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# Multilocus Genetic Investigation of Species Limits in the Caddo Mountain Salamander (*Plethodon caddoensis*)

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## **Multilocus Genetic Investigation of Species Limits in the Caddo Mountain Salamander (*Plethodon caddoensis*)**

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Biodiversity conservation is vital for maintaining healthy functioning ecosystems and requires accurate knowledge of species diversity. However, delimiting species can be challenging when different species are similar in appearance. In such cases, genetic data can be used to correctly identify species and define their ranges. The Caddo Mountain Salamander (*Plethodon caddoensis*) is a terrestrial forest-dwelling salamander endemic to a small section of the Ouachita Mountains of Arkansas. Previous work using mitochondrial DNA found the species comprises four phylogeographic lineages with genetic divergences as high as those typically observed between distinct species of *Plethodon*. At this level of divergence, we might expect the Caddo Mountain Salamander to contain multiple species with no obvious visual differences between them. To identify species within *P. caddoensis*, we sequenced multiple nuclear loci for 6–10 individuals from each of the four phylogeographic lineages and performed several analyses for delimiting species using genetic data. We conclude there is a high likelihood that *P. caddoensis* is composed of more than one species. Future work will incorporate additional nuclear loci and use morphometric analysis to determine if species delimited using genetic-based methods can be distinguished morphologically.