The project is a follow-up of the previous BMBF-funded phases (GBOL I and II), which mainly focused on building a DNA library of the better known insect groups. GBOL III: Dark Taxa advocates an integrative taxonomic approach within a network of national and international taxonomic experts and will actively communicate aims and results to public and stakeholders to put the Dark Taxa “on the map”. So, while embedded in the German Barcode of Life (GBOL) initiative, we widened our focus from barcoding the German fauna to performing taxonomy, training new taxonomic experts, and telling people how important, beautiful and virtually omnipresent these taxa are.

The GBOL III: Dark Taxa consortium consists of five institutions: The natural history museums in Bonn (Zoologisches Forschungsmuseum Alexander Koenig), Stuttgart (Staatliches Museum für Naturkunde Stuttgart) and Munich (Zoologische Staatssammlung München), the University of Würzburg and the Krefeld Entomological Society. Most of you will know the Krefeld Entomological Society as its members were the driving force in bringing the topic of insect decline on the global agenda by showing severe decline in biomass by long term monitoring of insect biomass in German nature reserves.

GBOL III is well equipped with staff, sequencing, and travel funds as well as some subprojects dealing with technical and strategic improvement of the database and with approaches to poor-quality samples and to taxonomics for the difficult cases (total budget 5.3 million Euros, total number of positions: 20).

The core of the people working on the Dark Taxa are PhD students, each of whom addresses a specific taxonomic group and is being trained to become a new expert taxonomist. In total, the project has 13 PhDs, seven of which work on parasitoid wasps (the other six work on Diptera).

We’d like to briefly present the Hymenoptera PhD students and their taxonomic group to introduce them to the shimmering world of Hymenoptera researchers. At ZFMK in Bonn, Samin Jafari and Mehdi Parsa will study Eurytomidae (Chalcidoidea). Jonathan Vogel will study Figitidae (Cynipoidea). In Stuttgart, Marina Moser will study Ceraphronoidea and Jessica Awad will study Platygastroidea. In Munich, Amelie Höcherl will focus on the Microgastrinae (Braconidae) to circumvent the impossible task of targeting all of the goddamn Ichneumonoidea. Jeremy Hübner will study Diapriidae (Diaprioidea). In addition, we will try and cover more parasitoid wasp groups, mostly in Chalcidoidea, for example, Torymidae, Encyrtidae, Eulpelmidae, and Pteromalidae.

To help and guide the project with their indispensable expertise, we have assembled an illustrious team of international hymenopterists, including Gerard Delvare (Montpellier), Mattias Forshage (Stockholm), Istvan Miko (Durham), Cristina Vasiliță, Ovidiu Popovici and Lucian Fusu (Iasi), Norm Johnson (Columbus), Elijah Talamas (Gainesville), Michael Haas, Carlos Monje and Jonah Ulmer (Stuttgart), Andy Austin (Adelaide), Petr Jansta (Prague), Hannes Baur (Bern), Ingmar Wall (Stockach), Jose Fernandez-Triana (Ottawa), Christer Hansson (Lund), and John

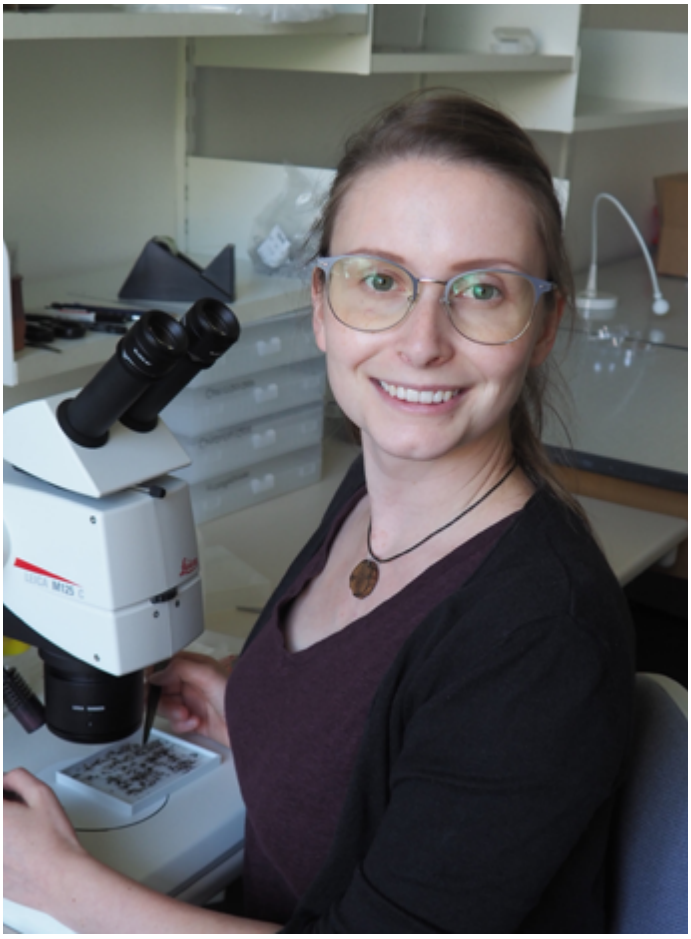
Noyes (London). You might notice that nearly all external taxonomic experts as well as all GBOL III: Dark Taxa Hymenoptera PIs are male. This is a ridiculous and hardly seminal situation and we are happy that four out of seven PhD students are female. Thus, GBOL III: Dark Taxa will try hard to foster gender equality in parasitoid wasp research.

This project will run for three and a half years. We will not solve all problems in this period but we will solve some, we will describe new species, we will provide identification keys and species checklists, generate taxonomic expertise, we will complete our barcode reference database, we will build up reference voucher collections, and will prevent parasitoid wasps being any longer widely excluded from biodiversity research. As you see we are facing many tasks and challenges over the next years - but working on one of the most beautiful and diverse insect groups on the planet within a diverse international team of skilled and enthusiastic scientists will certainly be a lot of fun. We will keep you updated through *Hamuli*!

For the whole team, taxa, aims and scope of GBOL III: Dark Taxa see www.bolgermany.de

Above: Samin Jafari

Top: Mehdi Parsa
Bottom: Jonathan Vogel



Top: Marina Moser
Bottom: Jessica Awad

Top: Amelie Höcherl
Bottom: Jeremy Hübner

Hornet Dreams

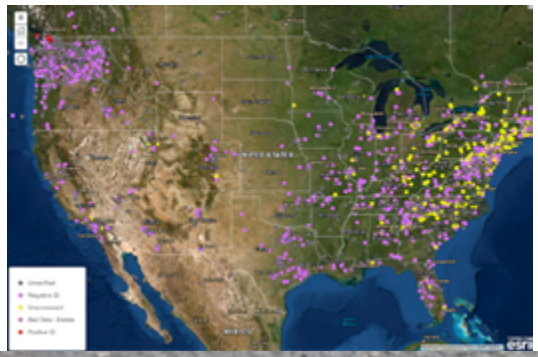
Chris Looney, Washington State Department of Agriculture, Olympia, WA, USA
(CLooney@agr.wa.gov)

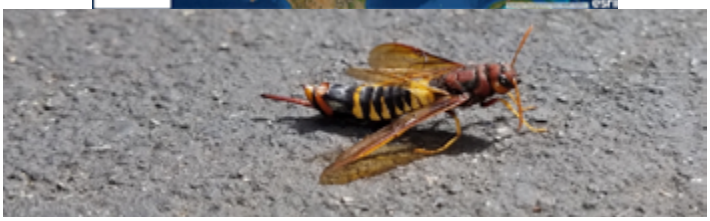
We are starting to feel pretty special out here in British Columbia and Washington State. The rest of the world only gets grim economies, a pandemic, and alarming politics. We get all that and *Vespa mandarinia*. The last year of field work is pointing towards a nascent establishing population, one that we're still figuring out how to respond to. It's not that we aren't trying – indeed, it seems like the only thing this hornet has murdered is every last minute of my free time.

You know the plot already. Several specimens of the world's largest hornet were found out of range in Canada and the USA in 2019. While the initial response was wait and see (because three hornets and a failed nest do not a population make) we've since found spring queens, scattered workers, and a local hot spot just south of the Canadian border. As far as introduced species go, this might have gone relatively unnoticed if it didn't a) kill honey bees in what the public thinks is an entirely egregious manner and b) through its size and unfortunate common name stokes entomophobia worse than a four-foot black widow. Now we're kind of in the hot seat to do… something

However, poor technology and knowledge gaps have dominated our response, just like Covid. Our most basic need is to delimit the new population. Surveys for exotic moths routinely use sex pheromones to efficiently detect individuals at low densities. With *V. mandarinia* we're reduced to hanging gross cocktails (orange juice and rice wine) in trees, imitating the cottage lures used across its native range. We know they work, but not necessarily better than anything else that might intrigue a predatory wasp. The hard truth is that we've captured eight hornets to date out of more than 1200 traps in Whatcom County. There doesn't seem to be any detailed research pointing to a lure that's irresistible to this species. We don't know how far queens fly before hibernating, or how far they fly after hibernating. We aren't really sure if there are specific nest selection characteristics that we can exploit to find them. These knowledge gaps have us in the field every day, neglecting all the important stuff I'd rather be doing (like thinking about gall wasps) because we kind of have to try everything. This week I even talked a guy into hanging around and watching warm cat food to see if the hornets might take some home and reveal a flight trajectory. This entire situation highlights how important natural history and basic biology continue to be in a world that is relentlessly shrinking. I am sure that if we knew a little more about this species I wouldn't be dreaming of hornets chasing me, being chased by me, or hiding from me every night. Hopefully by the next time *Hamuli* rolls around we will have found at least one nest, which will be a major triumph. Wish us luck - we sure need it.*

We've had over twice as many detections come from photos or otherwise believable eyewitness accounts than from traps, but that's out of over 4,400 submissions to our web site for just Washington and BC. There were another 2000 submitted from other places (top). We don't even count the emails or phone calls any more. As you can imagine, all sorts of things have been submitted as potential *V. mandarinia* sightings. My favorite has been what seems to be a bunch of grass thrown up by a pet. Even so, there have been some interesting finds, including what appear to be new records for the sawfly *Tremex columba* in Washington State (bottom).





The public response has been overwhelming, but rewarding. I believe this image of *V. mandarinia* on a *Polistes dominula* nest is the first behavioral record of the species in North America, captured by a homeowner (the image is now on bugguide). We weren't able to visually confirm that the hornets were preying on the paper wasps, but their constant visits, gradually diminishing *Polistes* adults, and nearly complete removal of larvae and pupae provides strong circumstantial evidence that they were. Nests hidden higher in the eaves of this house seemed to escape the hornet's attention.

One of the field exercises associated with this project includes testing various lures, both chemical and grocery store style. They have been uniformly negative which is probably partially due to the absence of hornets to attract. I moved one of the series to the hornet hotspot last week, and collected workers in experimental traps for the first time! There was one in a blend of isobutanol and acetic acid, and one in a mixture of rice wine, orange juice, and water that some honeybee combs had been boiled in. Encouraging, although right now those are both statistically as effective as a nearby porch light that also had a dead hornet in it.

Bycatch has been a massive problem with the general lures we're using. Early in the year it was mostly moths, flies, and other Vespidae (left). Later in the season the *Drosophila* have become so thick that other insects just walk around on the solid floor of fly carcasses (right). We're committed to doing something with all of this, and are identifying all bees and Vespidae in the traps. We've identified over 105,000 specimens so far, with tons more still to process.

**Editor's note: After submitting his article, Chris sent me an email update on October 23, 2020: "we radio tagged and tracked a hornet to a nest for the first time yesterday!" I asked for a photo of what is both a tiny radio and a big wasp, which he provided.*

Homemade Aspirators: They Suck!

Michael L. Ferro, Clemson University, Department of Plant and Environmental Sciences, Clemson, SC, USA (spongymesophyll@gmail.com)

Scale is important in entomology. The biggest diversity is found in the smallest wasps. Collecting and seeing those tiny things, and getting others to appreciate them, can be difficult. That's where tools like microscopes and forceps come in. When it comes to catching small insects, the huge, blunt sausage-fingers that humans have don't work very well. By the time something is the size of a grain of rice—and many wasps are smaller still—picking it up is very difficult, even harder if you don't want to squish it. But resourceful entomologists have a ready solution when it comes to catching small bugs - lick your fingers before you grab!

A better solution for collecting small things is an aspirator. The device is also called a "pooter", in honor of Frederick William Poos, the entomologist who first proposed the design (Poos 1929) (although history is rarely straight forward, see Leather (2015) for the story of previous versions and variations). While aspirators are a wonderful device to help capture things that are small, fast, bity, stingey, spikey, or squishy, they have two downsides; 1) they can be fragile; and 2) they can be expensive. Below are two designs that work to overcome those obstacles.

Catch and Release Kid's Pooter

A Catch and Release Kid's Pooter costs about $1–2 in supplies, takes about 10 minutes to build, and is cheap enough to give away. Be aware, kids will want to keep them! Once completed there are only two parts, the container with tubes and the lid. The design is robust and can be beaten around by excited kids. Put a small piece of napkin in the aspirator to absorb water and give insects something to cling to. If you are working with a group of students, provide an empty 10-gallon fish aquarium with a lid—put a napkin in the bottom and add a stick for bugs to crawl on. Have the kids dump their catch in the aquarium and they can show off what they caught. I've given away several hundred of these during kids' field days and camps over the years and had no complaints.

Supplies and Tools:
1. Ziploc® Extra Small Square container (4 oz), Glad® Mini Round container (4 oz), or a similar thin sided container
2. Clear vinyl tubing, 3/8 inch outer diameter, ¼ inch inner diameter
3. Tight Weave No-See-Um Mosquito Netting (625 holes per square inch) (Campmore.com, SKU: 61001), or similar material
4. Tools: high temperature glue gun (hot glue), sharp knife you trust, scissors, metal washer with a 7/16 inch inner diameter

Assemble the supplies (Fig. 1A), and tools (Fig. 1B). Cut two pieces of vinyl tubing, one 4 inches long, the other 7 inches long (Fig. 1A). Cut a 3 inch square piece of mosquito netting (Fig. 1C), fold it in half (Fig. 1D), place one end of the 7 inch tube at the center of the rectangle and fold the netting over (Fig. 1E). Very important, two layers of netting now cover the end of the tube. Wrap the loose sides of netting to form a cylinder around the tubing and hold in place with the washer (Fig. 1F). Glue the base of the netting in place and remove the washer when the glue cools (Fig. 1G). Carefully make two 1/2-inch cuts in the form of an "X" in the side of the container, then cut a similar "X" on the opposite site (Fig. 1H). Don't cut a circle. Slide the end of the tube covered in material through the X in one side of the container and glue in place (Fig. 1I). Insert the short piece of tubing into the X on the other side of the container and glue it in place (Fig. 1J). For both tubes, make sure the glue seals the hole, let about ½ to 1 inch of tube stick into the container, and glue on the inside to increase the strength of the seal. Pay attention to the natural curve of the tubing and make sure each piece

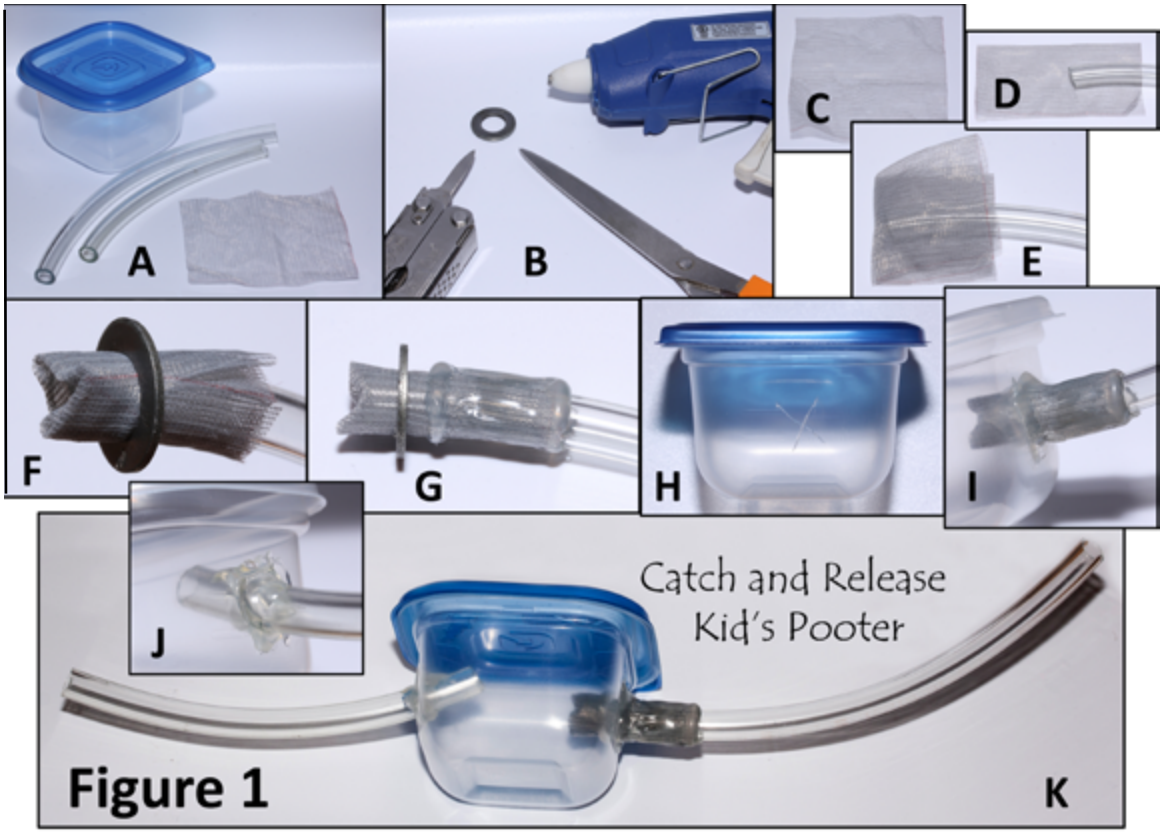


Figure 1

curls “up” (Fig. 1K).

When the aspirator is complete (Fig. 1K), kids pull air through the long, filtered tube and the bugs are sucked through the short tube. To test the seal of the aspirator, cover the end of the short tube while you inhale through the long one. If air comes through, check the holes and seal with glue as needed.

The shortcoming of this design is that you will burn yourself while making it. Also, because of the giant lid, transferring specimens to another container, like a vial, is very difficult. The design is recommended for catch and release, not students trying to make a collection.

The Scholar’s Aspirator

The Scholar’s Aspirator costs about $10–12 and takes about 10 minutes to make. They are good for high school and undergraduate students, workshop participants, and tour groups. Specimens can be easily dumped into a vial or killing jar (use a funnel), or a lid can be placed directly on the collecting container. The SharkBite connecter allows the vinyl tube to be removed and replaced in seconds in cases where multiple people may be using the same aspirator, such as morning and afternoon tours, or an aspirator demonstration at an event. The design was field tested for a semester by a gaggle of undergraduates and all were returned in working order, no missing or broken pieces.

Supplies and Tools*:

1. SharkBite 3/8-inch Push-to-Connect x 1/4-inch Mip dia Male Adapter Push Fitting. Item #835028. Model #25416Z
2. Hillman Rubber Grommet, 9/16 inch outer diameter x 1/4 inch inner diameter. Item #139353. Model #881253
3. Danco #10 O-Ring. 11/16 inch outer diameter x 1/2 inch inner diameter x 3/32 inch wall
4. Clear vinyl tubing, 3/8 inch outer diameter, ¼ inch inner diameter
5. Tight Weave No-See-Um Mosquito Netting (625 holes per square inch) (Campmore.com, SKU: 61001), or similar material
6. Sarstedt Cup with screw cap, 120 ml, 105 x 44 mm, #75.9922.421
7. Copper Tubing, ¼ inch inner diameter
8. Tools: (not shown) electric drill, 3/8 inch drill bit, ½ inch drill bit, pipe cutter, scissors, ¼ inch pipe bending spring tube.

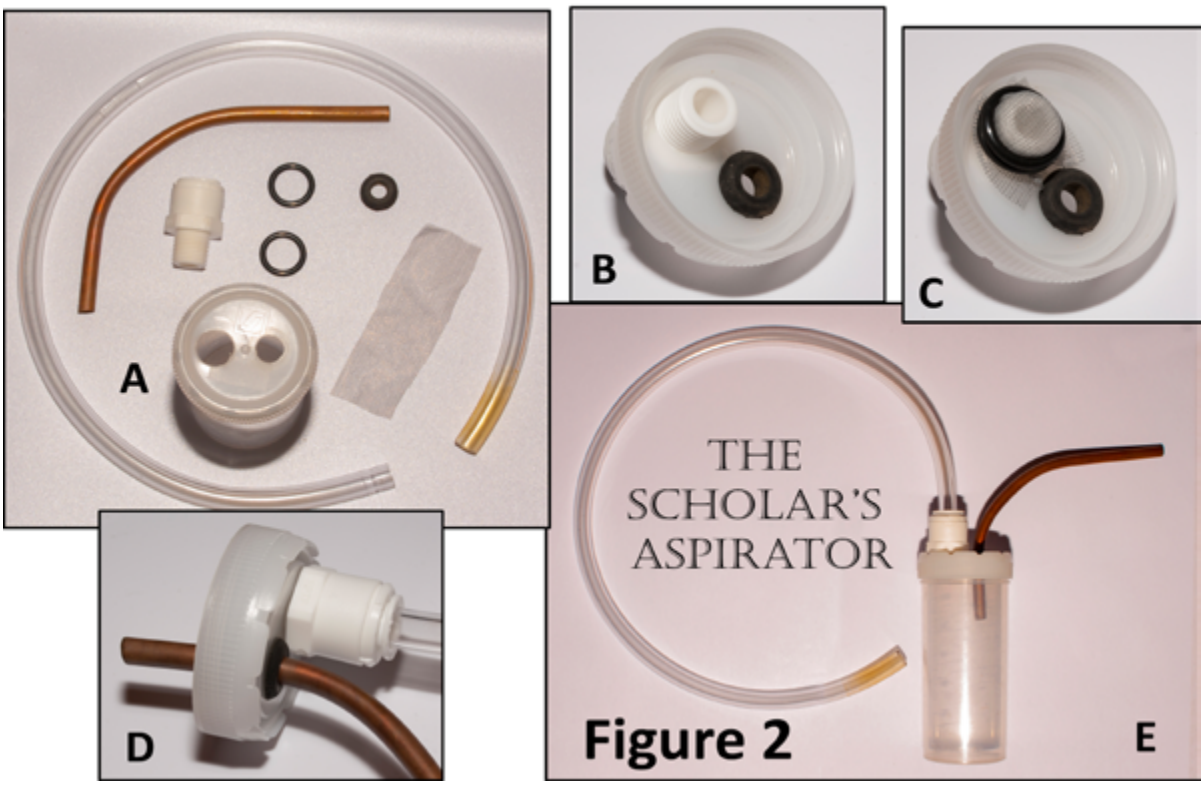


Figure 2

Assemble the supplies (Fig. 2A) and tools (not shown). Drill a 3/8 inch hole and a ½ inch hole in the lid (Fig. 2A). Screw the SharkBite connecter into the ½ inch hole and push the grommet into the 3/8 inch hole (fight with it, it'll fit) (Fig. 2B). Cut the mosquito netting into a rectangle 3 x 1 inches, fold in half, put over the end of the SharkBite connecter, and hold in place with two O-rings (Fig. 2C). Position the netting so excess does not overlap the edge of the lid. Cut a 6.5 inch length of copper tubing using a pipe cutter (this will keep the end round), and bend the pipe using a pipe bending spring tube (Fig. 2A). Without the spring tube the pipe will crimp. Cut a piece of vinyl tubing 21 inches long. Slide the copper pipe through the grommet and insert the vinyl tubing into the SharkBite connecter (Fig. 2D). Air is sucked though the vinyl tube which is covered with a filter and bugs are sucked through the copper tube.

The design is good enough for long-term use by a serious collector. However, there are a couple downsides: some supplies will have to be ordered online; specialty tools are required, although not expensive; and some items will have to be ordered in bulk, for example, Sarstedt Cups are currently a minimum order of 250 (about $70). Similar aspirators cost about $40 each, so building these doesn't make economic sense unless more than five are needed, however, after that savings can be substantial.

Novices have a hard time catching, mounting, and seeing small insects and anything that makes that easier increases their ability to appreciate how cool bugs really are. The designs above are intended to make aspirators more user friendly and available. Several of the design aspects of the above aspirators are arbitrary and could be improved on. Feel free to tinker and please share any useful improvements with the author.

Acknowledgments

Many thanks go to Mark Mogge and Jenna Crowder for incalculable help developing The Scholar's Aspirator.

References

1. Leather SR 2015 An entomologist classic—the pooter or insect aspirator. British Journal of Entomology and Natural History, 28, 52–54

2. Poos FW 1929 Leafhopper injury to legumes. Journal of Economic Entomology, 22, 146–153

**Editor's note: Please note that item numbers are from North American catalogues and might not be available elsewhere*

Member Photo Studio

Joe Coelho, Quincy University, USA, (coelhjo@quincy.edu)
Polistes metricus

Eric Grissell (egrissell@gmail.com), Research Entomologist, Systematic Entomology Laboratory, USDA (retired). Richard Bohart (1913-2007), Professor at the University of California, Davis, was honored with the ISH Distinguished Research Medal in 2004. He had a number of students, most of whom went on to become Hymenoptera systematists. In 1983 these students published a Festshcrift honoring his career. Among the dozens of papers were many patronyms. In my case I described the genus *Boharticus* (Pteromalidae) with four included species. Subsequently a few additional species have been found but not described. The known species are all associated with cecidomyiid galls on *Juniperus* and have been reported from California to Florida and north to Ohio. I would guess that numerous species occur wherever native junipers are found. *Boharticus richardi* is, so far, the largest at nearly 6 mm, but other species are less than 2 mm.

Member Photo Studio

Both photos by Samantha Ward, The University of Melbourne, Australia (sameward1@gmail.com)
Top: *Diaretiella rapae*, Bottom: *Aphidius funebris*

Don't forget your sunglasses! Collecting "crashed" sawflies from snow beds in Lapland

Andrew Liston, Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany (andrew.liston@senckenberg.de); Marko Prous, Institute of Ecology and Earth Sciences, University of Tartu, Estonia; Marko Mutanen, Department of Ecology and Genetics, University of Oulu, Finland.

From 24th to 29th June 2020, we collected "Symphyta" around the village of Kilpisjärvi (69.02°N 20.87°E), in Enontekiö Parish, Finnish Lapland. Our main objective was to acquire material of Nematinae (Tenthredinidae) for taxonomic work within a project funded by the Swedish Taxonomy Initiative (see STING 2013 for background information).

We enjoyed fine weather conditions throughout nearly our entire stay, in an area which has rather the opposite reputation. The locals, and various visiting entomologists with whom we stopped to chat (the area is a mecca for Finnish entomologists), never missed the opportunity of commenting on our good luck with the weather. Upon our arrival at Kilpisjärvi, Jyrki Lehto drew our attention to the large numbers of sawflies which he had recently collected from local snow beds. About one week before we visited the locality, Markus Rantala had also collected about 100 sawfly specimens from snow beds on Jehkas.

Even at this high latitude, various sawfly species occur mainly or only above the tree-line. Accordingly, on the days which seemed most favorable, we visited such sites.

On 25th June we collected from the low altitude birch woodland at about 500 m to about 850 m on Malla Fjell (approximately 69.07°N 20.66°E). Although weather conditions were good (only a light wind, and rather warm, but intermittently overcast, with a short period of light rain), our usual collecting method of sweeping the vegetation with hand nets proved disappointingly unproductive. Thinking of the recent experiences shared with us by Jyrki and Markus, we started to pay some attention to the snow beds. On one of the first which we looked at, Marko Mutanen found a

Figure 1. A female Praia taczanowskii*, alive but "numbed", on a snow bed: Malla, 25.06.2020, leg. Mutanen (photo: Liston).*

stranded female, still alive, of the rarely-recorded Cimbicidae *Praia taczanowskii* (Fig. 1). Encouraged by this, we spent some time scanning other snow beds. Although no further *Praia* were found, several other Symphyta species were stranded on the snow in numbers. The large majority belonged to the *Pristiphora carinata* complex, *Euura brevivalvis*, *Arge* species (*ustulata*, and ? *expansa*), *Dineura viridorsata*, and *Xiphydria camelus*. Most of these, like *Praia taczanowskii*, but perhaps excluding some of the *Pristiphora*, have mainly or exclusively birch (*Betula* species) as larval host plants. Unlike the *Praia* specimen, most were dead.

On 28th June our tour took us from 550 to 950 m to the summit of Jehkas (69.09°N 20.80°E). The wind was somewhat stronger at higher altitude than on the 25th, but there was less cloud cover. The first large snow bed next to the path by which we ascended was on a steep slope in a gully. No sawflies were found on this. The first "productive" beds were from about 800 m and above, on fairly flat or only slightly sloping ground (Fig. 2).

Figure 2. One of the snow beds with the highest numbers of individuals and species of sawflies: Jehkas, 28.06.2020 (photo: Liston).

Mutanen and Prous visited several snow beds not visited by Liston, and vice versa. Whereas Mutanen and Prous observed *Pristiphora carinata* group to be the most abundant sawflies, Liston found that *Euura brevivalvis* was clearly the most abundant species, followed by *D. viridiorsata* and *Arge* sp., with *Pristiphora carinata* group forming a minority. Perhaps this indicates that somewhat different assemblages of species occurred on different snow beds. Both sexes of all four of these taxa were present, and specimens of *E. brevivalvis* and *D. viridiorsata* were so numerous, that only a representative series was collected. Unlike on Malla, most specimens were still alive, except for the *Pristiphora*, and we found small numbers of additional species such as *Tenthredo arctica* (1 female, 1 male), *T. atra* (1 specimen), *Pristiphora* ? *breadalbanensis* (3 females), *Brachythops* sp. cf. *wuestneii* (3 females), and *Abia fasciata* (1 male). The *P. carinata* group specimens had apparently been on the snow beds longer than most of the others, because they were often partly sunk into the surface, and nearly all had very badly damaged wings.

At both localities, sweeping on and above the vegetation around the snow patches yielded only very few specimens of *E. brevivalvis* and *D. viridiorsata*. Therefore, we suspect that most of the snow bed individuals originated at lower altitudes, in the birch (*Betula pubescens*) woodland, and were carried to higher altitudes by wind currents, perhaps with a component of active dispersal behavior. However, larvae of both *D. viridiorsata* and *E. brevivalvis* are known also to feed on *Betula nana* (Liston et al. 2019, and unpublished data), which occurs at altitudes significantly above the tree-line, so a more local origin cannot be ruled out for these. The *A. fasciata* specimen almost certainly came from a lower altitude, because its only host plant in Lapland, *Linnaea borealis* (Schmidt 1997: 245), is restricted to the birch forest. On the other hand, *T. arctica, P. ? breadalbanensis*, and *Brachythops* sp. are all known in Lapland only from localities above the tree-line.

At Jehkas, several sawflies had evidently only recently landed on the snow beds before they were found. We watched the repeated attempts of one *T. arctica* and a few *E. brevivalvis* to take flight, which invariably ended after only a few centimeters in the air, with the individual “cartwheeling” back onto the snow surface, and usually landing upside-down. It seems that the initial problem for these insects is a loss of normal orientation,

caused by the intensity of light reflected from below (and thus mainly a phenomenon occurring in sunny conditions?). Presumably, the "trapped" individual eventually exhausts itself in its attempts to fly away, and succumbs to the effects of chilling. Perhaps there is a connection between this process, and the noticeably larger numbers of sawflies which we found on less sloping snow beds (as in Fig. 2). On steeper slopes, they have a greater chance of moving consistently in one direction, and thus eventually reaching the edge of the bed. Strong winds might possibly also assist sawflies in freeing themselves from snow beds. Also notable, was the relative abundance of "downed" sawflies, compared to other insect groups.

Despite a rather detailed review by Kaisila (1952) of insects stranded on snow in the northern Finnish mountains, with some interesting analysis, snow beds have otherwise only occasionally been mentioned as a source of sawfly specimens, for example by Malaise (1931: 55-56). We feel that the collecting opportunity afforded by snow beds should be used more often, because the spectrum of species found there differs from that which can be obtained by other techniques: several of the species which we found on snow at Kilpisjärvi were not represented in the material which we obtained by sweeping. Finally, our observations suggest that snow beds in this region are a cause of premature mortality of significant numbers of adult sawflies. In other words, their presence on the snow is not explainable as merely due to "fall-out" of individuals which have already reached the end of their lives.

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A trip to Western Australia Oct-Nov 2019

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One of my wife's research projects is a comparison of offshore oil and gas regulations among countries. One of the focal countries is Australia, where most of the offshore extraction is off the west coast, and Western Australia is well known for interesting bees. So, I asked if we could turn her trip into a combined bees and offshore oil and gas research trip. I am a lucky man, she agreed. After I applied for permits, Terry Houston kindly provided me a rainfall map for the previous four months – most of it shades of pink and red (ranging from below average to lowest rainfall ever recorded). The only pale blue "above average" area was small – around the goldfields: Kalgoorlie and Coolgardie. So, that was where we headed on October 21st, after renting a camper van in Perth (Figure 1).

Figure 1. Gail and our rented camper van at the campsite in Southern Cross.

The first night was spent at Southern Cross and it indeed looked dry. Things gradually got better as we drove further East the next day and some interesting bees were collected, including an apparently new species of *Megachile* (*Hackeriapis*) that should probably be named after a particular style of haircut (Figure 2).

Figure 2. A seemingly undescribed Megachile *(*Hackeriapis*) and the hairdo that might have inspired it.*

There is nothing much better than sitting outside on a warm evening pinning the day's catch (Figure 3).

Figure 3. It's difficult trying to identify euryglossines with a hand lens!

Alas, Gail's first meeting was scheduled for Exmouth the following week – a mere 1700km away. On the way I caught the only stenotritid of the trip. Further north, near the seaside town of Seabird, we found a spectacular diversity of flowers as we pulled up to camp for the night. Next morning – three hours of collecting yielded three native bees, though I could have caught tens of thousands of invasive *Apis mellifera*, which in some places were literally queuing up to get at a flower. Later that day we drove through "Beekeeper's Nature Reserve." Nearby it was like driving through a hailstorm – the *Apis* were so thick in the air - and the wipers had a hard time spreading all the eviscerated nectar over the windshield. What next? A cane toad conservation area, rabbit ranchers reserve?

Most of the area between Perth and Exmouth was shaded in deep pink on the rainfall map, but there's usually the occasional eucalypt in bloom and so looking out for those became a driving hazard. A particularly spectacular specimen was literally buzzing with bees at the Billabong Roadhouse. Alas, my net handle wasn't quite up to the task, but the proprietor was happy to lend me a broom handle and give me some tape – so away I swept (Figure 4).

Figure 4. Sweeping a flowering eucalypt with a broom taped to my net handle.

Got some very nice wasps nearby too, including what might be the second specimen known of *Sphex rhodosoma* (Turner) (Figure 5; identification courtesy Michael Ohl). Four days later, the meeting in Exmouth completed, we returned to Billabong – the flowering was over already. Indicating the ephemeral nature of the sparse good collecting spots, but I did find some interesting bright orange gasteruptiids (*Pseudofoenus* sp. – identification courtesy of Ben Parslow) flying around an earth bank nearby.

A few days later Gail headed to the east coast and I headed to the South, a similarly pink area on the rainfall map. Again, the relatively sparse flowering shrubs often seemed to attract a reasonable diversity of bees, including some nice series of *Callomelitta antipodes* (Smith),

Trichocolletes and *Leioproctus* (Euryglossidia) – all Colletidae. Back to the goldfields, the flowering had declined markedly over the intervening weeks and I caught relatively few bees.

Figure 5. A lovely Sphex*, perhaps the second known specimen of* S. rhodosoma

My last days in Western Australia were spent in Perth where I spent a day with the bee enthusiast Kit Prendergast and then a trip to the Western Australian Museum where it was a treat meeting up with Terry Houston again and spending some time with Nik Tatarnic. I then flew back to the East coast and Gail and I had dinner with Ken Walker and his wife Heather [had it really been 20 years since I'd last seen the two of them?]. Unfortunately, the raging fires in the east had meant that some of Gail's meetings had been canceled; I'm hoping she'll want to go back…..

A brief anecdote

Joe Coelho, Quincy University, USA,
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Last week I accidentally snorted an ant. I had my entomology class out in the field when we saw several mass emergences of alates. I thought they were members of the genus *Lasius*, which smells a bit like citronella when crushed, so I pinched a few and sniffed them. One of them went right into my left nostril and I got a blast of formic acid. Not pleasant. Fortunately, my excessive nose hair prevented it from being aspirated more deeply. Not surprisingly, none of my students cared to repeat the experience.

Establishment of the Mayo Field Ecology Lab

Or How I ended up starting a lab with four members at different institutions, no funding, no lab space, next to no equipment except the shirts on our backs, a lot of dedication and curiosity…

Ann B. Mayo at Weatherford College in Weatherford, Texas and University of Nebraska-Lincoln, Nebraska, USA (amayo@wc.edu)

I'll try to keep the backstory brief: I completed a dissertation project on the spatial ecology of the Comanche harvester ant, *Pogonomyrmex comanche* and had anticipated getting a decent teaching post nearby with a bit of time to get students involved in research and continue with some of my own, expanding from Comanche to some questions I entertained about the evolution of the genus. The teaching position I got kept me close to my study sites in the Fort Worth Nature Center (FWNC, in Fort Worth, Texas) but was more challenging than I anticipated, so the research went on the back burner. I did manage to get a few students to do some ant sampling as part of local BioBlitz events off and on, and then, a group of six students to work with me over a summer as I began to develop a research course focused on field ecology of ants, which would complement a colleague's course that focused on lab work. Thanks in part to COVID, the course got put on hold.

Clint King (left) and Zach Chapman (right)

Despite this, I have managed to get three solid students to continue working with me in the field starting this past summer. Each of us is at a different institution but we connected through public events

I led or in the case of one student, a short natural history article I had published. I told them what I was after this summer: some decent information on the insect diversity of the Fort Worth Nature Center, nest casts of Comanche, and more complete sampling of the ants in the area working toward a comprehensive list of ant species in North Central Texas. At the same time, I required them to come up with their own projects.

All three of these students are expert naturalists, great photographers, and very interesting personalities. So, the short of it is I have a field ecology group. With COVID, we are having to work around differences in how our institutions are handling courses and research. But we are continuing from the summer:

Emerald ash borer (EAB), Agrilus planipennis

We have preliminary work on the predation of the wasp, *Cerceris fumipennis*, on the invasive Emerald Ash Borer (EAB), *Agrilus planipennis*, a metallic wood boring beetle attacking ash trees, which has recently spread into this part of Texas. This is a project we are developing as a possible monitor of EAB but is also involving a study of *Cerceris*.

Elytra of EAB from Cerceris *nest*

So far, we have excavated *Cerceris* nests and found that each chamber contained the remains of different species of wood boring beetles, and several contained EAB remains. This sampling suggests that the wasp finds an aggregation of the beetles of a species, makes several trips gathering a few, lays her egg, and moves on to another aggregation of beetles for the next egg. Further, while ash trees are usually mixed in with other species in the FWNC, we did locate a small ash grove, which also showed EAB damage. We are shaping an expansion of this project for the Spring.

Cerceris fumipennis nest excavation

Late this fall and winter, when it cools off, we will try the nest casts again for Comanche. Comanche nests in deep sand which has presented many difficulties for making casts. I have only gotten the top 12 centimeters of nest in a cast and these casts weren't very good quality. With the addition of some other collecting techniques we have found additional ant species, including *Pseudomyrmex* spp. We are working on getting access to private lands and local schools and citizens in a Citizen Science collection project as a start.

The lesson here: where there are several wills, there is a way. We've started a lab project on Research Gate and I am working with the team for them to do the updating. We have a poster of our

summer work in the annual Entomological Society of America meeting this November. Thanks to the team members, Meghan Cassidy at University of Texas-Arlington, Zach Chapman at Tarrant County College, and Clint King at Tarleton State University.

Update on "A Hymenopterist Stranded"

James Carpenter, American Museum of Natural History, USA (carpente@amnh.org)

Editor's Note: The following update was provided in October, 2020. In late November 2020, Jim and Amy returned to the United States. Welcome back!

In my last report, I mentioned that we might be here in Australia a while. Well, we are still in Darwin, now more than seven months. We've had return flights canceled four times now, with the latest booking to return us to New York on November 2, eight months to the day since we left. We'll see. Our current visas are good until February; I just hope we aren't still here then.

We've continued collecting, of course, and are now up to 21 vespid genera of the 25 recorded from the Northern Territory, with more than 2200 specimens. I have no idea how many species we've collected, because so many are new. At this point, even the by-catch (that's "not Vespidae") is hundreds of specimens. And none of this counts the Malaise trap we have been running in monsoon forest since April. The plan now is to run it a whole year, so Graham Brown will run it after we are gone (assuming we ever are).

Besides the sheer fun of collecting, and living in the Northern Territory, it has been a crash course in vespid phenology. Lots of taxa disappeared from our collections in May, as the rains ceased, and the Dry really set in. During the last month, as the build-up to the Wet began, many are reappearing. The contrast between the dry and wet seasons is profound here; compare the photographs of the Finniss River Crossing, same spot, in April and June.

I spent some time while not collecting (or attending Zoom meetings) finishing off some manuscripts that had been on the back burner for decades: a key to the Australian potter wasps, and a catalog. Both manuscripts are finally submitted, and there will be one describing the nest of *Ropalidia darwini*, a catalog of the social wasps, one on new records, and another one (or more) describing new taxa. This is a serendipitous return on the continuing expedition. And continue it will: earlier this week we collected 17 vespid species at one site, a record for this trip. We'll keep it up who knows how long.

Romania 2022 for the 10th Congress of ISH

Lucian Fusu, Mircea D. Mitroiu and Ovidiu A. Popovici

We are very excited to announce that the next quadrennial Conference will be held in Iaşi, Romania (‘Alexandru Ioan Cuza’ University). The last time the congress was organized in Europe was in 2010, after which it was held in Peru (2014) and Japan (2018). The congress will be held in mid-July 2022 in Iaşi, with more specific details announced at a later time. Iaşi is a beautiful city with about 300,000 inhabitants currently. Previously the city was the capital of the historical Moldova and for a short period of time the capital of Romania. Iaşi city has an international airport with 84 flights on 38 different routes from Iaşi International Airport (IASI), connecting IASI to 36 different cities in 15 different countries. Also, two daily flights are available from the Bucharest international airport in Romania, with numerous trains and buses from Bucharest to Iaşi.

The facilities at the Faculty of Biology of the ‘Alexandru Ioan Cuza’ University are available for the congress, including amphitheaters, laboratories, multimedia, and meeting facilities. The potential venue for the congress is the Mihai Eminescu hall of this university. The university hotels offer high standard accommodation conditions for modest prices. Student houses are also available for very low prices. Many 3–5 stars hotels can also be found within 10 to 30 minutes walking distance from the venue.

The area is excellent for collecting. The city is located at the limit of the Moldavian Plateau covered in oak and beech forests with glades and the Moldavian Plain, a forest-steppe region. The area has many natural protected and unprotected areas at very close distance from Iaşi (5-15 km). The Botanical Garden of Iaşi is 15 minutes from the congress venue, it is very large (89 hectares, about 1 km2) and with numerous wild areas retaining part of the original forest-steppe vegetation. Also, in the city and the surrounding area there are numerous tourist attractions, such as old churches, vineyards (e.g. Cotnari, Bucium, Adamachi), monasteries, and museums, including the oldest Natural History Museum in Romania. There are also several intriguing archaeological sites near the city that highlight the cultural history of the region, such as the Cucuteni-Trypillian culture, one of the oldest civilizations in Europe, renowned for the beautiful painted ceramics from about 4000 B.C. An interesting place near the city is the Repedea Hill, a famous geological site, which contains fossil shells from the Paratethys Sea. We also plan a one-day excursion during the congress to the ‘Bicaz Gorges Nature Reserve’ and/or the ‘Vanatori Neamt Natural Park’ where European bisons can be seen. The post-congress collecting trip will be organized either in the Carpathian Mountains or in the Danube Delta which is the second largest river delta in Europe (after the Volga Delta) and the best preserved on the continent.

We are thrilled to host the congress and look forward to all of our colleagues to visit and share their research in 2022.

Top: Faculty of Biology of the A.I. Cuza University in Iasi

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Want to end up in Hamuli?

Send me (the current editor, Carly Tribull), an email at cmtribull@gmail.com with “Hamuli Submission” in the subject line. I’m always looking for new collecting techniques, research updates, field trip stories, humorous anecdotes, position advertisements, and anything that you think your fellow hymenopterists would enjoy. I’m also happy to receive photographs (especially portrait-oriented ones for the cover contest!), artwork, poetry, and other things.