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A nonautonomous nonlinear continuous juvenile-adult model where juveniles and adults depend on different resources is developed. It is assumed that juveniles are structured by age while adults are structured by size. Existence-uniqueness results are proved using the monotone method based on a comparison principle established in this paper. Conditions on the model parameters that lead to extinction or persistence of the population are obtained via the upper-lower solution technique. (Received August 25, 2008)