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Modeling Facultative Paedomorphosis in Arizona Tiger Salamanders

The Arizona Tiger Salamanders at the Mexican Cut Nature Preserve in Colorado form a closed population due to the elevation of their habitat. They exhibit facultative paedomorphosis in which salamander larvae either metamorphose into terrestrial adults or become sexually mature while still in their larval form. Although many salamanders exhibit cannibalism of larvae, the Arizona Tiger Salamander also exhibits cannibalism of young by the aquatic adults. We formulate ODE models of this system. We discuss the analysis and interpretation of the models.