

# Ghosts, Centipedes, Power Feeding, & Pine

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Sitting down to write an article can be an interesting experience. Sometimes you just don't know what to write, and other times the ideas come in a flood. This time, I had too many ideas competing for my attention, so I am going to present a little of each in a flood ripped straight off of the neurons.

## Ghosts in the Genetic Machine

Stanley Schultz wrote well on this topic in the tarantula keepers guide. I'll quote them here because they did it so well.

“Under ideal circumstances, no given individual breeder should be allowed to mate with any relative closer than second cousin (defined as the children of the children of their aunts or uncles). Similarly, they should not be allowed to mate with parents, grandparents, great grandparents, or between parents and children, grandchildren, and great grandchildren. Periodic attempts should be made to breed the members of your stock with totally unrelated members of the stock of another enthusiast.”

I quite agree with what he said. Unfortunately, the prevalent wisdom is that one buys a large group of spiderlings, raise them, then have plenty of males and females to breed with each other. Right off the bat that necessitates the breeding of siblings, and sets up a continuing cycle of genetic problems. The prevailing wisdom is quite wrong and a recipe for disaster. I have even seen people advertising groups of sibling spiderlings for sale, telling people that they will have an instant, ideal, breeding group. This could not

be more wrong.

Secondly, many people believe that genetics is not as important with commonly imported species. On this I disagree. All it takes is for one law to be passed and a species becomes unavailable to anyone other than smugglers. Species which are commonly imported can all but vanish overnight from the trade for the principal reason that no one does take their breeding seriously. If something is cheaply imported there is little, other than perhaps moral, incentive for people to breed them. If those species stop being imported all we will have left are a few captives with extremely dubious genetics. Not a good start for preservation of a species.

No doubt, at one point people thought that *Brachypelma* genetics was something that could be entirely overlooked perpetually because there was a constant influx of wildcaught individuals. The *Brachypelma* we have now are a direct result of care that was or was not taken at that time, so, I do have to disagree with the point on commonly imported species since their status can change in a second. The current population could become the entire population base of the species. For that reason I think that our being careful with them is at least as important, if not perhaps to some degree more important from a future perspective. It would not surprise me with some species if all of the specimens in the country originated from one eggsac. With some species, at least those members of the species that are available for sale, this is most certainly true. For them, good genetics in the pure sense may be impossible. To me, that

makes good genetics for the species that still have an adequate base all the more important while we still have that base, and before the common species of today become the rare species of tomorrow.

I like to mix fruit juices sometimes to come up with refreshing new drinks. From time to time, I happen upon a combination that doesn't taste so good. I used to think that if I diluted the bad tasting concoction with a lot of other juices, that somehow I would come up with a blend that tasted good again. What I found instead was that the bad tasting blend ruins the taste of all the others until you have a whole lot of bad tasting juice. With juices, we can simply throw them out and start over, provided that the market has more. We always take it for granted that the market will have more juice. If the market ever doesn't, we're going to have to drink a lot of bad tasting juice blends. Somehow, that makes a good analogy to me of the situation with commonly imported tarantulas.

I've said before in respect to breeding tarantulas that tomorrow will soon be today. What we do today will have a profound effect upon the tarantulas of tomorrow, and we will reap precisely what we sow. How unrelated is sufficient? How about as unrelated as you can get. How's that?

## **Power Feeding The Yin and the Yang**

To power feed, or not to power feed. That seems to be an eternal, yet little examined question. There are advantages and disadvantages to each. Tarantulas that are fed more slowly possibly live longer. They are also extremely less likely to become obese, the health effects of which are largely unknown. Some claim that power fed tarantulas experience reproductive problems, possibly in part due to the same obesity factor. Power fed tarantulas, tending to be more obese, are much

more prone to potentially fatal injury from otherwise quite minor falls. Tarantulas that have been fed profusely tend to experience bursting of the abdomen to a much higher degree than tarantulas which have been fed less enthusiastically. A tarantula which does experience injury, if overfed, will likely have an abdomen that is under considerably more pressure, leading to more extensive hemolymph loss from a given injury.

Lastly, the additional body weight of tarantulas obese due to power feeding, in combination with other factors could potentially be sufficient to prevent a tarantula from inverting or righting itself in a weakened state such as during a molt, though this scenario would likely be the rarest on this list.

Power fed tarantulas DO appear to grow more quickly, but no one has demonstrated that power fed tarantulas reach a larger ultimate size. Even though anecdotal evidence would indicate this to be true, others have raised siblings, one power fed, one not, other factors being equal, and found that though the power fed one grew more quickly, both ultimately reached the same size, with the tarantula that was fed less catching up in the later stages (public communications from Joy Reed for example).

A long list of advantages and disadvantages. Personally, I lean a bit against power feeding due to the potential injury factors, but most of those can be compensated for in different ways. Have fun making your own decision.

## **The Centipede That Ceased to Exist**

I get queries all the time from people seeking to purchase the infamously large centipede, *Scolopendra heros*. Unfortunately, there are no longer any available for purchase, whether at the retail or wholesale level. It appears that the company which was exporting through Brazil and Peru (including

invertebrates from surrounding countries) has simply shut down and gone out of business (personal communication with Carl Sandefer).

Other than possibly a few smuggled specimens, and I'm not aware of any of those, the only specimens are leftovers that still survive from previous imports. This is an excellent case of the point I made in the commentary about tarantula genetics. Sometimes, the entire availability of a species hinges upon something as tenuous as the existence of a company. Furthermore, we have a situation as to its status as a species, highlighted by Todd ("You can't call them *Scolopendra robusta*!") Gearhart. Some of you with especially long memories may remember Todd stating that the designation is not valid. I do, and I'd wondered why. Finally, after a long time of wondering, I have received clarification from Dr. Rowland Shelley, an apparent endless resource of useful and authoritative information on centipedes. Here is a paraphrase of his correspondence.

*Scolopendra* sp. is the best name at present for the Peruvian centipede. The confusion is unfortunate, but the name, *Scolopendra robusta*, applies to a form in Monterey, Nuevo Leon, Mexico, while *Scolopendra gigantea* is a species in northern South America that I now know MAY occur along the Amazon. The original description of *S. robusta* (in German by Karl Kraepelin in 1903) strongly suggests that this name is a synonym of *S. heros*, common in the central plains of the US, and I have just seen a specimen of *S. heros* from another locality in Nuevo Leon (specimen in the Hamburg, Germany, museum), so there is now no doubt that *S. heros* does occur in this Mexican state. I have not been able to borrow the holotype of *S. robusta* (in the Strasbourg, France, museum) to confirm this, if indeed the specimen still exists and was not destroyed during Allied bombing in WWII, as many natural history specimens in other European museums were. The people at the Strasbourg

museum will not respond to my inquiries (they simply ignore them as they also do those from European colleagues), so at the moment, the name *S. robusta*, cannot be resolved. While the name, *Scolopendra gigantea robusta*, is technically valid because it appears to have been proposed in compliance with the naming rules of the International Commission of Zoological Nomenclature, there is no anatomical evidence in the actual description of *S. robusta*, or anywhere else, to support the establishment of this subspecies. There is no anatomical evidence that *S. robusta* is a geographic race (subspecies) of *S. gigantea*, and, in fact, there is no anatomical evidence that *S. robusta* and *S. gigantea* are actually related. Consequently, while the name, *Scolopendra gigantea robusta*, is technically valid, it should not be used. I don't know whether this clarifies anything or not, but this is the reality of this name. Taxonomic and nomenclatural situations are, unfortunately, often confusing, I regret to say.

So, not only do we have a centipede that apparently no longer exists on the marketplace, we also have a centipede whose name, *S. gigantea robusta*, is considered a nomina dubia (doubtful name) that should be replaced with *Scolopendra* sp. No centipede, no valid name. If you have one of these, hold on to it and take care of it, whatever you choose to call it.

## Pining For Pine

My editor asked me a long time ago to write a definitive article on the hazards or lack thereof inherent in conifers (pine family) beddings. I keep meaning to get to it, but the background work never seems to finish presenting itself. Some material from me has been presented by me on this topic from time to time, perhaps consistent with the so-called Microsoft model of trickleware. Since I've just finished a relevant experiment, I thought I'd present the results here and now. As a short

background summary, pine family products contain aromatic hydrocarbons that give them their characteristic smell. These are naturally insecticidal, often working by interfering with the molting processes. While tarantulas are not insects, it would perhaps be interesting to compare results of experiments with their prey living on such substrates.

My experiment began with 40,000 mealworms living on peat and bran (with the addition of carrots for moisture) in a style that has worked consistently over a long period of time. As pupae appeared, they were placed in a large tub, on top of a substrate termed potting soil, composed of peat, "forest products," sand and perlite. The forest products were obviously from the pine family by the scent alone, and were the essential element of the experiment. Approximately fifty pupae were placed each day upon this substrate. As this first group of pupae began emerging, it became apparent that something was drastically wrong. Partial emergence was extremely common, as were missing wings.

Of all the adults that were able to emerge from the pupal case, not one was able to successfully walk. We are talking serious malformation here. I added a light dusting of bran atop the substrate and continued to add pupae as they emerged, with similar results. The process was repeated over several weeks (and is still going on now) with the addition of pupae and followed by another layer of bran. What I found was that the initial pupae were all quite monstrous. Each subsequent addition continued to be monstrous, though slowly but surely less so as I added each successive layer of bran. Now that there is an inch or so of bran completely covering the substrate containing the pine family products, normal adults have finally begun to emerge with regularity, and have all but completely displaced their malformed siblings. Note that aromatic hydrocarbons can penetrate a layer of bran to some extent, so it is not known whether the physical isolation from the substrate was key,

or whether it was a result of the hydrocarbons dissipating over time, as evidenced by the decrease in the strength of the associated odor. Note that during this time, multiple controls were maintained, both by leaving pupae in the original source rearing container, almost all of which matured normally, as well as in several other containers, primarily on peat substrates, but also upon well aged substrates of the exact same type as produced the malformations. Nearly all of these matured quite normally.

I once did a similar experiment (though it was not my intent at the time) using "Vietnamese rainbow millipedes," wherein there was a massive die off on pine chips that ceased immediately upon being moved to a kinder, gentler, substrate. Whether this experiment was initiated intentionally as was the experiment with the mealworms seems beside the point as the results were quite similar.

The results of both appear quite conclusive to me. If you absolutely insist upon using substrates that are or that contain pine family products, it would be most helpful to ensure that they are well aged, well composted (a process documented to break down harmful substances) or both. What is not clear is whether these results can or should be successfully and correctly extrapolated to arachnids. Will I ever use potting soil containing pine family products again? Yes, I will, but it will have to be aged and no longer hit me in the face with that characteristic odor upon the opening of the bag. Will I ever use pine family chips again? Certainly not, unless I am keeping an animal that has evolved specifically to tolerate them. One of these days I am going to have to do a similar experiment with tarantula spiderlings, but for the moment, I just can't bring myself to do it.

And the flood was ended and a dove appeared.