

TAXONOMY SUPPLEMENT (Animal classification and relationships as used in standard biology textbooks)

## 1. The classification series: ↘

Phylum--e.g., Protozoa  
 Class--e.g., Sarcodina  
 Order--e.g., Lobosa  
 Family--

Genus--e.g., Amoeba  
 Species--e.g., proteus  
 Subspecies or variety--

Another example: ↘

Phylum--Chordata  
 Subphylum--Vertebrata  
 Class--Mammalia  
 Order--Primates  
 Family--Hominidae

Genus--Homo  
 Species--erectus, and sapiens

2. Definition of species-- A group of individuals having many characteristics in common, and differing from all other forms in one or more ways, the members of the species producing fertile offspring within their own group. They do not interbreed with other species, except in a few cases, to produce sterile hybrids. (Storer & Usinger, 1965, p. 270.)
3. Variety or subspecies--A segment of a species which has become geographically or artificially (as in domestic dogs and cattle) isolated so that it does not interbreed with the rest of its species, but which can interbreed with the rest of the species and produce fertile offspring, if they are brought back together. During the isolation, the subspecies shows slight morphological variations from the rest of the species, due to the hereditary variations which become prominent.
4. Note what factors operate to keep the many species of the animal kingdom from mixing indiscriminately with the other species and thus producing a conglomeration of organisms which could not be classified into separate and distinct groups (Winchester pp. 94-95):
- (a) The lack of sexual attraction.
- (b) The fact that hybrids (produced by the mating of two different species) are usually sterile, and therefore can not continue the morphological form they have begun. (This sterility is often due to a difference in the number of chromosomes between the two species, or the chromosomes' being incompatible.)
- (c) External barriers which prevent mating. Examples of these isolating mechanisms are found in: (1) Ecologic isolation during the mating season; e.g., the pig frog, Rana grylio breeds in deep water while the gopher frog, Rana areolata breeds in isolated grassy ponds in shallow water. (2) Behavioral isolation; e.g. the mating call of the gray tree frog, Hyla versicolor and that of the closely allied pine woods tree-frog, Hyla femoralis are extremely different, and thus the female of one species does not respond to the call of the male of the other species, even though they may both be breeding in the same pond. (3) Morphologic differences in size which prevent hybridization. (4) Differences in the mating time or season; e.g. some species of frogs breed several weeks before other species do. (J.M. Savage, 1963, pp. 75-77.)

Therefore we must recognize that there is a "hereditary barrier" which keeps each species or genus distinct; as Winchester says, "a species is a biological entity" (p. 95). Furthermore, the geological record found in the strata of the earth shows that this same "hereditary barrier" principle was in operation during the past ages.