

Life History

Part 1: Life Cycles and Life Histories

Introduction to reproductive strategies, life cycles, trade-offs, and the foundations of life history. Exploration of life cycle diversity in marine environments. Examples of classic studies of clutch size evolution in birds.

- The Game of Life
- The Wondrous Diversity of Life Histories
- Trade-offs Underlie Life-History Evolution
- Example: How Many Eggs to Lay?
- Costs and Benefits of Smaller Clutch Size in Kestrels
- Summary of Part 1
- Quiz Questions
- Questions About Concepts?

Part 2: Life-History Parameters

Introduction to demographic parameters that describe populations: birth and death rates, mortality, fecundity, and population growth rate. Contrast species with low and high fecundity. Use of age pyramids to explore life-history differences across and within populations.

- Evaluating the Success of Different Life Histories
- Introduction to Demographics
- Can Different Strategies Succeed in the Same Environment?
- Population Age Structures Reflect Life Histories
- Population Responses to Environmental Change
- Age Structure in Human Populations
- The Shapes of Age Pyramids
- Summary of Part 2
- Quiz Questions
- Questions About Concepts?

Part 3: Life Tables and Survivorship Curves

Construction of a life table using a simulation of ground squirrels. Understanding survivorship curves. Calculation of net reproductive rate, generation time, and population growth rates from life table data. Using life tables to address wildlife management challenges. Exploring demographic transitions.

- Life in a Table
- A Squirrel's Life
- Survivorship
- Fecundity
- Net Reproductive Rate
- Generation Time

- Population Growth Rates from Life Tables
- Demographic Transition
- Summary of Part 3
- Quiz Questions
- Questions About Concepts?

Part 4: Trade-Offs and Life-History Evolution

Discussion of classic evolutionary trade-offs using a fish simulation. Introduction of the Principle of Allocation. Exploration of different ways of classifying life-history strategies. Investigating fish reproductive strategy evolution in simulated habitats with differences in environmental stability.

- Natural Selection at Work
- Trade-Offs with Age of First Reproduction
- How Much Time Should a Fish Spend Growing?
- The Principle of Allocation
- Semelparity Versus Iteroparity
- Classifying Life Histories: r vs. K
- Grime's Plant Classification Scheme
- Trade-Offs and Environmental Variability
- Evolution of Fish Life-History Strategies
- Individual Life-History Responses
- Summary of Part 4
- Quiz Questions
- Questions About Concepts?