

BIOLOGICAL SPECIES CONCEPT

The biological species concept defines a species as members of populations that actually or potentially interbreed in nature and to produce viable offspring and not according to similarity of appearance. Although appearance is helpful in identifying species, it does not define species. Organisms may appear to be alike and be different species. According to this concept species has three distinct functions:

1. forming a reproductive community, where individuals are capable of mating with members (of the opposite sex) of the same community but cannot mate with members of other such communities.
2. forming an ecological unit where all members interact in similar way with environment and members of other such community.
3. forming a genetic unit consisting of a large intercommunity gene pool, where each individual member is a temporary bearer of a small portion of contents of gene pool.

POLYTYPE SPECIES - A species population which consists of two or more sub species is known as polytypic species. It was first defined by Huxley (1970). Such species are distributed in different geographical areas and form different local populations. These cannot interbreed as they are allopatric and isolated from one another, but they can interbreed and have fertile offspring if in captivity. The differences between subspecies are usually less distinct than the differences between species.

- eg. *Panthera tigris* which several sub species
- i. India tiger - *Panthera tigris tigris*
 - ii. the Chinese tiger - *Panthera tigris amoyensis*
 - iii. the Siberian tiger, *P. t. altaica*
 - iv. the Javan tiger, *P. t. sondaica*.

A major benefit derived from the recognition of polytypic species is the considerable simplification it has made possible in the classification of such well studied groups of animals as birds, mammals, butterflies and fish. The assembly of local population into polytypic species or more broadly the sorting of large number of nominal species and varieties into polytypic species reveals many taxonomically and biologically interesting situations (Mays 1963). It has provided the best available evidence for the process of allopatric speciation, the frequent origin of evolutionary novelties in the peripherally isolated populations and numerous intermediate stages in the evolutionary process. Some of the best proofs of the occurrence of evolution have emerged from the study of polytypic species taxa.