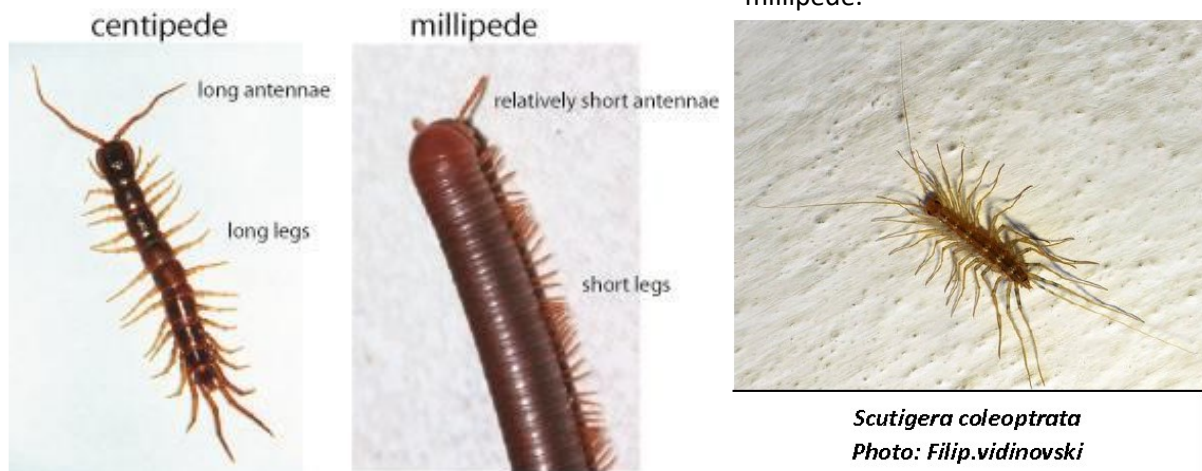


Identifying Cave Life: Part 4 – Centipedes and Millipedes by Mick Sutton.

This is another in an occasional series to help those doing cave monitoring, or who are just interested in knowing what they are looking at, to be aware of what can and cannot be realistically identified in the field within Missouri caves.

This time we'll look at long, skinny terrestrial bugs with lots of legs – the centipedes and millipedes. First off – how do you tell the difference? Despite the names, centipedes do not have a hundred legs, and millipedes do not have a thousand, but the number of legs does help (you will need a hand lens). Millipedes are well endowed with legs, partly because they have two pairs for each body segment, typically 20-30 segments or 40-60 leg pairs for an adult. Centipedes can have from 15-30 segments but have only one leg pair per segment. The most striking difference then is that centipedes' legs are fewer but they are also a lot longer. Centipedes also generally have much longer antennae. So the basic rule of thumb is: short legs/ short antennae = millipede, long legs/ long antennae = centipede. Also note the hindmost legs projecting backwards on the centipede – you will never see anything like this on a

millipede.



An important point to remember is that there are very few cave adapted centipedes – almost all of the ones you see underground in Missouri will be accidentals and will be within easy reach of an entrance. There is an interesting exception – a *Garabius* sp. that appears to have at least one troglomorphic population in Missouri. This is a small centipede that is found deep in Great Scott Cave in quite large numbers; the species is also known from Powder Mill Creek Cave, but little is known of its situation there. It's likely that centipedes, predators all, can survive as troglobionts only in very nutrient enriched caves such as Great Scott, where potential prey populations are large. If you do happen across a small centipede in a deep cave site, this would be of considerable interest, and I'd like to hear about it. By far the commonest centipede you will come across is the common house centipede, *Scutigera coleoptrata*, with fifteen pairs of exceptionally long legs. Other common species include *Bothropolys multidentatus* and *Neolithobius* sp., which also have fifteen pairs of legs but they are not as long. These two are not easy to distinguish in the field, and can also be confused with several other less common species.

Millipedes do have quite a diversity of cave adapted species, with four troglobionts known from Missouri, and possibly several others as yet undescribed. They are all small (see photo) and white and are not easy to distinguish, although you can make some headway with a hand lens or a macro camera setting. One species, *Tingupa pallida*, is common and widespread, the other three are uncommon. You might be able to hazard a good guess at which one you have if you have a reasonably sharp photo that

can be blown up. First count the number of body segments – more than 30? It's probably *Zosteractis interminata*. Thirty or fewer segments? Look to see if there are prominent little spikes (setae) sticking up on the back – if so you probably have *Causeyella dendropus*. Otherwise it's either *Tingupa* (more likely) or *Chaetaspis aleyorum* (much less likely as it's so far known only from Tumbling Creek Cave). In any case, these identifications are tentative; confirmation would require a collection permit and a microscope. All four are found in food rich areas – guano, flood debris, damp wood, etc.



Photo: Ken Graub



***Tingupa pallida*. Photo Jim Cooley**

You are also likely to encounter less cave adapted pigmented millipedes – unfortunately, many of these are invasive alien species which can occur in spectacularly large numbers. Various species from the family Polydesmida are dark colored and cylindrical while the commonest alien, the greenhouse millipede *Oxidus gracilis* is more flattened and has pale edges to the body segments. These pests sometimes undergo a population explosion and can be seen in the hundreds dead and dying in cave pools and streams. Another easily identified accidental is a more inspiring sight – it's the native giant American spirobolid millipede, *Narceus americanus*. These are giants of the millipede world, up to 12 cm long (!) with pretty orange and blue/ gray banding and dark red legs. 5

To confuse issues, there are also some native troglomorphic species which are pigmented and not easy to distinguish at a glance from the invasive aliens. The most widespread of these is *Auturus evides*, found throughout the Ozarks. Another very common species within its range is *Austrotyla specus*, which occurs in large numbers in the sinkhole plain caves of Perry, Ste. Genevieve and Franklin Counties, and is also occasionally found in Ozark caves. Unfortunately, distinguishing the pigmented millipedes, other than the two illustrated above, is beyond the scope of the casual observer. Still, you are now hopefully better equipped to at least make some educated guesses as to what you are seeing.



***Oxidus gracilis*. Photo: Joseph Berger**



***Narceus americanus*. Photo: Jud McCranie**

Oxidus gracilis. Photo: Joseph Berger

Narceus americanus. Photo: Jud McCranie