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Stephen D. Gaimari, editor
Plant Pest Diagnostics Branch
California Department of Food & Agriculture
3294 Meadowview Road
Sacramento, California 95832, USA
Tel: (916) 262-1131
FAX: (916) 262-1190
Email: stephen.gaimari@cdfa.ca.gov

Welcome to the latest issue of *Fly Times*! As usual, I thank everyone for sending in such interesting articles! I hope you all enjoy reading it as much as I enjoyed putting it together! As usual, its being late has allowed the issue to be larger than it would have been on time! Please let me encourage all of you to consider contributing articles that may be of interest to the Diptera community for the next issue. *Fly Times* offers a great forum to report on your research activities and to make requests for taxa being studied, as well as to report interesting observations about flies, to discuss new and improved methods, to advertise opportunities for dipterists, to report on or announce meetings relevant to the community, etc., with all the associated digital images you wish to provide. This is also a great place to report on your interesting (and hopefully fruitful) collecting activities! Really anything fly-related is considered. Note, I've added a new section – OOPDip – for flies out-of-place. And of course, thanks very much to Chris Borkent for again assembling the list of Diptera citations since the last *Fly Times*!

The electronic version of the *Fly Times* continues to be hosted on the North American Dipterists Society website at http://www.nadsdiptera.org/News/FlyTimes/Flyhome.htm. For this issue, I want to again thank all the contributors for sending me so many great articles! Feel free to share your opinions or provide ideas on how to improve the newsletter. Also note, the *Directory of North American Dipterists* is constantly being updated. Please check your current entry and send all corrections (or new entries) to Jim O'Hara – see the form for this on the last page.

Issue No. 57 of the *Fly Times* will appear next October. Please send your contributions by email to the editor at stephen.gaimari@cdfa.ca.gov. All contributors for the next *Fly Times* should aim for 10 October 2016 (maybe then I'll get an issue out on time!) – but don't worry – I'll send a reminder! And articles after 10 October are OK too!

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Issue 56, available online 17 June 2016

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NEWS

Joint effort to shed some light on Sarginae relationships – this time worldwide

Diego Aguilar Fachin

Laboratório de Morfologia e Evolução de Diptera, Departamento de Biologia,
FFCLRP - Universidade de São Paulo, Av. dos Bandeirantes, 3900, 14040-901 Ribeirão Preto,
São Paulo, Brazil; uspdiego@yahoo.com.br; diegoafachin@gmail.com

I arrived on the second of May in Sacramento (California) after a long trip from Ribeirão Preto, (State of São Paulo, Brazil), to start my 3 months collaboration with Martin Hauser at the California Department of Food and Agriculture. This is my second visit to this institution - almost three years ago I spent a week here discussing Stratiomyidae with Martin and I realized that a week was way too short. At that time, I was in the middle of my Masters degree, only working on the Neotropical Sarginae fauna, especially the revision of the genus *Acrochaeta*. Now for part of my PhD project about the "Morphological Phylogeny of the Soldier fly subfamily Sarginae", I wrote a grant proposal to FAPESP (Fundação de Amparo à Pesquisa do Estado de São Paulo) to fund three months, with a special focus on African and other old world Sarginae.

Figure 1. An assortment of Malagasy stratiomyids.

Over the years Martin accumulated several thousand specimens from Madagascar, mainland Africa and from many locations in SE Asia. One of our main focuses is to make sense out of the diversity of the Malagasy fauna (Figure 1). A majority of the species have been described by E. Lindner (1888-1988), who did not spent too much effort defining the genera clearly and there are many species which need to be placed in other genera, and many new species and genera which need to be described and put in a solid phylogenetic framework. This might answer some of the interesting questions, about the relationships of the Malagasy fauna - where it came from and how many times taxa dispersed to the island (and maybe when that was). Also, we are trying to take a global look at the genera of Sarginae, and investigating if some of the "dump" genera (like *Cephalochrysa* and *Sargus*, and even *Merosargus* in the Neotropics) are really so widely distributed, and if all the species really belong in these genera. I am looking forward to working in California and visiting some of the famous collections in the state and interacting with all the Entomologists and Dipterists here. Of course, thanks very much to FAPESP for providing this opportunity and support.

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Zurquí All Diptera Biodiversity Inventory (ZADBI)

Art Borkent[1] & Brian Brown[2]

[1] Research Associate of the Royal British Columbia Museum,
American Museum of Natural History, and Instituto Nacional de Biodiversidad;
691-8th Ave. SE, Salmon Arm, British Columbia, V1E 2C2, Canada; artborkent@telus.net

[2] Natural History Museum of Los Angeles County, 900 Exposition Boulevard,
Los Angeles, California, 90007, USA; bbrown@nhm.org

This is a brief update to keep everyone informed as to where we are in our ZADBI project.

Over the past winter we ensured that collaborators had all the curated material from our project, as well, for some, additional material in alcohol. Most have finished with their identifications and most of this data has been incorporated into our database, ready for final analysis. We are waiting on the last few collaborators to complete their identifications (some families were more challenging than others!). At this point we have recorded 3,027 species from our 150 m X 266 m cloudforest patch at Zurquí de Moravia. That's pretty impressive already and the number will yet climb in the next couple of months as the last of the identifications are completed.

As an aside, Brian reports a remarkable number of peculiar phorids (he calls them crazy-assed), as have others for some of their big families.

We envision completing a initial manuscript describing this diversity within the next four months.

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Frank D. Fee Collection to the Academy of Natural Sciences of Drexel University Philadelphia, PA, USA (ANSP)

Jon Gelhaus[1] & Jason Weintraub[2]

The Academy of Natural Sciences of Drexel University, 1900 Ben Franklin Parkway
Philadelphia, Pennsylvania, 19103-1195, USA;
[1]Curator and Professor, jkg78@drexel.edu; [2]Collections Manager, jdw333@drexel.edu

The Frank D. Fee Collection is one of the largest private insect collections (*ca.* 92,000 pinned, prepared specimens with data and associated field notes) donated to ANSP during the last four decades. Frank D. Fee (1941-2014) was an amateur entomologist and authority on Syrphidae who passed away on March 16, 2014 in State College, Pennsylvania. Syrphidae represent the majority of specimens in this collection which also includes other families of Diptera as well as Hymenoptera, Lepidoptera and Coleoptera.

Frank D. Fee (1941 – 2014)

The Syrphidae alone make the Fee collection among the largest private collections of this insect group ever amassed, and provide extensive data on the morphology, phenology, geographical distribution, and life cycles (many specimens were reared from field-collected larvae) of syrphid flies native to North America, with particularly good representation for Pennsylvania and adjacent states.

Fee, formerly employed as a metallurgist by Bethlehem Steel Corporation, was a very prolific collector of insects for nearly half a century. He died intestate and it became apparent to his colleagues (members of Pennsylvania's entomological community) that no arrangements had been made to save the priceless insect collection stored in his rented apartment. Fee's ex- wife, Carol Frantz, was appointed Administrator of his estate by a Centre County judge and asked the Academy of Natural Sciences to consider accessioning the collection, which we gladly agreed to do. A team of ANSP staff travelled to State College to pack and move the collection in mid-April, 2014. Integrating the Fee Collection into the main ANSP Entomology Collection using existing departmental resources is a multi-year project involving significant manpower and materials. Collection Manager Jason Weintraub has already supervised the transfer of specimens by Curatorial Assistants, students, and volunteers from the Fee drawers to ANSP sized drawers and all specimens are tagged with a Fee collection accession label. We have already hosted research visitors using the collection and welcome any requests for information about the collection or to arrange a research visit.

Next steps include: 1) preparing the remaining field labeled specimens, 2) undertaking a major rearrangement of the existing Academy's Syrphidae collection to integrate the Frank D. Fee Collection, and 3) update the online inventory of the species in the Academy's collection in include the Fee Collection. To view the present Academy's Syrphidae holdings (not including the Fee specimens), or those of other Diptera families or any of the 100,000 species in our collection, visit http://symbiont.ansp.org/entomology/index.php

Diptera: Syrphidae, Lepidoptera and Coleoptera in the F. D. Fee Collection, ANSP Entomology Department

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A dolichopodid hotspot: Montana's Milligan Creek Canyon

Justin B. Runyon

Associate Curator, Montana Entomology Collection, Montana State University
Bozeman, Montana, 59717, USA; jbr160@gmail.com

In southwest Montana, near the town of Three Forks, Milligan Creek cuts a small and seemingly mundane notch through dry limestone hills. Milligan Creek is unassuming and small enough to be effortlessly stepped over in most places. In fact, it flows underground for much of its 4-5 mile journey to the Jefferson River. Incredibly, forty-nine species of long-legged flies (Dolichopodidae) – fully 61% of the 81 species recorded to occur in Montana (Pollet et al. 2004) – have been collected along a very short stretch of this creek (see list below). These species were found during eight short trips to Milligan Creek since 2001, using only nets, and along about a 200 meter length of the creek (about 1,000 square meters in area). Species were found where Milligan Creek Road crossed the creek near a large limestone cliff (with nesting cliff sparrows) with a small pool of water at base (Figure 1; N45º53.26', W111º40.72'; 1300 m elevation). Milligan Creek has yielded seven apparently undescribed dolichopodid species (including *Telmaturgus robinsoni*; Runyon 2012), the only known occurrence of the genus *Micromorphus* in Montana, and state records for several species. If you find yourself in Montana and wish to try your luck at Milligan Creek, let me know!

1	*Argyra condomina* Harmston & Knowlton	26	*Lamprochromus* n. sp. near *canadensis*
2	*Calyxochaetus cilifemoratus* (Van Duzee)	27	*Medetera veles* Loew
3	*Calyxochaetus isoaristus* (Harmston & Knowlton)	28	*Micromorphus* sp. 1
4	*Calyxochaetus oreas* (Wheeler)	29	*Micromorphus* sp. 2
5	*Calyxochaetus pennarista* (Harmston & Knowlton)	30	*Parasyntormon* n. sp. 1
6	*Calyxochaetus distortus* (Van Duzee)	31	*Parasyntormon* n. sp. 2
7	*Campsicnemus claudicans* Loew	32	*Pelastoneurus cyaneus* Wheeler
8	*Campsicnemus degener* Wheeler	33	*Pelastoneurus vagans* Loew
9	*Campsicnemus utahensis* Harmston & Knowlton	34	*Peloropeodes cornuta* (Van Duzee)
10	*Chrysotus "argentatus"* group	35	*Rhaphium atkinsoni* Curran
11	*Chrysotus* sp. (female)	36	*Rhaphium femoratum* (Van Duzee)
12	*Diaphorus* sp. (female)	37	*Rhaphium* sp. (female)
13	*Dolichopus adaequatus* Van Duzee	38	*Sympycnus marcidus* Wheeler
14	*Dolichopus bifractus* Loew	39	*Sympycnus pugil* Wheeler
15	*Dolichopus jugalis* Tucker	40	*Sympycnus* n. sp. near *fasciventris*
16	*Dolichopus obcordatus* Aldrich	41	*Sympycnus* n. sp. near *latitarsis*
17	*Dolichopus plumipes* (Scopoli)	42	*Syntormon dissimilipes* Van Duzee
18	*Dolichopus penicillatus* Van Duzee	43	*Syntormon* sp. (female)
19	*Dolichopus ramifer* Loew	44	*Tachytrechus greeni* Foot et al.
20	*Dolichopus renidescens* Melander & Brues	45	*Tachytrechus sanus* Osten Sacken
21	*Dolichopus variabilis* Loew	46	*Telmaturgus robinsoni* Runyon
22	*Dolichopus vernaae* Harmston & Knowlton	47	*Teuchophorus utahensis* Harmston & Knowlton
23	*Hercostomus longilamellus* Harmston & Knowlton	48	*Thrypticus fraterculus* (Wheeler)
24	*Hydrophorus altivagus* Aldrich	49	*Thrypticus* n. sp.
25	*Hydrophorus philombrius* Wheeler		

Figure 1. Forty-nine species of long-legged flies (Dolichopodidae) have been collected along a short stretch of Milligan Creek in southwest Montana. The small canyon is seen at left; note the small pool of water at base of cliff (lower right). The remainder of the creek is open with many grasses, rushes, and sedges.

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Preliminary Survey of Louse Flies (Diptera: Hippoboscidae) on Migrating Raptors

Rebecca A. McCabe[1], Alexis Smoluk[2], & John R. Wallace[3]

[1] Hawk Mountain Graduate Student, Acopian Center for Conservation Learning, Orwigsburg, Pennsylvania, 17961, USA

[2] USGS BBL Patuxent, Maryland, 20708, USA

[3] Department of Biology, Millersville University, Millersville, Pennsylvania, 17551m USA

Introduction

Raptor ectoparasites include lice, mites, ticks, fleas, louse flies, cimicid bugs, and blowfly larvae, however, the majority of the documentation of raptor ectoparasites by wildlife rehabilitators and veterinarians over the last two decades has largely focused on mallophagan lice (Morishita et al. 2001). Ectoparasite load can have a myriad of pathogenic, ecological and evolutionary effects on avian populations (Brown 1995; Barber and Dingemanse 2010). Some of the pathogenic effects can be direct as a result of a pathogen infection on their hosts such as myiasis, anemia, hyperkeratosis and indirect as they serve as infectious hosts for vectors of avian and human pathogens (e.g. West Nile virus, and other encephalitis viruses) (Turrell 2009; Liebana et al. 2011). From an ecological perspective, ectoparasite/avian host interactions may influence avian pathogen spread both in temperate and tropical ecosystems, especially with migrating taxa (Rvachev 1985; Fuller et al. 2012). Moreover, many studies have shown that ectoparasitic infections damage feathers which in turn influences mate selection; such impacts may have indirect evolutionary effects on fitness and reproductive success of infected birds (Philips 1990, 2007).

Since the introduction of West Nile virus (WNV) to North America and the early avian surveys that accompanied mosquito surveillance (Andreadis et al. 2001, 2004; Nasci et al. 2002; Hribar 2003;Rutledge et al. 2003; Anderson et al. 2004; Mans et al. 2004), limited attention has been directed towards ectoparasites. As a result of avian surveillance findings in which louse flies (Diptera: Hippoboscidae) had tested positive for West Nile virus and became an insect of potential concern as a vector of WNV (Komar 2003; Gancz et al. 2004; Farajollahi et al. 2005; Latchman and Moon 2008), we initiated a pilot project to gather preliminary data on the ectoparasitic load, specifically louse flies on migrating raptors in 2004 at a banding station in New Jersey and recently repeated a similar survey again in 2015 in Pennsylvania. Our objectives included: 1) the characterization of the louse fly abundance on migrating raptors over a fall migration period and; 2) to determine the louse fly infestation among raptor species, age, and sex.

Methods

New Jersey 2004

Flies were collected from September – November, 2004 at the North, Far North, Tomato Patch, and East field stations ancillary to capture of raptors migrating on the Atlantic Flyway near Cape May Point, NJ. Raptors were captured employing bow traps, mist nets, and Do Gaza nets. Birds were promptly removed from traps and stored in size-specific cans (to minimize stress) for processing. With bird in hand and all data collected in accordance to the Cape May Raptor Banding Project Inc., a 90-second search beginning with the left side of the raptor's feathers was performed to count/collect ectoparasites. Flies were then captured by hand. Not all raptors were examined for flies and not all flies captured. Parasites were placed inside a kill jar for asphyxiation by ethyl acetate. Insects were removed and pinned for identification in the laboratory. Insects were given a master bird number to tally abundance from an individual raptor.

Pennsylvania 2015

Louse flies were collected from migrating raptors trapped at Little Gap Banding Station, in Northampton County, Pennsylvania, approximately 35 miles up the ridge from Hawk Mountain Sanctuary, from 8 September to 23 November 2015. Raptors were captured using mist nets and a bow trap. Once trapped, the birds were promptly removed and taken into the blind for processing (Figure 1). With all data collected in accordance with the North American Bird Banding Program and the Bird Banding Laboratory, a one to two minute search examining the dorsal and ventral surface of the bird was conducted; to collect and count any louse flies present/absent. Flies were collected from the bird (Figure 2) either by hand or with forceps and 1) placed in a vial and immediately put on ice or 2) placed in a vial with 100% ethanol. Not all raptors were examined for flies and not all flies were captured.

Figure 1. Search a hatch-year Cooper's Hawk *(Accipiter cooperii)* for louse flies (Fall 2015). Photo Credit: Pablo Santonja.

Figure 2. Hippoboscid adult removed from a hatching year Red-tailed Hawk (*Buteo jamaicensis*) on 24 September 2015. Photo Credit: Pablo Santonja.

Results

To date, louse flies have been identified to family level (Hippoboscidae) but will be identified to species level at a future date. Our mean number of sample days in 2004 for New Jersey was 17.7 d, (SE +/- 0.97) and 6.7 d (SE +/- 1.12) in 2015 for Pennsylvania. In 2004, in New Jersey, 14% of the 500 total birds trapped were found with louse flies. Whereas, in 2015 in Pennsylvania, 53 % of the 43 birds sampled were positive for louse flies. Subsequently, the greater number of louse flies recovered in 2004 (n = 145) reflected the fewer sampling days conducted in 2015 (n = 38). Despite the differences in sample days and sample numbers per year, in comparing the two sample years, we observed a decline in louse flies on raptors in 2015 in Pennsylvania and variable numbers collected in 2004 from New Jersey (Figure 3).

The number of louse flies collected per species of raptor did not differ between the two sample years (n=5 species in 2004, n=6 in 2015), however, we did find differences in the taxa between years (Figure 4). We found significantly more louse flies per bird on Red-tailed Hawks (RTHA) in 2004/NJ with 84.2% compared to 15.8% in 2015/PA, and on Cooper's Hawks (COHA) in 2004/NJ with 83.3% compared to 16.7% in 2015/PA ($p < 0.05$; $X^2 = 112.09$; df = 16; N=183) compared to the other taxa of raptors. In 2004, we collected louse flies from a Northern Goshawk (NOGO) and Red-shouldered Hawk (RSHA) in New Jersey samples, where as in 2015 we either did not trap these birds or found no louse flies on them in 2015 Pennsylvania samples. In 2015, we collected louse flies from a Bald Eagle (BAEA), Broad-winged Hawks (BWHA) and a Northern Harrier (NOHA) in Pennsylvania and did not collect from these birds or found no louse flies in 2004 in New Jersey. In this survey, American Kestrels (AMKE), Merlins (MERL) and Peregrine Falcons (PEFA) were trapped but no louse flies were collected from these birds.

During both sampling years and locations, most louse flies were collected from hatching year birds (HY) compared to the other age classes (Figure 5). We collected a greater percentage of louse flies from migrating female raptors compared to males during both sampling years and locations (Figure 6). However, 30-40% of all birds collected from both sampling periods/locations could not be sexed due to the overlap in size and similar plumage of specific species (i.e. Red-tailed Hawk) (Donohue and Dufty 2006).

Discussion

Although there was a decline in hippoboscids present on birds in 2015 compared to 2004, we attribute this decline to the limited sampling dates in November 2015. It has been hypothesized that the current consensus of global climate change may be influencing increased numbers of avian blood parasites (Sehgal et al. 2011) and such an increase in documented ectoparasitic loads may also reflect improved conservation efforts for monitoring and tracking migrating raptors in general. This preliminary report does not confirm such an increase in ectoparasite load, however, to our knowledge, our study documents the first reports of hippoboscid louse fly infestation on migrating Northern Goshawk in 2004 and a Northern Harrier in 2015 (Latchman and Moon 2008; Doherty and Moon 2015).

Our study documented that in 2004 and 2015, HY birds had the greatest numbers of louse flies. This finding is not surprising because louse fly reproduction is tied to the host's nest and as HY birds are born, they provide a food source for newly emerged louse flies of that year. The lack of samples from older birds trapped is easily explained in that older birds are not typically trapped on migration whereas the HY birds are prone to capture. Therefore, this discrepancy in louse fly abundance between younger (HY) birds v. older (AHY, SY and ASY) may be attributed to inactive period nestlings have while in the nest until fledging.

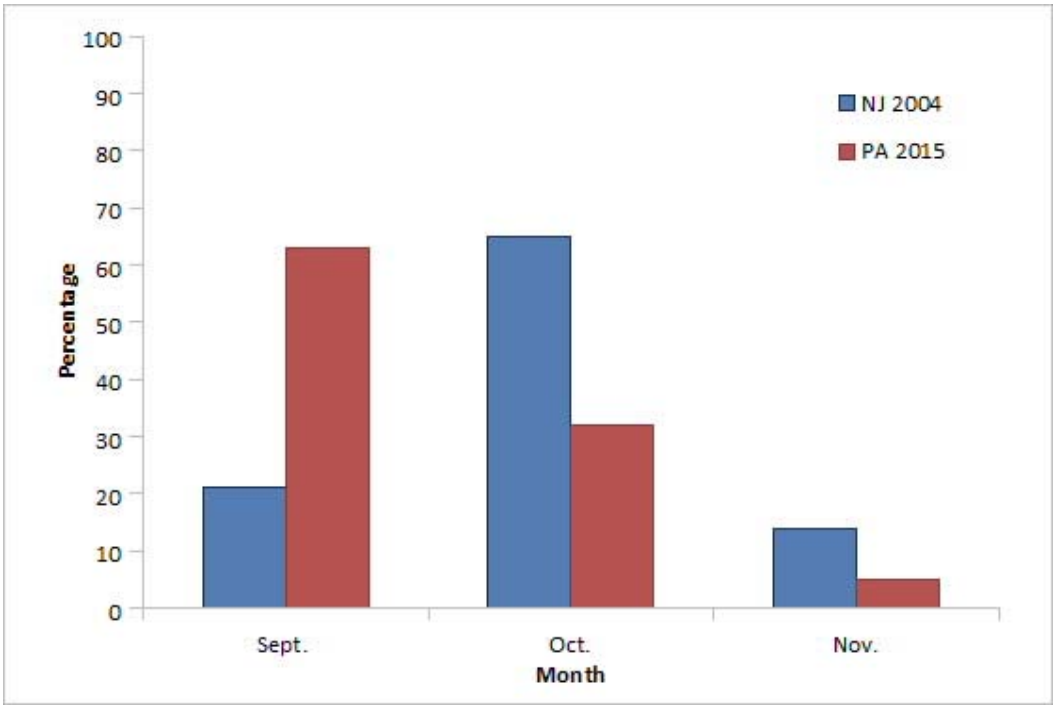

Figure 3. Seasonal prevalence of the percentage of hippoboscid flies collected during fall migration months at New Jersey and Pennsylvania banding stations.

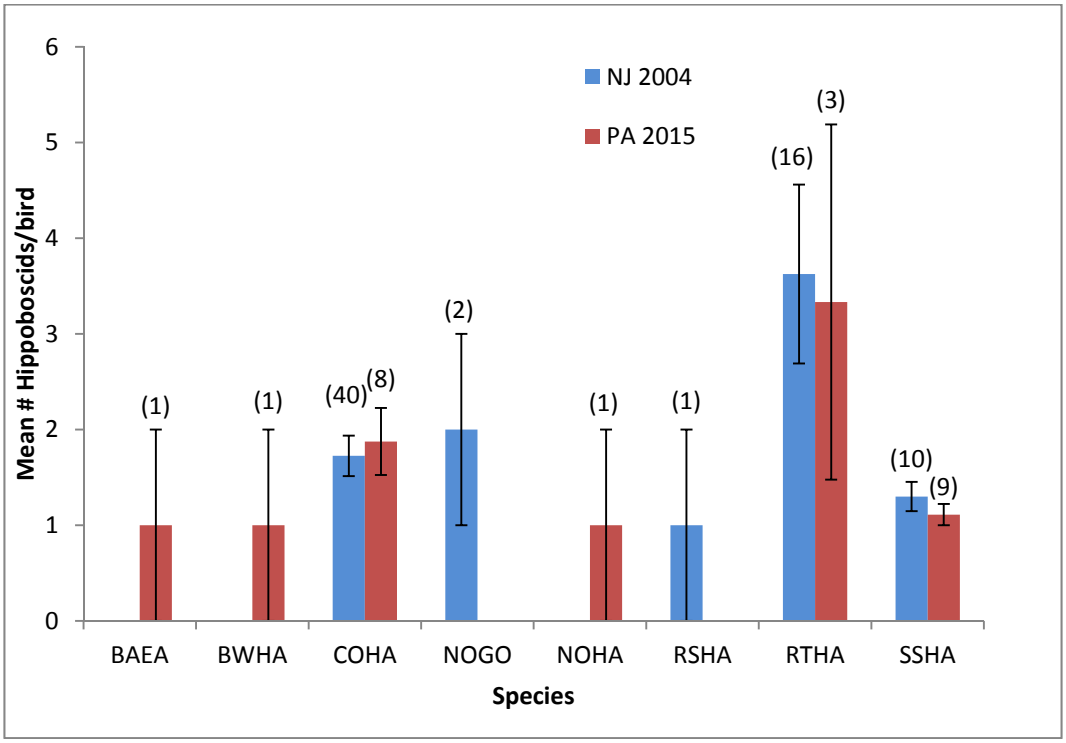

Figure 4. Mean number of hippoboscid flies collected from eight migrating raptors species in New Jersey (2004) and Pennsylvania (2015). BAEA = Bald Eagle, BWHA = Broad-winged Hawk, COHA = Cooper's Hawk, NOGO = Northern Goshawk, NOHA = Northern Harrier, RSHA = Red-shouldered Hawk, RTHA = Red-tailed Hawk, SSHA = Sharp-shinned Hawk. Error bars represent the SEM.

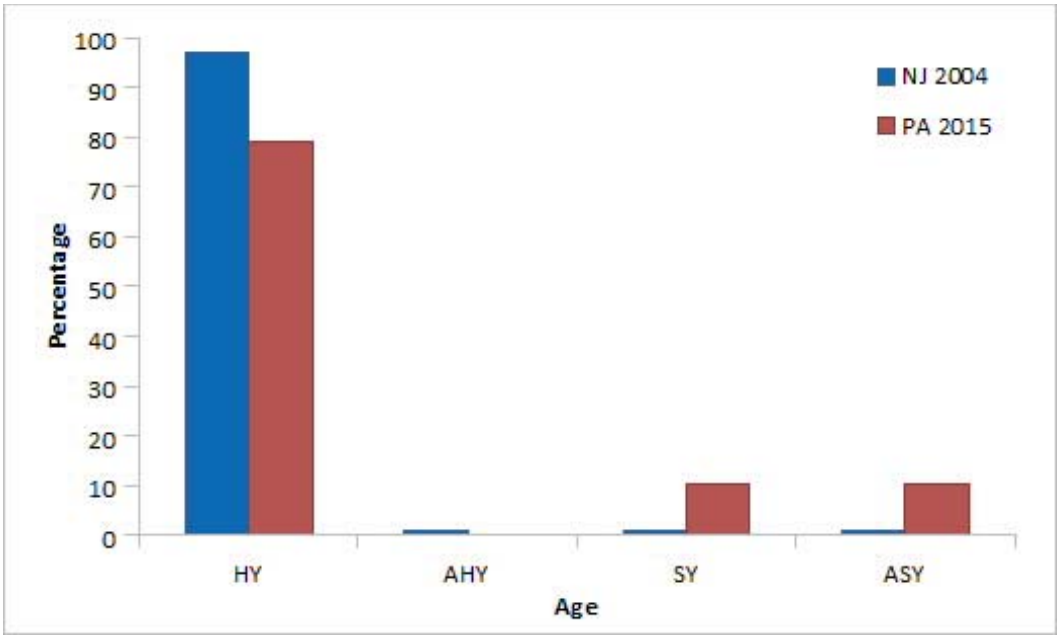

Figure 5. Percent of louse flies collected from different age classes, HY = Hatching Year, AHY = After Hatching Year, SY = Second Year, ASY = After Second Year.

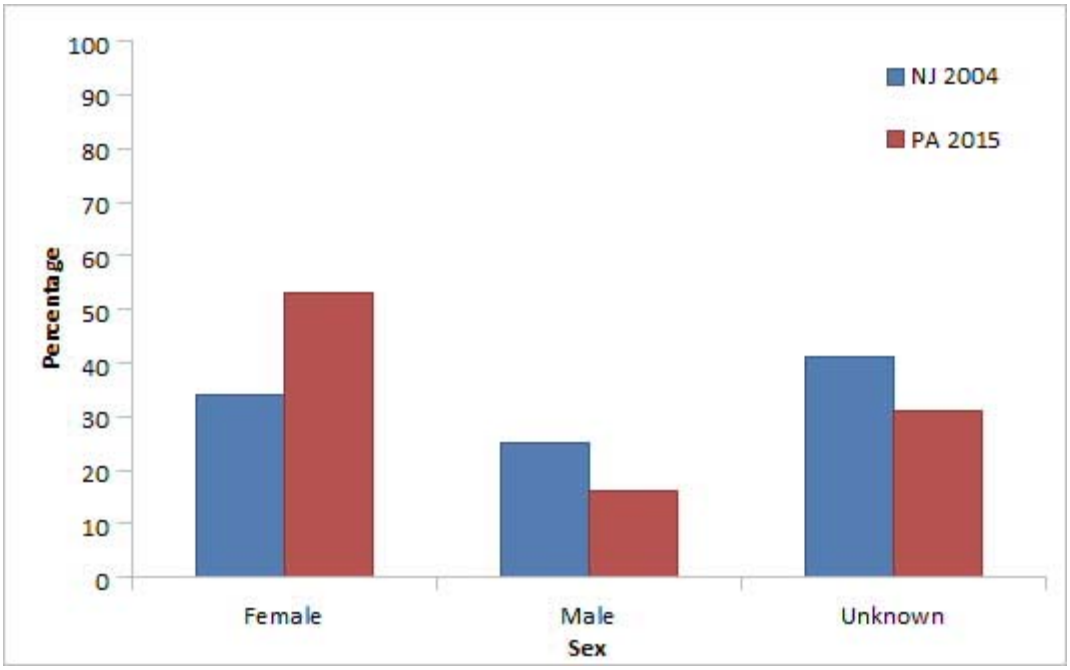

Figure 6. Mean number of hippoboscid flies collected from female, male, and unknown raptor species**.**

Farajollahi et al (2005), Phillips (2007) and Lloyd (2009) have all documented that the decline in raptor populations may be attributed to the spread of WNV, other viruses as well as protistan pathogens and that louse flies are considered to be important vectors of these viruses. Tracking the movement of louse flies on migrating raptors is essential to understanding the dispersal rate of avian pathogens and the taxa involved.

Acknowledgements
We would like to thank Erin High MU'05, Jerry Lahr, Tim Kita, Dave Hughes and everyone else at the Little Gap Banding Station for allowing us to collect and for voluntarily collecting louse flies when we were not there.

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Rediscovery of One of the Rarest Species of Tanyderidae: An Anecdotal Field Account

R. Isaí Madriz

Department of Entomology, Iowa State University,
Ames, IA, USA 50011-3222, USA. rimadriz@iastate.edu

From December 2015 to February 2016 I participated in the field season of a collaborative project studying the biodiversity of Southern Chilean streams in old growth temperate forests. The challenges to performing research in the poorly sampled and least populous of Chile's fifteen regions include the fragmented landscape marked by many lakes, channels and fjords formed by several glaciation events, and the land routes being extremely primitive tracks at best.

Dr. Anna Astorga, the project leader, took me throughout the Aysén region to perform a faunistic survey of aquatic Diptera larvae and adults. Even at seven months pregnant, she personally guided me by foot through rivers and mountain passes to some of the most secluded and pristine sites of the region, previously scouted by her and fellow collaborator Dr. Brian Reid. At the tail end of the field season, I returned to one of the previously sampled sites that promised to yield adult specimens of *Araucoderus gloriosus*, one of the focal genera in my ongoing taxonomic treatment of the Tanyderidae. The valley was divided by an unnamed glacial fed stream we nicknamed Kairay, draining into Lago General Carrera from the fragmented northern Patagonia ice field. This site is located halfway between the small towns of Bahia Murta and Puerto Río Tranquilo.

Carrying over 40 lbs of collecting gear and video equipment, cinematographer Victor Rodriguez and I waded up the serpentine creek. As the afternoon progressed our trek became harder with the increasing slope, and after clawing our way over massive fallen trees, falling into a few deep pools of translucent glacial water and climbing a 20ft waterfall, we finally arrived at our destination. There the stream bottom consisted of a mixture of sand, coarse gravel and rocky substrata, with sparse submerged wood, ideal *Araucoderus* habitat. In less than half a mile, I was able to count over 49 adult *Araucoderus gloriosus* resting on tree trunks of *Nothofagus sp.* and the underside of vegetation in the riparian zone. This site would be perfect for filming tanyderid diurnal habits and recording any crepuscular behavior.

After hours of focused behavioral observation and collection, we set up a black light to document the local nocturnal insect fauna. By midnight, with no sign of any tanyderid nocturnal activity and after impoverished collecting from our black light session, we decided to set up camp using the lightweight travel hammocks we accidentally placed in our food bag. The hammocks had massaged the punctured ziploc containing lukewarm soft cheese, soggy bread and broken crackers until it had blended into a paste-like consistency. After our mucilage of a dinner we prepared for the advancing threat of night rain with anything we had at our disposal. Our slanted shelter arose from a motley assembly of dangling collecting gear and clammy field clothes, but we were too tired to care.

Before dawn, while having a manjar (a popular soft caramel) and stream water breakfast, I stumbled into the freezing water to cleanse myself of the cheese perfume my skin accumulated overnight from my sleeping quarters. Looking for the perfect rock and sand to scrub myself with, I discovered several pupae and tanyderid pupal exuviae in the interstitial spaces among the exposed large rocky substrata.

With the sky lighting up, numbed from the freezing water and with my cold hands occupied with specimens, I witnessed significant activity on the canopy, too high up to accurately identify the

numerous insects or excited passerine birds fluttering across the branches engorging themselves on the commotion. Looking back to our temporary residence being pillaged by overstimulated tapaculos (*Scelorchilus sp.*), I spotted one of the highlights of the field season. Directly on the overhanging white sheet covering Victor's shanty rested a severed yet a complete wing of *Neoderus patagonicus* (Figure 1) in perfect condition, one of the rarest species of tanyderids. Known only from a single female collected in the secluded southern fjords of Chile, sometime during the late 1800's, and formally described by Charles P. Alexander in 1913.

Figure 1. Wing of *Neoderus patagonicus*

This discovery sent us on an intensive 5 hour search throughout the site in which we found mating pairs of *Araucoderus gloriosus*, rare psychodids, brachipterous plecopterans, *Symbiocladius* sp. larvae (a parasitic chironomid) still attached to their leptophlebiid host and filmed empidids opportunistically feeding on a tipuloid trapped in a spider web. Unfortunately, we could not find any other signs of *N. patagonicus* at the site.

With no more food, dry clothes or batteries for our cameras, but with the satisfaction of knowing that an elusive tanyderid can be found in the area, we decided to head back to civilization. For the return we took a different but equally challenging path that led us out onto the open mountainside where adult male Andean condors soared less than 5 feet above us.

By the end of the field season I was able to triple the world collection of *Araucoderus gloriosus*, double that of *Tanyderus pictus* and successfully reared mature larvae of both species to adulthood while traveling in country. Additionally, in an unexpected turn of events and in a different habitat from that previously described, I was able to secure four specimens of *Neoderus patagonicus*, including the first recorded male of the species. A detailed treatment of *Neoderus* is underway.

I wish to thank Anna Astorga and Brian L. Reid for their hospitality and field support, and cinematographer Victor Rodriguez for his expertise in documenting the observations. Kristina K. Lindsay and my former students Brittany A. Clark, Shawna Snyder, Selah Zaldarriaga and Alex Mykris provided field assistance during other parts of the study. Particular thanks go to Gregory W. Courtney for allowing me to take the time off to collaborate in this project.

Various photographs from these efforts are seen in Figures 2 and 3 below.

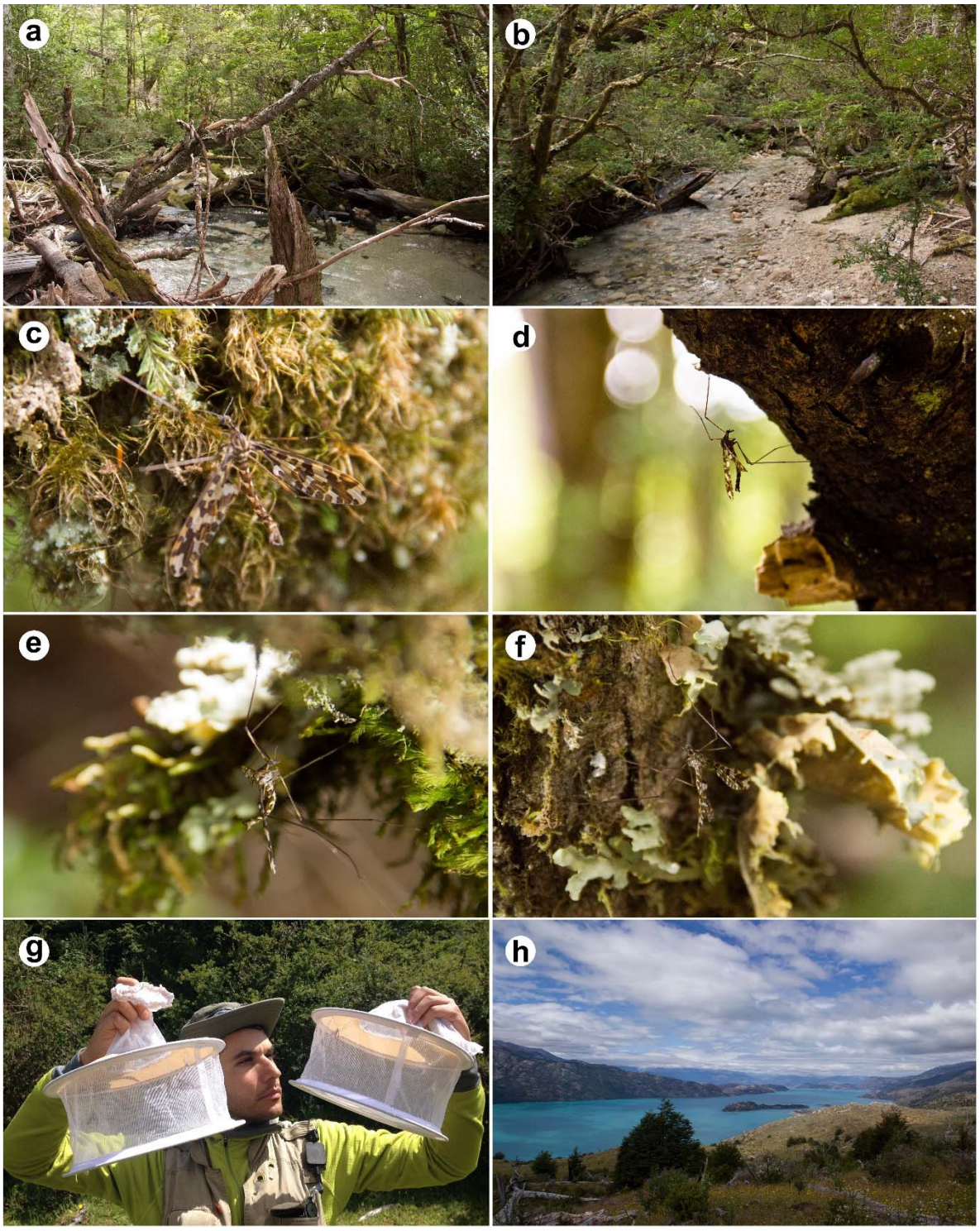

Figure 2. a–f. *Araucoderus* habitats in Kairay. **a–b.** Kairay site. **c–f.** *Araucoderus gloriosus* male. **g.** *Araucoderus gloriosus* and *Neoderus patagonicus* captive specimens. **h.** Lago General Carrera.

Figure 3. a. Río Ibañez on road to Kairay. **b.** Research base. **c.** Collaborators and former students, from left to right: Selah Zaldarriaga, Shawna Snyder, Anna Astorga, Brian Reid, Isaí Madriz, Kristina Lindsay. **d–f.** Tanyderid collecting sites of the Aysén Region.

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Robber flies in the State of Jalisco, Mexico

Alejandro Estrada

Programa de Posgrado en Ciencias Biologicas, Universidad Autonoma de Tlaxcala, Tlaxcala, Mexico; estrada.alejandro90@gmail.com

A few years ago I began to study and collect robber flies in the State of Jalisco (Western Mexico), as an undergraduate student. The main localities are: Tepopote Hill (Fig. 1) and La Primavera, oak-pine forests in the municipality of Zapopan, and Chamela-Cuixmala Biosphere Reserve (Fig. 2), a tropical dry forest. Generally, the specimens have been collected with a net; subsequently mounted, labeled and stored in my private collection. Some duplicates will be deposited in Mexican collections later.

I've been assisted by some experts who have provided literature, identified specimens or confirmed my identifications. These include Eric Fisher, Torsten Dikow, Aubrey Scarbrough and other experts. Some species represent new records for the State of Jalisco, and others are new to science, to be described later. Some of the more abundant genera and species collected or observed are listed below:

TAXA	**LOCALITY**		
	Tepopote Hill	La Primavera	Chamela-Cuixmala BR
Archilestris magnificus (Walker) (Fig. 3)		**X**	**X**
A. chamelensis Estrada			**X**
Blepharepium annulatum (Bigot) (Fig. 4)		**X**	**X**
Diogmites (several sp)	**X**	**X**	**X**
Efferia albibarbis (Macquart)	**X**	**X**	**X**
Efferia triton (Osten Sacken)		**X**	**X**
Efferia (*anomala* group, several sp) (Fig. 5)	**X**		**X**
Efferia (*carinata* group, several sp) (Fig. 6)	**X**		**X**
Lampria aurifex Osten Sacken			**X**
L. mexicana Macquart			**X**
Mallophora fautrix Osten Sacken (Fig. 7)		**X**	**X**
M. leschenaulti Macquart		**X**	**X**
Ospriocerus tequilae Martin (Fig. 8)			**X**
Prolepsis tristis (Walker) (Fig. 9)	**X**	**X**	**X**
Promachus (several spp.) (Fig. 10)	**X**	**X**	**X**
Triorla interrupta (Macquart)	**X**		**X**

Many specimens remain to be identified, especially to the species level. Species level identifications are very difficult due to the lack of taxonomic revisions of many genera. Currently, as a graduate student, I will keep working on this material as well as other specimens housed in Mexican insect collections.

Figures 1 (left) and **2** (right). 1. Tepopote Hill. Photo credit, Francisco Muñoz. 2. Chamela-Cuixmala Biosphere Reserve.

Figure 3. *Archilestris magnificus*. Chamela-Cuixmala BR. Photo credit, Enrique Ramírez.

Figures 4 (left) and **5** (right). 4. *Blepharepium annulatum* (Bigot). Dorsal view. 5. *Efferia* sp (*anomala* group). A male preying on a honey bee. Tepopote Hill.

Figure 6. *Efferia* sp (*carinata* group). A female preying on a grasshopper. Tepopote Hill.

Figures 7 (left) and **8** (right). 7. *Mallophora fautrix* Osten-Sacken. Dorsal view. 8. *Ospriocerus tequilae* Martin. Chamela-Cuixmala BR. Photo creditm Enrique Ramírez.

Figures 9 (left) and **10** (right). 9. *Prolepsis tristis* (Walker). Female, head in anterior view. 10. *Promachus* sp. A female preying on a treehopper. Chamela-Cuixmala BR. Photo credit, Enrique Ramírez.

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Fly-Flower List Available

Mark Deyrup

Archbold Biological Station, 123 Main Dr., Venus, Florida, 33960, USA
mdeyrup@archbold-station.org

Flies are important pollinators, and flowers fuel many flies. The dimensions of this interaction at a single site can be seen by downloading the fly-flower Excel spreadsheet available from the Archbold Biological Station. There are 3,851 records to date. Some specimens are identified to genus only. Within a year we hope to have photographed and made available a representative of each flower-visiting fly. These data are not protected in any way, and can be sorted or reconfigured according to the interest of the user. We are not seeking co-authorship of publications using this information. For any dipterist interested in a larger site-specific flower visitor web, we also have available a file of 5665 hymenopteran flower visitors. We are currently digitizing the label information of flower-visiting coleopteran specimens at the ABS. There are less than 1000 of these. Most of the insects were collected by Mark Deyrup, and all the data entered by Nancy and Leif Deyrup. Every record has an individually numbered voucher specimen in the collection of the Archbold Biological Station. This collection is about 50 years old, and includes about 220,000 pinned specimens, most with habitat or host information.

There are plenty of interesting applications of this for Diptera research, especially in comparing dipteran flower visitors in different regions. This data set could also be used in ecology classes, for example, to look at which groups of flies visit flowers of a particular color or shape. Nectaring in Tachinidae seems to be characteristic of a series of genera that are not closely related. There might be some correlation with host-finding strategies, a good project for an enthusiastic graduate student.

We do not yet have a link to this data set, but it can be obtained by contacting me, subject line ABS Fly-Flower Download.

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HISTORICAL DIPTEROLOGY

An enigmatic man with three names: brief biographical notes on Johannes Gistel (1809–1873) and a list of his forgotten Diptera taxa

Neal L. Evenhuis

J. Linsley Gressitt Center for Entomological Research, Bishop Museum,
1525 Bernice Street, Honolulu, Hawaii 96817, USA; neale@bishopmuseum.org

The naming of cats is a difficult matter,
It isn't just one of your holiday games;
You may think at first I'm as mad as a hatter
When I tell you, a cat must have THREE DIFFERENT NAMES
—T.S. Eliot, "The naming of cats", 1940

I was once asked by a colleague to write a collection of biographies of some of the more strange zoologists out there (only the dead ones of course) and title it "Fringe Taxonomy". I'm not sure it would be a best-seller, but the idea has always remained in my mind, waiting for that opportune moment. There certainly is no shortage of biologists who have "marched to their own tune" as so to speak. Aside from maybe Constantine Rafinesque, who described fantasy fish and tried to catch bats with a violin, one person who definitely belongs near the pinnacle of the top ten of that "fringe" list is the narcissistic, mercurial, and mysterious Johannes Gistel. In one publication alone he replaced more than a thousand animal genus-group names (especially those named after persons and names previously used in plants, but also replaced names when he just simply did not like a spelling or how it sounded when pronounced). Why use *Trichopoda* when you could use *Furunculus*? Or *Lomatia* when *Nettadion* might be better?

Gistel was mostly forgotten to history, ignored or shunned by his contemporaries, was described in one biography (more praising than most) as "*er war eitel, ruhmredig, sensationslustig, manchmal flüchtig und ungenau* [vain, boastful, sensation-craving, and sometimes superficial and imprecise]" (Strand, 1919: 125), a tragi-comic figure (Horn, 1937), and claimed by others to be a cheat and a liar. A perfect choice for these *Fly Times* pages, I thought! There is very little really known of him and the few biographies of him are short, but there is still enough in them to make us wonder (hopefully?) what other tantalizing information about his life may be out there waiting to be found.

A note of clarification regarding the biographical information presented here: the detailed biographies of him are given by contemporary encyclopedists, and authors of biographical compilations who obtained information directly from Gistel himself or copied previously published material on him. As Gistel was known to embellish or fabricate facts about himself, the information stated in these biographies are to be taken with caution. My fact-checking many of the claims in those biographies seemed to bear this out. I therefore give here what I believe to be the most "truthful" of the bits of his life to be found in the literature as well as through archival and genealogical research. Gistel's tendency to stretch the truth about his achievements, awards, education, and societal memberships or completely fabricate that information was probably done to better place himself in the context of his academic naturalist colleagues knowing that he never obtained an academic degree. This propensity to

self-glorify could have contributed to his eventual estrangement from his colleagues or may have been a result of it. As will be seen, even fabricating his given names and using a pseudonym were acts he felt were necessary for whatever reasons.

Early Years

Gistel (Fig. 1) was allegedly (see below for more on his given names) born Johannes [von] Nepomuk Franz Xaver Gistl in Munich on 11 August 1809. His family had used the spelling "Gistl" and he followed that in his early works, but in 1848 he announced that he was henceforth going to use the spelling "Gistel" like his ancestors. [This change in spelling apparently was not a legal one and more like a pen name. This is evident from an 1854 court case involving a threatened lawsuit by Gistel that was noticed in the *Neue Münchener Zeitung* in which the plaintiff is listed as "Dr. Gistl" (Anonymous, 1854)]. Gistel was either born into or closely related to a well-to-do family, which afforded him a number of privileges throughout his life, one being that he essentially did not have to look for a job [although in the 1830s he mentioned hoping to get a teaching job at a university or Lyceum (Schaden, 1834)]. His father, Franz Xaver Gistl (1783–1815), a caretaker and trainer at a royal riding school (Gistl had said in one biography that he was the director), died when our Gistel was only five years of age leaving his mother Maria Anna Gistl (née Hahn) (born 1772) to raise him and his sister Katharina Leonora (born 1808). The young Gistel attended schools in Rempart and Schönfeld, northern Germany in 1816, and two others in 1820 before entering the royal gymnasium in Munich in 1822 where he studied under Katejan Weiller. In 1826 he matriculated at the University of Munich where he studied natural history under the likes of Ludwig Lorenz Oken (best known as the editor of *Isis von Oken*), C.F.P. von Martius, J.G. Wagler, and G.H. von Schubert. A check of the matriculation lists of students at the universities in Munich during the years 1825 to 1830 shows Gistel to not have been enrolled (searching under any of his given names singularly or in combination). However, a note in the *Bayerische Volksfreund* (Anonymous, 1827) mentions a candidate of philosophy, "J. Nepomuk Gistl" as having presented a poem at an end-of-semester farewell ceremony for Prof. Oken, so he was at least in the company of professors but possibly never formally enrolled. In some biographies of him (e.g., Schaden, 1834; Strand, 1919), Gistel said his fellow student friends included some well-known naturalists such as Louis Agassiz, Joseph Waltl (who collected Andalusian Diptera that Meigen described), and Maximilian Perty. That these three were students in Munich during those years is true, although Agassiz attended a different university there (the Landschuts-Universität) than the other two (the Ludwig-Maximilian-Universität). Whether they were truly "friends" is another story.

Figure 1. Johannes Nepomuk Franz Xaver Gistel (1809–1873)

Gistel claimed to have received a baccalaureate in medicine and doctorate in philosophy (both unverifiable), but never earned an academic position, yet he listed professorships in his bylines. Instead of an academic job, he operated a sales warehouse in Munich where he dealt in natural history objects, some of which he collected at the family's country estate in Geisenbrunn, 22 km west of Munich. His

collecting records in his publications show that he traveled and collected throughout continental Europe but spent summers at the Geisenbrunn estate, which offered him a bounty of natural history specimens to sell or exchange.

Gistel's Publications and Isolation

Prof. Oken, his alleged mentor in Munich, was the editor of the journal *Isis* and Gistel's first few publications were in that journal, so there is a distinct possibility that there was (at least initially) a close association between the two as implied in biographies of Gistel. Moreover, reviews or notices by Oken that appeared in *Isis* of Gistel's early publications were written in a praiseworthy or neutral tone; in contrast to more critical reviews of him and his works by others. But as will be seen below, even Oken eventually became estranged from him.

The cause of the rift between Gistel and his colleagues was no doubt the result of Gistel having stolen or plagiarized the works of others (Wagner, 1838; Perty, 1879) and changing names of taxa given by predecessors. It could also have been compounded, as Strand (1919) indicated, by a very similar situation to the criticism of Francis Walker by some of his colleagues. In that case, the majority of Walker's worst critics were those in Lepidoptera and Hemiptera where Walker was said to be out of his area of expertise and his descriptions were totally useless (in addition to the polemics that were aimed at the names he proposed and his splitting of taxa). Gistel's descriptions were also vague and useless and he described novel taxa in a wide variety of animal groups, some clearly out of his area of expertise. But it was Gistel's penchant for changing names that was one of the major topics of the sharp remarks directed toward him. His self-imposed isolation was no doubt a result of the public criticisms of his work and publishing methods.

Part of this isolation led him to found his own journal (*Faunus*; 1832–1835), which allowed him to publish freely on most anything he desired; and the establishment of his own natural history society, the Münchener Verein für Naturkunde, in which he appointed himself as secretary, and awarded honorary diplomas to friends and people with whom he wished to curry favor. In his publications dealing with that society, he used the pseudonym "G. Tilesius" (an anagram for the Latinized "Gistelius"). Adler (2012) conjectured that this pseudonym might have been to disguise Gistel's full extent of his involvement with the society, but it was soon known who Tilesius was, and in one case honorary diplomas from the Society that were given to both Oken and Perty by Tilesius were returned (Perty, 1879). Another way he chose to curry favor was to change the names of previously described species-group names to patronyms of his friends. Mannerheim (1838) specifically criticized this action:

> "Nous ne pouvons non plus approuver M. Gistl lorsqu'il change des noms d'espèces déjà publiés, pour les dédier à des entomologistes qui, certes, ne se trouveront point flattés qu'un pareil hommage leur soit rendu aux dépens des principes les plus sacrés de la science ..." [We also cannot approve of Mr. Gistl when he changes the published names of species in order to dedicate them to some entomologists who would certainly not find themselves in the slightest way flattered that such a dedication has been given to them at the expense of the most sacred principles of science ...]" (Mannerheim, 1838: 207).

Gistel was an incredibly prolific writer and poet, and wrote on a variety of subjects, including biographies, politics, history, general zoology, physiology, anatomy, mammalogy, ornithology, and herpetology, although entomology (especially Coleoptera) was his main interest. Horn (1924) bemoaned the fact that Gistel was criticized and his names forgotten and tried to give him credit for his brilliance as a writer, but at the same time noted that Gistel's (1848) *Naturgeschichte der Thierreichs*

never sold, nor did a second or even third edition. The unsold stock was eventually pulped, thus making the work an extremely rare (and ignored and forgotten) one. Lack of sales no doubt meant that Gistel's reputation by then had already been in ruins.

As Adler (2012) noticed, Gistel's writings were unfocused and, in some cases in his faunal papers, he used names that he had replaced in earlier works. His unfocused writings may have been symptomatic of writing about whatever idea popped into his head and then write as quickly as possible to get the work published, but without taking the time to research the previous literature, an action which would have helped ensure his writings were accurate. One example of this impreciseness in his writings may have had a negative impact of the life and career of a well-known geneticist. According to Klein & Klein (2013: 315), Gregor Mendel lost a chance at a professorship at a gymnasium when he failed an examination in which he used incorrect information presented in Gistel's *Naturgeschichte des Thierreichs* to answer a question about the orders of mammals.


Achthundert und zwanzig

neue oder unbeſchriebene

wirbelloſe Thiere.

Charakteriſirt von

Doctor Johannes Giſtel.

Straubing, 1857.
Verlag der Scharner'ſchen Buchhandlung.
Druck von J. F. Riedl in Landshut.

Figure 2. Title page of Gistel (1857)

The Forgotten Diptera Names of Gistel

Many of Gistel's names of Diptera derive from his *Naturgeschichte der Thierreichs* (Gistel, 1848) and are listed throughout Sherborn's *Index Animalium*. However, there is an additional publication that has novel Diptera names in it that seems to have been missed by previous Diptera catalogers, although it was reviewed and itemized by Strand (1919). It is Gistel's (1857) "*Achthundert und zwanzig neue oder unbeschriebene wirbellose Thiere*" (Fig. 2). The novel Diptera names proposed in that work are presented here only to give notice to other dipterists, not to establish them as valid taxonomically, and are as follows:

Genus-Group Name	**Date: page**	**Family**
Earomyza	1857: 32	Asilidae

Species-group Name	**Date: page**	**Family**
Earomyza meridionalis	1857: 32	Asilidae
Gonia theriophila	1857: 38	Tachinidae
Leparthrus obscoenus	1857: 43	Asilidae
Melanophora tombae	1857: 40	Rhinophoridae
Melanophora urnae	1857: 40	Rhinophoridae
Mycetophila equina	1857: 26	Mycetophilidae
Ochthera ateuchi	1857: 27	Ephydridae
Pachymeria pagana	1857: 41	Empididae
Trixa familiaris	1857: 29	Tachinidae

The genus-group name *Earomyza* was listed in Neave (1939) as a coleopteran so was probably missed by dipterists for that reason, although the description clearly specified the character "Halteres"! The actual taxonomic identity of each name is anyone's guess as the descriptions for each are typically Gistelian: vague and useless. Since most of Gistel's collections were scattered through sale or exchange, it is doubtful whether there are any specimens of the above names to check. Until such time as they are found, they are thus best treated as *nomina dubia*.

Gistel's Names: Real or Fabricated?

I have already mentioned one name (Gistel) and the two different spellings: "Gistel" and "Gistl"; and the second, the pseudonym "G. Tilesius". And there was a third name he used: "Garduus". Strand (1919) listed this name for one of his publications in *Isis* (Garduus, 1845). In his memoirs, Maximilian Perty (1879) gave an interesting account of Gistel's use of this name. Apparently, Gistel had been in the habit of obtaining the works of others and re-publishing parts of them with little or no change but under his name. In 1844, he wrote to Oken under the name of Garduus of Munich asking for some of his works (if he had to resort to a pseudonym, he must have by then been on the outs with Oken). Oken wrote to Perty, who was from Munich, asking if he knew of this Garduus and Perty said it was no other than Gistel. The use of Garduus was short-lived, maybe because the ploy was revealed quickly; but Gistel still had the temerity to list his alter-ego "Garduus" as a real person having a scientific collection in Munich in his list of world entomologists (Gistel, 1846).

Using three different names is known, but there is a fourth name; however, he did not use it for himself. In founding his natural history society in Munich, Gistel (as G. Tilesius) listed a co-founder, Franz von Mayer. In his lexicon of entomologists, Gistel (1846) gave a very extensive (2-page) list of Mayer's collections and credentials. Mayer's title was given as "Ritter des französischen Verdienstordens der Treue [Knight of the French Order of Loyalty]" (NB: There was never such an order). Horn (1937) mentioned Mayer in connection with the founding of this society and (reading between the lines) implied he may not have been real; yet, Horn & Kahle (1936) listed him in their *Über entomologischen Sammlungen*. But the unwritten assumption he was not real has proved correct after all. Gistel had fabricated an entire personality complete with names, titles, collections, and credentials! Horn & Kahle (1936) were no doubt hedging their bets on the true existence of this person when they listed him, since at the time they had little way of actually verifying without extensive searching. The internet has made that searching a great deal easier. My searches of genealogy databases, archives, digitized publications, and other online information shows no trace whatsoever of a Franz von Mayer, the naturalist. There was a Friedrich Franz von Mayer, a politician in Stuttgart, but he was never in Munich and was never associated with our Gistel.

The various surnames used by Gistel are one thing, but what has not been previously conjectured is the possibility that even his given names are not real. My genealogical searching for the Gistl family name in Bavaria shows a number of Franz Xaver Gistls; and since his father was Franz Xaver Gistel, those names might well have been part of our Gistel's given names as well. In fact, Franz Xaver is a common name throughout the Gistl history. But Johannes Nepomuk is not. There are no birth or baptismal records in any Gistl family in Bavaria or adjacent regions with a given name as Johannes Nepomuk. The given names Johann[es] Nepomuk are indeed very commonly used throughout northern Germany, Bavaria, and especially Bohemia in the 1700s and early 1800s as it is a patronymic honoring the Bohemian Saint Johann von Nepomuk. I have unfortunately found no record of birth or baptism of our Gistel or his father or mother, so cannot verify this, but, given Gistel's habit of self-glorification, it seems not out of the ordinary that he might have changed his name at some point after his parents passed away and after completion of his secondary schooling. There is a Lorenz Gistl (the only Gistl listed) in the matriculation lists of the Ludwig-Maximilian-Universität in Munich that coincide with

his matriculation date of 1826. And "J. Nep. Gistl" cannot be found any earlier than the September 1827 note in *Der Bayerische Volksfreund* as the person presenting a poem honoring Oken. Could Lorenz have been the real Gistl before he was known under the name Johannes Nepomuk Franz Xaver Gistl? Further research into the life of this colorful character will have to be done to know for sure.

Todesfälle in München.

Wilh. Oehlschläger, p. Oberconducteur v. h., 48 J. Dr. Ludwig Curtius, k. p. Oberstabsarzt v. h., 66 J. Friedrich Wiedamann, Realgymnasialschüler v. h, 18 J. Jos. v. Sutor, k. Kreisbau-Ingenieur v. h., 81 J. Karl Stark, Schuhmacherskind v. h., 8 M. Emilie Mayr, Schneiderskind von Schwarzenfeld, 1 J. 9 M. Anton Mayr, Küchelbäckerskind v. h., 11 W. Jos. Färber, Schmiedgesellenskind v. h., 4 M. Wilh. Brechzen, Bremserskind v. h., 3 W. Ludwig Wunder, Polizeithierarztenskind v. h., 5 M. Anna Weindl, Ländgehilfenskind v. h., 17 T. Crescenz Haggenmüller, Conducteursgattin, 42 J. Ferd. Weindlen, k. Staatscassa-Official, 64 J. Marie Groß, Steinmetzpalierskind, 1 J. 2 M. Jos. Pessenbacher, Eisendrehersk ind, 1 J. 1 M. Hermann Knorr, Polytechniker von Hannover, 22 J. Max Müller, Briefträgerskind, 1 J. Gerhard Rigauer, Kupferdrucker v. h., 26 J. Joh. Gistel, Dr. phil. und Professor, 63 J.

Figure 3. Death notice of Gistel in Anonymous (1873)

Final Note

Gistel's death has been surmised for many years as either 1873 or 1874. My research has found a notice of his death on 9 March 1873. For a person who filled up as much as 1/4 of a title page with his titles, awards, societal memberships, etc. (cf. Gistl, 1856), it is (fittingly?) ironic that the notice of his passing be limited only to just a few words: "Joh. Gistel, Dr. phil. und Professor, 63 J[ahre]." in the 9 March 1873 "*Todesfälle in München*" in "*Der Volksfreund. Zeitung der Süddeutschland*" (Anonymous, 1873) (Fig. 3). There are no other known death notices or contemporary obituaries of him.

Acknowledgments

Much of the genealogical research on the Gistl surname was done online at: https://familysearch.org/search/collection/list/?page=1&countryId=1927074. I thank Kraig Adler for valuable discussions of Gistel when he was preparing his biography. Thomas Pape reminded me of Gistel's "*Achthundert*" paper, which prompted this short biography and notice of those previously ignored taxa. Adrian Pont kindly assisted with the English translation of Mannerheim's criticism of Gistel's name changing.

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Changes in dating of some Diptera names in Panzer's *Faunae insectorum Germanicae initia. Deutschlands Insecten* (1792–1810)

Neal L. Evenhuis

J. Linsley Gressitt Center for Entomological Research, Bishop Museum,
1525 Bernice Street, Honolulu, Hawaii 96817, USA; neale@bishopmuseum.org

Recent research by myself and Miguel Alonso Zarazaga have revised the dating for a number of Heften of Panzer's *Faunae insectorum Germanicae initia. Deutschlands Insecten.* A more detailed analysis of the dating is forthcoming, but I thought it might be useful for dipterists to alert them here to the few Diptera names that have changes in years to their publication. The revised dates are a result of examining all the Leipzig Book Fair catalogues (both for the Easter Fair each Spring and the St. Michael's Fair each Autumn) for a listing of each Heft of Panzer's *Faunae* and are presented in the table below.

Name	Heft	pl.	Old Year*	Revised Year	Family
Asilus ephippium	39	23	1797	1796	Asilidae
Syrphus globulus	86	20	1804	1802	Acroceridae
Syrphus quadrimaculatus	86	19	1804	1802	Syrphidae
Bibio rustica	90	21	1804	1802	Therevidae
Syrphus aureus	90	20	1805	1802	Syrphidae
Atherix crassirostris	105	10	1806	1808	Rhagionidae
Chamaemya elegans	105	12	1809	1808	Chamaemyiidae

*year currently listed in *Systema Dipterorum*

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MEETING NEWS

XXV International Congress of Entomology and NADS meeting in Orlando, FL 25-30 September 2016

Torsten Dikow

Department of Entomology, National Museum of Natural History, Smithsonian Institution
PO Box 37012, MRC 169, Washington, DC 20013-7012, USA; DikowT@si.edu

The *Entomological Society of America* will be the host of the ***XXV International Congress of Entomology*** taking place in Orlando, Florida from 25-30 September 2016 (http://ice2016orlando.org). Thomas Pape and I have organized a symposium entitled, "Diptera systematics: deciphering evolutionary relationships with diverse and novel data." The symposium will take place on the last day of the ICE on Friday, September 30th from 1:30–5:30 p.m.

The following presenters will speak in the symposium covering the Diptera Tree of Life from A–Z and employing morphological and molecular data as well as other relevant topics. Further details can be found here: https://esa.confex.com/esa/ice2016/meetingapp.cgi/Session/25002.

1. Dalton Amorim & Guilherme Ribeiro "Old sources of information, new characters: thorax and wings adding solutions for the basal Diptera phylogeny"
2. Seunggwan Shin *et al.* "Phylogenomics of fly-microorganism relationships in the Bibionomorpha"
3. Katharina Schneeberg *et al.* "The transformation of head structures in dipteran larvae"
4. David Grimaldi "Extraordinary diversity of Cretaceous Brachycera (Diptera) in Burmese amber"
5. Bryan Lessard *et al.* "Reconstructing the phylogeny of the soldier flies (Diptera: Stratiomyidae)"
6. David Yeates *et al.* "Inferring the relationships of early brachyceran lineages with phylogenomic and comprehensive morphological data"
7. Mauren Turcatel & Torsten Dikow "Molecular phylogeny of asiloid flies based on target-enrichment methods"
8. Andrew Young *et al.* "Anchored hybrid enrichment of world Syrphidae: new technologies produce a highly-resolved phylogeny"
9. Jeff Skevington et al. "Unravelling the phylogeny of the lower Cyclorrhapha using morphology, Sanger sequencing, and anchored phylogenetic data"
10. Thomas Pape et al. "Bot fly ancestry – a calyptrate conundrum"
11. Eliana Buenaventura *et al.* "Rogue taxa identification and exclusion in the molecular phylogeny of the hyperdiverse genus Sarcophaga (Diptera: Sarcophagidae)"
12. John Stireman *et al.* "Phylogeny and diversification of world Tachinidae"
13. Pierfilippo Cerretti *et al.* "The evolution of reproductive strategies in tachinid parasitoids"
14. Rudolf Meier *et al.* "From Malaise traps to phylogenetic diversity: Developing rapid biodiversity assessment techniques based on NGS"
15. Torsten Dikow "Enhancing Diptera systematics: from single researcher to global specimen data network"

The ***North American Dipterists Society*** will also have its annual meeting during the Congress as we always do during ESA meetings. The timing of the meeting is not set yet, but we hope to attract an international Diptera audience for a few presentations followed by an informal social gathering. Torsten Dikow will organize the NADS meeting and invites dipterists to contact him with presentation suggestions (DikowT@si.edu).

Please consider attending the International Congress of Entomology and in particular the Diptera Systematics symposium and NADS meeting.

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NADS 2017 Field Meeting Annoucement:
Lubrecht Experimental Forest (Western Montana)
26-30 June 2017

Andrew Fasbender

Rhithron Associates Inc., 33 Fort Missoula Rd.,
Missoula, Montana, 59804, USA; afasbender@rhithron.com

The 2017 NADS Field Meeting will mark a return to the west, being held from June 26-30 at the Lubrecht Experimental Forest east of Missoula, Montana. Based on conversations I had at the 2015 meeting it became apparent that the fauna of western Montana is poorly surveyed for many groups of Diptera; hopefully this event will serve as an opportunity to fill some of those gaps. Lubrecht is situated on the northern slope of the Garnet Range, west of the Continental Divide in the Blackfoot watershed (46.893N, 113.454W). This location provides easy access to three EPA level III Ecoregions: the Northern Rockies (Ecoregion 15), Middle Rockies (Ecoregion 17), and Canadian Rockies (Ecoregion 41) (http://www.epa.gov/wed/pages/ecoregions/mt_eco.htm). The region offers a variety of habitats to collect: several types of coniferous forest, sagebrush flats, bald southern slopes, mountains reaching over 2800m in elevation, and streams ranging from half a meter to over 100 meters across.

Figure 1. Cedar Creek near it's confluence with the South Fork of Lolo Creek, Bitterroot Mountains

Lubrecht is operated by the University of Montana, offering lodging, meals, and conference rooms (http://www.cfc.umt.edu/lubrecht/). A 34 bed lodge as well as rustic (and economical) cabins and boxcars are available for our use. The lodge consists of fourteen double and two triple occupancy rooms with shared bathroom facilities, kitchen, and a living room. The cabins and boxcars share a bath house, and have either electric heaters or woodstoves installed; participants who chose to stay in these buildings are encouraged to bring their own sleeping bags and pillows, though linens are available for an additional fee. Each cabin sleeps three and each boxcar six; there are also options for tent and RV camping. Lubrecht offers a full dining plan, including sack lunches and special dietary options such as vegetarian meals; since Lubrecht is “way out there” with few nearby dining options I recommend using this plan. Estimated lodging costs (including meals) for the meeting are $332 for those staying in the lodge (booked per room, assuming two people in each), and $215 to $243 for those staying in the boxcars and cabins respectively (booked per building, assuming full occupancy). Images of the accommodations and the rates can be viewed at http://www.cfc.umt.edu/lubrecht/lodging/default.php. There will be a small registration fee (~$30-40) to cover the cost of renting the conference room and incidentals.

Lubrecht is a scenic 35 minute drive from Missoula International Airport (MSO). For participants wishing to road trip Lubrecht is easily reached from Interstate 90 through the Bonner Exit (mi. 109). Detailed directions will be provided in later issues of the *Fly Times.* Participants can book lodging and meals by calling Linda Nitz (Lubrecht Facilities Manager) at 406-244-5524 (ext 2). Also please send me an email to let me know you are coming, and any habitats or taxa of interest so I can plan collecting opportunities. Further information on the ecology and geological history of the local ecoregions (in addition to suggested collecting localities) will be presented in coming issues of *Fly Times*.

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2015 NADS Group Photo – Red River Gorge, Kentucky

Gregory A. Dahlem

Department of Biological Sciences, Northern Kentucky University, Nunn Dr.,
Highland Heights, Kentucky, 41099, USA; dahlem@nku.edu

Row 1: Greg Dahlem, Jon Gelhaus, Jessica Gillung, Evan Wong, Alia Eckhardt
Row 2: Zell Smith, Brad Sinclair, Bill Grogan, Brittany Clark, Manuel Cordero, Sonja Scheffer, Kristina Madriz
Row 3: Robert Pivar, Brian Wiegmann, Kevin Moulton, Isai Madriz, Drew Sheaffer, Kai Burington, Jim O'Hara, Ron DeBry
Row 4: Andrew Fasbender, Alex Myrkis, John Stireman, Jeff Howell, James Hogue, Matt Lewis, Keith Bayless

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OPPORTUNITIES

Fellowship Opportunities at the Smithsonian Institution

Torsten Dikow

Department of Entomology, National Museum of Natural History, Smithsonian Institution
PO Box 37012, MRC 169, Washington, DC 20013-7012, USA; DikowT@si.edu

The Smithsonian Institution's National Museum of Natural History (NMNH) and the Office of Fellowships & Internships (OFI) have an active and diverse program to support interns, predoctoral fellows (graduate students not having finished their degree), and postdoctoral fellows to allow scientists to visit our collections and conduct research here. I would like to take the opportunity to provide information on those fellowships that are of interest to dipterists and hope that some of you who are students or recently defended your dissertation think about applying to work for some time at the NMNH and utilize the outstanding USNM Diptera collection.

For general information about the fellowships below and guidelines of the application process please see the OFI web-site. All proposals dealing with entomological projects are first reviewed by the Smithsonian Department of Entomology and ranked within their respective categories (graduate, predoctoral, and postdoctoral). The top-ranked applications are then forwarded to the museum-wide competition including all of the biological departments (*i.e.*, Botany, Entomology, Invertebrate Zoology, Paleobiology, and Vertebrate Zoology). These fellowships are very competitive because applicants have to compete not just with other entomology proposals, but with applicants in other fields of systematic biology and taxonomy, too. Especially the postdoctoral fellowship, which receives the largest number of applications, will be the toughest one to succeed in. However, the Department of Entomology has in recent years at least obtained funding for its top-ranked candidate and in 2012, 2013, and 2015 even obtained funding for two postdocs each. These programs are open to students and researchers from around the world.

While the regular Smithsonian predoctoral and postdoctoral fellowships are only for 12 months, the NMNH has additional funds in the Peter Buck Fellowship Program to award two-year fellowships. Basically, the top-ranked museum-wide candidates will be given the two-year fellowship while one-year fellowships will be offered to as many proposals as funds allow. Especially for postdoctoral proposals, it would be advisable to submit a research proposal and budget for a two-year project to take advantage of the Peter Buck Fellowship Program.
Application deadline: December 1st, 2015.

10-week Graduate Student Fellowship
This fellowship is a great opportunity for graduate students to spend 10 weeks at the NMNH to study and work in our collection during this time period and incorporate the findings in their Masters or Ph.D. dissertation. (Note that only those Ph.D. students who have not yet advanced to candidacy are eligible.)
Fellowship funding: up to US$ 7,000.

3–24 Month Predoctoral Fellowship
This program supports those Ph.D. students who have fulfilled the requirements of candidacy (or its equivalent internationally) and who intend to spend up to 24 months working in our collection and utilize our facilities for their research for inclusion of the findings in their dissertation. This fellowship could be seen as providing a stipend for up to 24 months, which could be spent entirely or at least in part at the NMNH.
Fellowship funding: US$ 32,700 annually plus a research budget of up to US$ 4,000 annually.

12–36 Month Postdoctoral Fellowship
Young scientists who have completed their Ph.D. within the past five years and who are interested in conducting research at the NMNH in close collaboration with one of the curators can apply to this fellowship program. The project proposals need to be cutting-edge and use the latest tools and methods in phylogenetic systematics in order to be competitive. A straight morphological taxonomic proposal will most likely not be competitive although proposing a taxonomic and phylogenetic project utilizing a diversity of approaches including morphology and molecular data on a large scale can be competitive.
Fellowship funding: US$ 48,000 annually plus a research budget of up to US$ 4,000 annually. Note that health insurance coverage is not included in the fellowship and is the personal responsibility of the fellow with Smithsonian Institution healthcare options being available.

I am happy to discuss project ideas and proposals with graduate students and postdocs who are interested to apply to the above fellowships. It would be great to see several fellows in the Diptera unit at the NMNH.

Short-Term Visitor Program
This program is available for a scholarly visit to the NMNH for research or collaboration of up to 21 days (funding of US $2,000) or 30 days for scientists from developing regions of the world (funding of up to US $4,000). Note, the application deadline is not fixed and submissions are welcome year round.

Links to further information:
Smithsonian OFI Fellowships
Smithsonian OFI application procedure
NMNH Peter Buck Fellowship information
Smithsonian application system SOLAA

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S.W. Williston Diptera Research Fund at the National Museum of Natural History, Smithsonian Institution

Torsten Dikow & S.W. Williston Fund committee

Department of Entomology, National Museum of Natural History, Smithsonian Institution
PO Box 37012, MRC 169, Washington, DC 20013-7012, USA; DikowT@si.edu

The S.W. Williston Diptera Research Fund is a small Smithsonian Institution administered endowment fund established for the *increase and diffusion of knowledge about Diptera* and welcomes applications for funding annually on 30 November.

About US $6,000 are available from the endowment annually. To this day, the fund has supported the travel of graduate students and dipterists to the *International Congresses of Dipterology* and to our museum for collections-based research as well as field work.

For application procedures and general information on S.W. Williston please see http://asiloidflies.si.edu/content/williston-fund

Please consider donating to this endowment fund to support the increase and diffusion of knowledge about Diptera and particularly the research and travel of a new generation of dipterists.

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OUT-OF-PLACE DIPTERA (OOPDIP)

The rarity of honey bees!

Chris Thompson

Ponte Vedra, Florida, USA; xelaalex@cox.net

As readers will note that the deadly bee virus, spread by humans, has killed off so many honey bees, that we now have to use pictures of the drone fly, *Eristalis tenax* as their replacement!
[from the NEW YORK TIMES, 9 February 2016, page D2]

Observatory

INSECTS

A Deadly Bee Virus, Spread by Humans

MARGARETHE WICHERT/GETTY IMAGES

The deformed wing virus is decimating bee populations worldwide, and it is spreading because of human trade and the transport of bees, a new study reports.

"It's largely a man-made problem," said Lena Wilfert, an evolutionary geneticist at the University of Exeter and an author of the report.

Dr. Wilfert and her colleagues analyzed genetic data from honeybees and Varroa mites, which infect the bees with the virus and

"It was driven by the trade and movement of honeybee colonies," Dr. Wilfert said. According to her study, which appears in the journal Science, the virus is spreading largely because of the transport of European honeybees.

On its own, deformed wing virus does not seem to be a major threat to hives. The infection typically results in deformed wings and other developmental abnormalities in infected bees. When a hive also has Varroa

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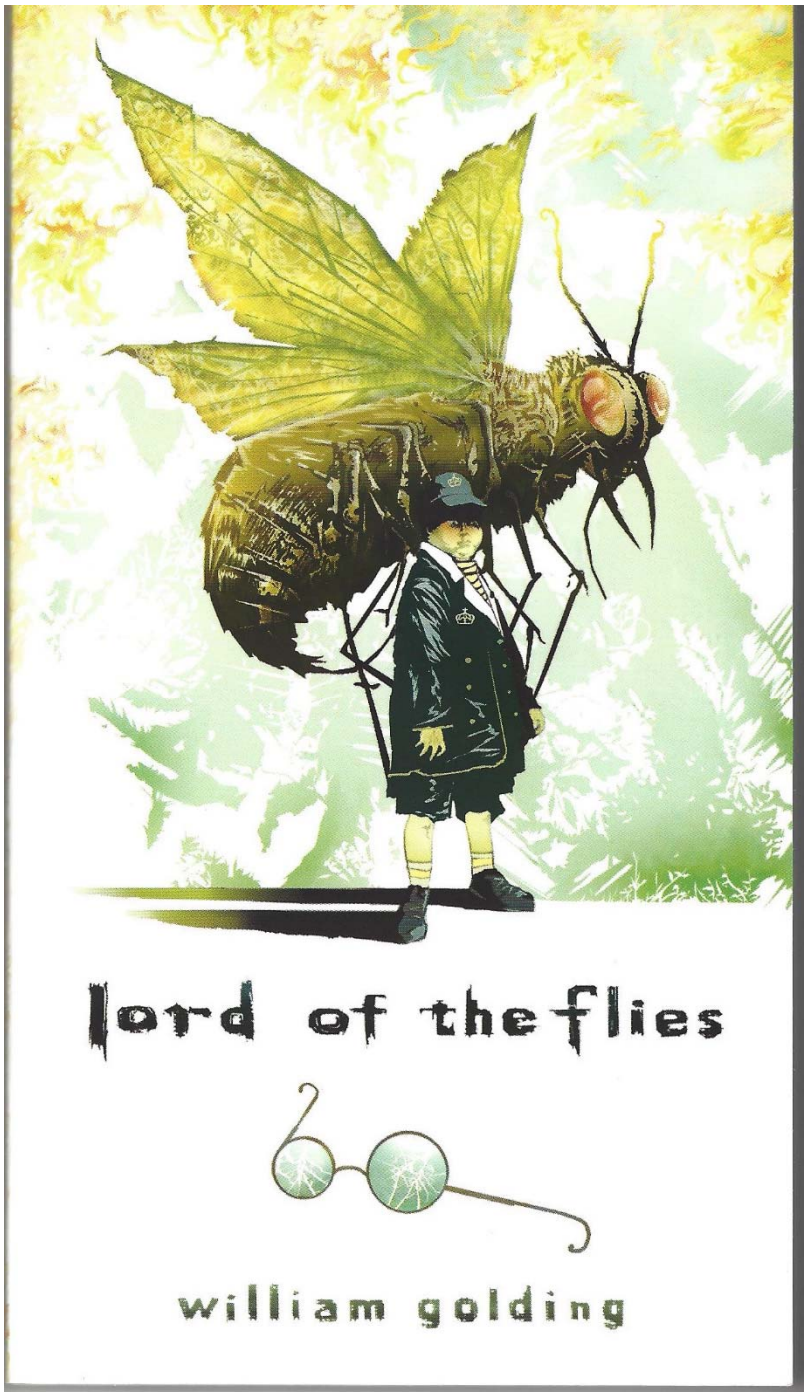
…but on the other hand

Chris Thompson

Ponte Vedra, Florida, USA; xelaalex@cox.net

Sometimes bees are used as flies, too!



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Hearing the Buzz

Justin B. Runyon

Associate Curator, Montana Entomology Collection, Montana State University
Bozeman, Montana, 59717, USA; jbr160@gmail.com

Looking for an alternative to plain old boring earphones? Is looking hip and keeping up on the latest fashion trends important to you? If so, try these classy Diptera-themed earbuds. The species used superficially resembles a member of the Tabanidae, however, the cone-shaped silicone legs, greatly reduced wing venation and extremely long ovipositor (nearly 50 times body length!) suggest a previously unknown fly family from the Oriental Region ("Made in China"). These earbuds were purchased from Design2Retail (Providence, RI) and are recommended when listening to:

Come Fly With Me - Frank Sinatra
Fly - Nicki Minaj
Fly Away - John Denver
Fly Me To The Moon - Frank Sinatra
Fly on the Wall - Miley Cyrus
I Believe I Can Fly - R. Kelly
Learning To Fly - Tom Petty & the Heartbreakers
Pretty Fly (For A White Guy) - The Offspring
The Fly - Chubby Checker
The Fly - U2
The Rain (Supa Dupa Fly) - Missy Elliott
The Spider And The Fly - The Rolling Stones
Velcro Fly - ZZ Top
When I See An Elephant Fly - Cliff Edwards

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DIPTERA ARE AMAZING!

As usual, we've got some great pics to display that Diptera ARE amazing! Thanks to the folks who submitted the pics! The first two photos of some spectacular Blephariceridae were submitted by Greg Courtney. The second two were by me (Steve Gaimari), only put in to continue the theme of flies on slimy looking substrates! Laying on this rock to get the photos was challenging, because looking through the camera, I didn't know when a wave would hit me, so I enlisted my kids to give me ample warning! The third pair of photos is of an asilid with its unfortunate therevid prey, photographed and submitted by Darren Pollock.

Group of 4 adult female *Agathon comstocki*, a species that's widespread in western North America. Photo taken at lower Trout Creek, Lolo National Forest, NW of Missoula, Montana; 22 June 2015. Note that the individual on the upper right is much thinner than the others, presumably b/c she's already oviposited, and the individual on the far left looks like she might be ovipositing as I captured the image. Photo by Greg Courtney.

Mating pair of *Agathon dismaleus*, a species endemic to sky islands of the Great Basin. Photo taken at a small stream at the headwaters of Big Indian Gorge, Steens Mountain, S of Burns, Oregon; 10 August 2014. Photo by Greg Courtney.

Telmatogeton trilobatum (Chironomidae) on seashore rocks in the splash zone, photographed by S.D. Gaimari in California: Marin County: Point Reyes National Seashore, 25.VI.2008.

An asilid with prey (*Acrosathe* sp., Therevidae), from New Mexico, Roosevelt Co., Portales, collected near opening to prairie dog burrow, 10 June, 2015, D.A. Pollock.

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BOOKS AND PUBLICATIONS

Lots of great systematics papers to catch up on (including many dealing with Diptera in the Afrotropics for some odd reason…) as well as some interesting behavior, morphology and ecology. Happy reading!

As usual if we have not included a paper that you think should have been here please feel free to pass it along to Chris (chris.borkent@gmail.com) and we will include it in the next issue. Unfortunately the online resources do not always catch everything and are a couple of months behind. We also apologize for the missing diacritics in some author's names, unfortunately this is a product of searching in Zoological Record and Web of Science, where they are removed.

Adler Peter, H., Kudelova, T., Kudela, M., Seitz, G. and Ignjatovic-Cupina, A. 2016. Cryptic biodiversity and the origins of pest status revealed in the macrogenome of *Simulium colombaschense* (Diptera: Simuliidae), history's most destructive black fly. Plos One **11(1)**: 1.

Afzan, H. and Belqat, B. 2016. Faunistic and bibliographical inventory of the Psychodinae moth-flies of North Africa (Diptera, Psychodidae). Zookeys **558**: 119-145.

Aguilar-Argueello, S., Diaz-Fleischer, F. and Rao, D. 2016. Motion-triggered defensive display in a tephritid fly. Journal of Ethology **34(1)**: 31-37.

Aguirre-Gutierrez, J., Daniel, K.W., Carvalheiro Lusa, G., WallisDeVries, M.F., Franzen, M. and Biesmeijer, J.C. 2016. Functional traits help to explain half-century long shifts in pollinator distributions. Scientific Reports **6**: 24451.

Aihara, I., de Silva, P. and Bernal, X.E. 2016. Acoustic preference of frog-biting midges (*Corethrella* spp) attacking tungara frogs in their natural habitat. Ethology **122(2)**: 105-113. doi:10.1111/eth.12452.

Aizen, M.A., Gleiser, G., Sabatino, M., Gilarranz, L.J., Bascompte, J. and Verdu, M. 2016. The phylogenetic structure of plant-pollinator networks increases with habitat size and isolation. Ecology Letters **19(1)**: 29-36. doi:10.1111/ele.12539.

Ala-Honkola, O. and Manier Mollie, K. 2016. Multiple mechanisms of cryptic female choice act on intraspecific male variation in *Drosophila simulans*. Behavioral Ecology and Sociobiology **70(4)**: 519-532.

Alvim, E. and Ale-Rocha, R. 2016. Two new species of *Acrocephalomyia* Ibanez-Bernal & Hernandez-Ortiz, 2012 from Brazil (Diptera: Ropalomeridae) and a key to known species. Zootaxa **4067(1)**: 57-64.

Alwin-Kownacka, A., Szadziewski, R. and Szwedo, J. 2016. Biting midges of the tribe Ceratopogonini (Diptera: Ceratopogonidae) from the Middle East, with keys and descriptions of new species. Zootaxa **4079(5)**: 551-572.

Ament, D.C. and Amorim, D.d.S. 2016. Taxonomic revision of *Coniceromyia* Borgmeier (Diptera: Phoridae), with the description of three new species from Brazil. Zootaxa **4086(1)**: 1-87.

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Canadian National Collection of Insects
Agriculture & Agri-Food Canada
K.W. Neatby Building, C.E.F.
Ottawa, Ontario, CANADA, K1A 0C6

Tel.: (613) 759-1795
FAX: (613) 759-1927
Email: James.OHara@agr.gc.ca

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