2.7. The Life History Approach

2.7.1. Life history tables

2.7.2. Logistic Growth Model

2.7.3. \( r \) vs \( K \) strategies

<table>
<thead>
<tr>
<th>Correlates of ( r ) and ( K ) selection</th>
<th>( r )</th>
<th>( K )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>density-independent, unpredictable</td>
<td>density-dependent</td>
</tr>
<tr>
<td>Dispersal ability</td>
<td>high</td>
<td>lower</td>
</tr>
<tr>
<td>Reproduction rate</td>
<td>high</td>
<td>lower</td>
</tr>
<tr>
<td>Competitive ability</td>
<td>lower</td>
<td>high</td>
</tr>
<tr>
<td>Size</td>
<td>small</td>
<td>large</td>
</tr>
</tbody>
</table>

\[
dN/dt = rN(K-N)/K
\]

- \( dN/dt \) = population growth rate
- \( r \) = intrinsic rate of growth (births-deaths)
- \( N \) = population size at time \( t \)
- \( K \) = equilibrium population (carrying capacity)

- \( r \) strategists - population densities in rapid growth phase, far from \( K \)
- \( K \) strategists - population densities usually near \( K \)

2.7.4. Implications of \( r \) vs \( K \) for IPM
2.8. Island Biogeography

2.8.1. General pattern

2.8.2. Factors affecting equilibrium level
   2.8.2.1. Distance from source of colonists
   2.8.2.2. Richness of pool of colonists
   2.8.2.3. Niches available on islands
      - island size
      - island heterogeneity

2.8.3. Island biogeography theory

2.8.4. Relevance to crop pests