

## Nymph Cove



By Marla C Garrison and  
Ken J Tennesen

In the last installment of Nymph Cove we asked readers to submit nymph stories and questions.

Below are several submissions along with a few of the authors' own field experiences looking for nymphs. Cheers!

Doug Mills of Champaign County, Illinois, has been observing a local

ephemeral wetland for several years and blogging his sightings and data. (The link to his blog: <https://hlwetland.blogspot.com>).

He states that it generally dries up in late summer through fall. This year he has seen *Ischnura posita* (Fragile Forktail) adults as early as the second week of April and has found some rather large damselfly nymphs in the spring waters (Fig. 1). He believes the *I. posita* may be coming from a nearby lake. He asks the following questions:

**“My first question is whether or not these damselfly nymphs somehow survive the dry season or do their eggs survive the dry spell and winter to hatch when there is water and the temperatures are acceptable? I find *Sympetrum* (Meadowhawk) nymphs there as well.”**

Doug, the damselfly nymphs you are finding are lestids – spreadwings. The species of *Lestes* inhabiting ephemeral pools overwinter as eggs inside the stems of emergents. They hatch in early

spring dropping down from the hole in the stem made during oviposition (Fig. 2). Upon falling into spring meltwaters and/or rainwater pools they quickly grow and molt, emerging as adults before the pond dries up in late summer.

*Sympetrum* nymphs are common in those types of habitats. *Sympetrum* species can drop their eggs into dry vegetation in late fall where they may overwinter under snowpack and then hatch and grow in a manner similar to lestids come spring. Eggs refrigerated for months after autumnal oviposition and taken out in early spring usually hatch within a day to a week depending on the degree of development that took place before cooling them down (personal observations). If, however, the eggs do, in fact, hatch before winter temperatures place them in diapause, then the early instar nymphs are likely digging down into the moist mud and remaining there through winter until surface waters reappear in spring.



**Figure 1.** *Lestes* (Spreadwing) nymph collected and photographed by Doug Mills at ephemeral pond in Homer Lake Forest Preserve, Champaign County, Illinois.

## Nymph Cove



**Figure 2.** Left - *Lestes forcipatus* oviposition holes in *Carex*; Right - *Lestes unguiculatus* eggs in longitudinal section of Water Plantain. (Collected by KJ Tennessen, Photographed by MC Garrison)

**“My other question regards the migrant *Anax junius* (Green Darner) adults, which appeared on site on 22 March of this year and which I observed in wheel and oviposition on 6 April. Is that early enough to account for emergences in early July, such as I observed last year after the wetland was dry during the fall of 2019?”**

To answer this question, we consulted our resident *Anax* expert, Dr. Ami Thompson, Assistant Professor of Biology, North Carolina Wesleyan College, Rocky Mount, North Carolina. Here is her response:

“If their phenology is similar to Minnesota *Anax*, then the eggs of the earliest migrants (in April) almost certainly do emerge in June and July. The eggs deposited later (by residents or migrants) in the summer (end of June, early July, and later) will hatch but the nymphs may overwinter depending on how many degree days (the number of days during which the average ambient temperature falls within the temperature range necessary for development) they are exposed to before fall and perhaps by some other unknown factor that sets the nymph on a predetermined winter or summer growth pathway.

*Anax junius* spring migrants are

masters at colonizing new locations after winter kills — particularly because those locations are also often not home to fish that eat their nymphs. I have no idea what conditions the eggs can survive! That would be an interesting question to test — but I suspect they are not very hardy. *A. junius* seems to have retained a lot of its tropical-origin temperature growth requirements so, maybe the eggs have too. The nymphs have no sense to stay away when it comes to fish; and the adults do not appear to discriminate between laying eggs in ponds with or without fish - they just deposit eggs everywhere. I think their life history strategy is to just be stupid-abundant and put eggs everywhere and leave their survival fate to luck. It seems to be working for them! Ha! There is no evidence that the summer and winter populations are genetically different, just that the nymph growth within the species as a whole is variable based on environmental conditions.”

**Now for some electrifying nymphing experiences...**

***A Near-Jolting Experience*  
by Ken Tennessen**

**W**ith the anticipation of finding something new, and with a

short-handled dipnet in hand, I stepped into the Rio Chipiriri. This mid-sized, shallow river flows northward in central Bolivia, winding its way and eventually emptying into ever larger tributaries of the Amazon River. It lies in a biodiversity hotspot, north of Villa Tunari in Chapare Province. Even though 18 November 1999, was a sunny day, I had odonate nymph collecting in mind.

My first few dips along the edge were rewarding, as I brought up a few nymphs of *Archaeogomphus*, *Phyllogomphoides*, *Progomphus*, *Elasmothermis*, *Hetaerina*, *Argia*, and some unknowns. Enough to keep digging. I next spotted a would-be perfect habitat, a mix of sand, silt and small rocks near the bank with overhanging vegetation. On my first dip here, I brought up another unknown. An unwelcome one. A writhing two-foot brown eel!

Instant thought: electric eel! A shot of adrenaline made me feel panic was imminent — I’m in the water and my hands and the handle of my net are wet! I don’t know how I calmed myself a bit to think rationally, but it was enough to enable me to slowly lower my net down to the water and allow the eel to swim out. It disappeared downward, near my



## Nymph Cove

feet. Then I nearly panicked again. How was I to get out of the water without further displeasing this agitated eel?! A sudden movement like jumping up and onto the bank could be disastrous, especially if I lost my balance and fell backward. So, I decided, very slowly lift one foot up and onto the bank, then the other. It worked; I was out. I looked back down into the water, still not seeing my shocking visitor. I turned and picked up my aerial net.

### “X” Marks the Spot by Marla Garrison

Many years ago now, in the Salt Creek Wilderness of New Mexico, Steve Valley and I were wading along the Pecos River on one of the hottest, driest days of the year. We stepped into the shallow stream bed to cool our feet. Under the blistering sun, we turned our backs and bowed our heads to avoid the intense glare off the water. There beneath the surface was a complex traffic pattern I had seen many times before in sandy midwestern rivers... long, convoluted, crisscrossing lines traveling through the clean coarse bottom of sandbars

and shoals, occasionally interrupted by the foot imprints of some wading bird. What mysterious creature created such chaotic scroll work, I asked? Steve conspiratorially replied “Well, follow one of those tunnels to its end and pick up the sand and see if you don’t have a *Progomphus* nymph in your hand”. Incredulous, I started to dig with my dip net. He quickly said “You don’t need that thing, here, give it to me. Just scoop with your hand at the end of a trail”. And, that is EXACTLY what I did and, *Progomphus* is EXACTLY what I pulled up – my first ever *P. obscurus* nymph! It was a beauty! Indeed, I still think it is the most beautiful nymph in all of North America (Fig. 3).

Virtually no other North American odonate genus inhabits such clean, unsilted, sandy areas. And, virtually no other odonate genus has the adaptations for tunneling through loose grainy substrate for such long distances. Most gomphids are burrowers and, as such, are equipped with short, stiff legs held close to their bodies. Their first two pair of legs have just 2, rather than 3, tarsomeres and their pro- and meso-tibiae are modified with burrowing hooks that appear like spurs (Fig. 4). Their leg anatomy is well adapted for

digging but limits the extent of their locomotion. *Progomphus* nymphs, however, have additional modifications to assist in digging through loose, coarse sand with both power and speed. Their forelegs are thickly keeled and they have close-set, long curved setae on the tibiae and tarsi, supposedly to aid in sweeping away sand. Their flat head is significantly wedge-shaped, and their body is long, cylindrical and tapered with divergent wing pads.

This past September, along the Embarrass River in central Illinois, I videoed myself digging out *P. obscurus* nymphs with my hand and watching them quickly re-burrow upon release. They dive vertically, headfirst into the sand. I am including a link to a video (<https://www.youtube.com/watch?v=goSrwe1Vj80>) that shows the hunt, capture and release followed by a close-up of a *P. obscurus* nymph digging like mad through sand in a plastic vial.

Since that day on the Pecos, I’ve never been able to resist the allure of those gritty hieroglyphs leading me on beneath clear waters. Whenever they appear, I must toss my net up on the bank, plunge my hand in and start digging for buried treasure.



**Figure 3.** *Progomphus obscurus* final instar. Note the short, thick and setose forelegs.

## Nymph Cove

### *Slip, sliding away...*

by Linda 'Stick' LaPan

In June, 2018 Marla Garrison and I traveled together to Costa Rica on a dragonfly tour arranged by Sunrise Birding, LLC and led by Dennis Paulson. We were lucky enough to have Bill Haber, Costa Rica's resident dragonfly expert with us as well. He has lived there for almost fifty years. While at Heredia, Selva Verde Lodge, Sarapiquí, Marla and I got into the pond at the far bungalows to dredge for nymphs. We worked the edge of the pond in opposite directions and met back up at the other side where Bill was sitting on the bank waiting to see what species we had collected. I started to head out of the water and up onto the bank. Marla was behind me and we both had sneakers on. As I headed out of the water and up the slick clay bank, I fell on my knees and slipped backwards, covering my field pants in mud. I tried to back down into the water to clean off my pants but Marla, believing I was sliding down onto her,

kept trying to push me up onto the bank. I managed to get deep enough in the water to clean off and started up the bank again. But with Marla right behind me, the same antics happened again and again. By this time we were hysterically laughing, which wasn't helping our situation. She had no clue why I needed to get back into deeper water to clean off and just kept 'assisting' me up the bank. By my third or fourth attempt, Bill let out the deepest belly laugh I think I've ever heard. Hearing Bill laugh like this for the first time brought tears rolling down our faces, collapsed our knees, and caused us to slide back down yet again. By now, Marla was giving me a very wet, slimy pant wedgie to 'help' me get up the bank. I love her for trying, but her kind of help, I didn't need! On a good day my coordination is iffy. Add a fanny pack, binoculars, camera, dredgers, tropical heat and humidity in the Rainy, or should I say Green season, and you've got grounds for vaudeville mishaps for sure! Somehow, we finally managed to make

it up that slick incline to Bill, nymphs in tow. We had collected final instars of *Tauriphila argo* (Arch-tipped Gliders), *Orthemis discolor* (Carmine Skimmers), and *Miathyria marcella* (Hyacinth Gliders) along with earlier instars of what we believed to be *Dythemis sterilis* (Brown Setwings), *Erythrodiplax* (Dragonlet) species, and *Idiataphe cubensis/amazonia* (Metalic or Amazon Pennants).

---

*Marla Garrison is a faculty member in the Department of Biology at McHenry County College, Crystal Lake, Illinois. She is author of Damselflies of Chicagoland published online by Chicago's Field Museum <https://fieldguides.fieldmuseum.org/guides/guide/388>. She may be contacted via email at [mgarrison@mchenry.edu](mailto:mgarrison@mchenry.edu) or by phone (815)479-7627.*

*Ken Tennessen has published over 80 technical papers on Odonata. His recent book, Dragonflies Nymphs of North America, was published by Springer in 2019.*



**Figure 4.** *Arigomphus villosipes* final instar. Arrows indicate burrowing hooks at distal ends of pro- and meso-tibiae.