

A population with stable age distribution

A population with stable age distribution has a fecundity function that is zero except over a very narrow range centered at a_0 . We model this by setting $b(a) = B\delta(a - a_0)$ where B is a constant and $\delta(x)$ is the Dirac delta function.

What conditions must the death rate $\mu(a)$ satisfy in order for the population not to go extinct? (This condition will be in terms of B and a_0 .)