

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

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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.

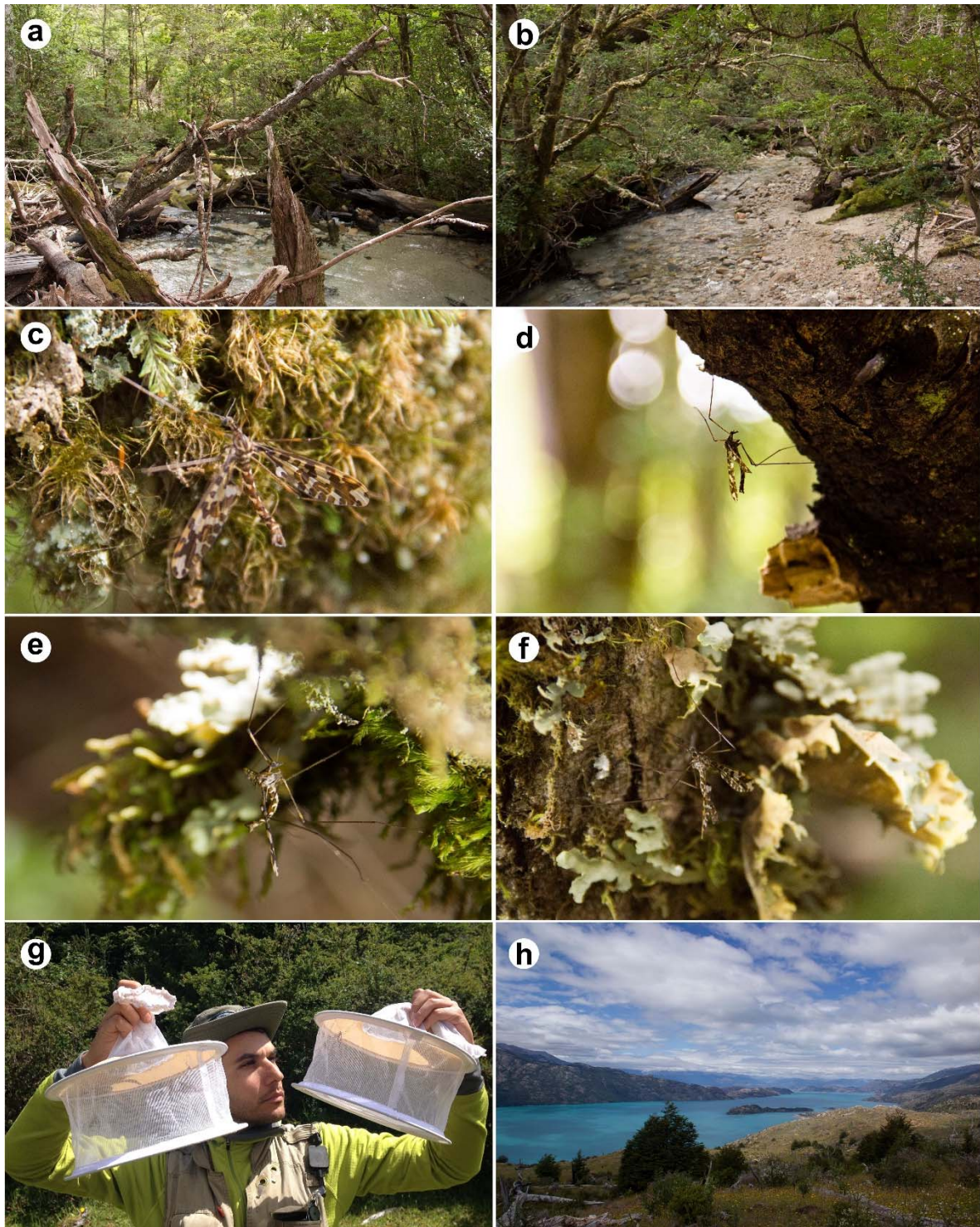
With no more food, dry clothes or batteries for our cameras, but with the satisfaction of knowing that an elusive tanyderid can be found in the area, we decided to head back to civilization. For the return we took a different but equally challenging path that led us out onto the open mountainside where 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, Isai Madriz, Kristina Lindsay. **d–f.** Tanyderid collecting sites of the Aysén Region.

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# ***FLY TIMES***

**ISSUE 56, April, 2016**

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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](mailto: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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