

Biological Definition of *Species*

(“Reproductive Isolation”)

A population or group of populations whose members have the potential to interbreed in nature and produce ***viable, fertile offspring***, but do not produce viable, fertile offspring with members of other such groups. (I.e. there is gene flow for the species and there is no gene flow with the other populations.)

Since this does not always work, e.g. fossils, asexual reproducing organisms, there are other definitions to use:

(*Unity within a species:*)

Morphological Species Concept

Characterizes a species by body shape and other structural features and is applied to asexual and sexual organisms and useful when information on gene flow is unknown. Since it is subjective, researcher may disagree on which features to use to distinguish a species.

Ecological Species Concept

This uses a species ecological niche: “the sum of how members of a species interact with the living and nonliving parts of their environment”. E.g. “two species of salamanders might be similar in appearance but differ in the foods they eat or in their ability to tolerate dry conditions.” Accommodates asexual and sexual species and emphasizes the role of disruptive natural selection.

Phylogenetic Species Concept

Here, *species* is defined as the smallest group of individuals with a common ancestor, forming a single branch of the “tree of life”. This compares numerous characteristics, esp. morphology and molecular sequences, with those of other organisms. The difficulty with this concept is determining the degree of difference necessary to indicate a separate species.

[Another 20 (or so) other species definitions have been proposed.]

