

What is evolution?

Another definition of evolution

What evolution is not:

Change within individuals (this is development or phenotypic plasticity)

What evolution is not:

Progression towards a goal (teleology)

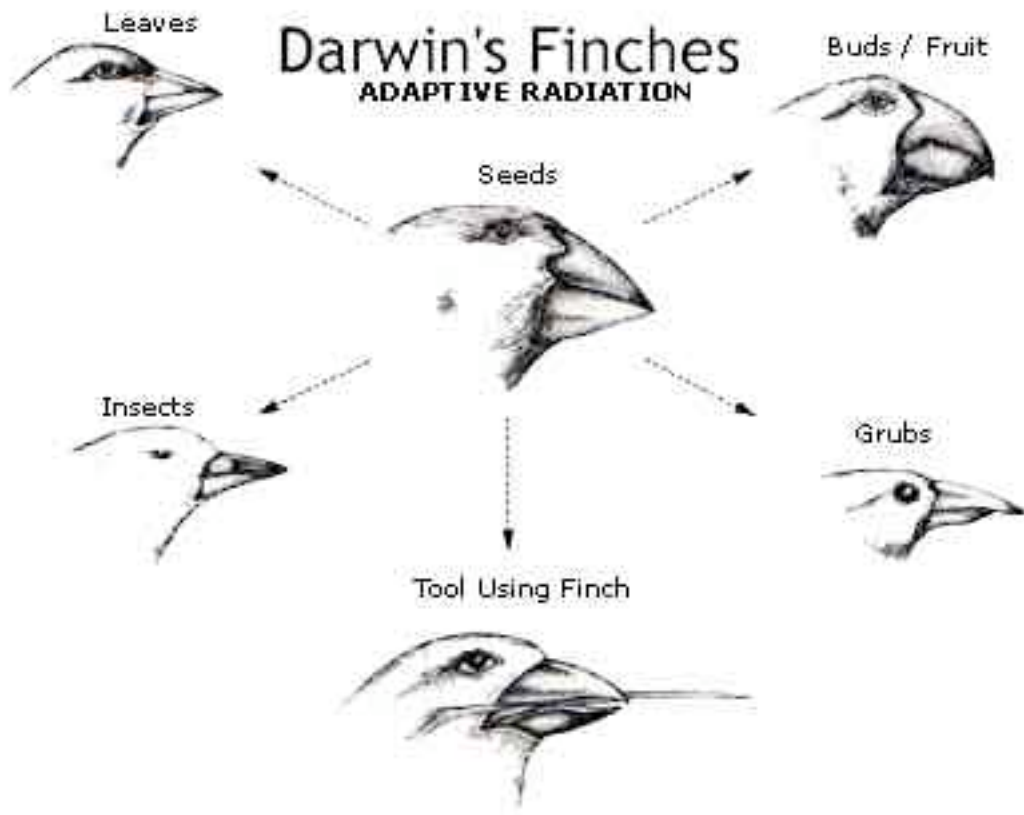
Evolution before Darwin

Others before Darwin speculated that species evolved, but usually failed to provide an explanation why

Darwin's Evolution

A gentleman scientist who as a young man travelled on the Beagle (1831-36)

Darwin's Evolution, Cont'd: Darwin's Finches



Darwin's Evolution, Cont'd: Darwin in South America

Evolution after 1859: Evolution (of a sort), but not natural selection, was widely accepted

Problems with natural selection:

1. Lack of a satisfactory theory of heredity

Problems with natural selection:

2. "Evolution by chance"

Problems with natural selection:

3. Evolutionary gaps between forms in nature

Evolution since Darwin: The rediscovery of Mendelian inheritance

The rediscovery of particulate inheritance provided a satisfactory mechanism for transmitting traits from one generation to the next

Evolution since Darwin: The Modern Synthesis

The integration of genetics into evolutionary theory created what is now called the Modern Synthesis

Evolution since Darwin: Extensions of the Modern Synthesis

Current Problems in Evolution

Speciation

Evolution of sex

Human evolution

Genomics

Next time: The Evidence for Evolution