

the population growth rate, λ , is given by the dominant eigenvalue of the matrix \mathbf{A} (Caswell 2001).

For a population to be stable, λ must be equal to 1.0. If $\lambda > 1.0$, the population is growing and if $\lambda < 1.0$, the population is declining. The population growth rate is also related to the intrinsic rate of increase, r , by the equation $\lambda = e^r$. The population growth rate is also related to the generation time, T , by the equation $\lambda = e^{rT}$.

The population growth rate is also related to the population's sensitivity to changes in the different vital rates. The sensitivity of λ to a change in a vital rate v_i is given by the partial derivative of λ with respect to v_i .

The population growth rate is also related to the population's elasticity to changes in the different vital rates. The elasticity of λ to a change in a vital rate v_i is given by the partial derivative of λ with respect to v_i multiplied by v_i .

The population growth rate is also related to the population's reproductive value. The reproductive value of an individual in a given stage is given by the left eigenvector of the matrix \mathbf{A} corresponding to the dominant eigenvalue.

The population growth rate is also related to the population's stable stage distribution. The stable stage distribution is given by the right eigenvector of the matrix \mathbf{A} corresponding to the dominant eigenvalue.

The population growth rate is also related to the population's transient dynamics. The transient dynamics are given by the non-dominant eigenvalues of the matrix \mathbf{A} .

The population growth rate is also related to the population's asymptotic behaviour. The asymptotic behaviour is given by the dominant eigenvalue of the matrix \mathbf{A} .

The population growth rate is also related to the population's long-term behaviour. The long-term behaviour is given by the dominant eigenvalue of the matrix \mathbf{A} .

The population growth rate is also related to the population's short-term behaviour. The short-term behaviour is given by the non-dominant eigenvalues of the matrix \mathbf{A} .

The population growth rate is also related to the population's overall behaviour. The overall behaviour is given by the dominant eigenvalue of the matrix \mathbf{A} .

The population growth rate is also related to the population's long-term growth rate. The long-term growth rate is given by the dominant eigenvalue of the matrix \mathbf{A} .

The population growth rate is also related to the population's short-term growth rate. The short-term growth rate is given by the non-dominant eigenvalues of the matrix \mathbf{A} .

The population growth rate is also related to the population's overall growth rate. The overall growth rate is given by the dominant eigenvalue of the matrix \mathbf{A} .

The population growth rate is also related to the population's long-term decline rate. The long-term decline rate is given by the dominant eigenvalue of the matrix \mathbf{A} .

The population growth rate is also related to the population's short-term decline rate. The short-term decline rate is given by the non-dominant eigenvalues of the matrix \mathbf{A} .

The population growth rate is also related to the population's overall decline rate. The overall decline rate is given by the dominant eigenvalue of the matrix \mathbf{A} .

The population growth rate is also related to the population's long-term stability. The long-term stability is given by the dominant eigenvalue of the matrix \mathbf{A} .

The population growth rate is also related to the population's short-term stability. The short-term stability is given by the non-dominant eigenvalues of the matrix \mathbf{A} .

The population growth rate is also related to the population's overall stability. The overall stability is given by the dominant eigenvalue of the matrix \mathbf{A} .

The population growth rate is also related to the population's long-term growth. The long-term growth is given by the dominant eigenvalue of the matrix \mathbf{A} .

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