Two mass death assemblages of the Upper Triassic temnospondyl amphibian *Buettneria perfecta* Case, the “Lamy bonebed” from the Garita Creek Formation in central New Mexico, and “Rotten Hill” from the Tecovas Formation of West Texas, yield tens to hundreds of individuals. We used a statistical approach to resolve size classes (= age groups) in clavicles and interclavicles from which we generated a growth curve and age distribution for *Buettneria*. Comparison of these data to extant salamander outgroups (e.g., *Andrias*, *Cryptobranchus*, *Chioglossa*, others) and other amphibians showed that growth was indeterminate and that only sexually mature (marked by size, slow linear growth, and age distribution shape) adults were present in the fossil assemblages. They lived, on average, 10 or 11 years past sexual maturity. Linear size (measured by skull and femur length) increased by a factor of ~1.9 between sexual maturity and death, similar to the outgroups. Juvenile *Buettneria* are recognizable at very small sizes elsewhere in the Chinle Group, but are not present in these assemblages and are very rare in the fossil record even though population dynamics dictates that they must greatly outnumber adults. Where were the juveniles?

Analysis of the Rotten Hill population showed that the diameter of *Buettneria*’s limb bones grew in strong negative allometry; e.g., the allometric constant for femur length versus midshaft diameter = 0.78, where a constant of 1.5 is required to maintain constant stress on the limb bones throughout growth. Thus, weight-bearing capacity of the limbs decreased drastically throughout adulthood.

We propose that in addition to taphonomic influences against preservation of the juveniles, their absence may be due to an ecological separation from the adults. Separation of adults and juveniles is known in some extant amphibians and probably serves to reduce competition for food and conspecific predation of the juveniles. The increasingly weaker limb bones of the adults could have enforced such an ecological separation by making adults waterbound while the juveniles could have been more terrestrial or littoral. If so, this may explain the extreme preservational preference for adults; burial and fossilization being much more likely in their aquatic habitat.