

## WHAT IS THE SIGNIFICANCE OF SUPRASPECIFIC TAXA IN MACROEVOLUTIONARY STUDIES

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For historical reasons, Darwin insisted on continuity of evolutionary transformation, which he believed would result in the "Origin of Species". By the title of his book, he stigmatized species as the basic unit of evolution. If evolution is a historically unique process, a species originates only once, and if it goes extinct, it is lost forever. As a consequence, no "natural laws", or general statements can cover the origin or extinction of particular species taxa; only particular statements are possible. For reasons such as these, some authors have proposed to view species as individuals.

Can higher taxa be conceived of as individuals, too? If so, higher taxa would have to perform as units of evolution as species are believed to do. To deny so would introduce a fundamental ontological difference between "species taxa" and "higher taxa" without epistemological justification. I argue that the "discovery procedure" (Nelson, 1989) for species is the same as for higher taxa, and hence that species are taxa. However, the "discovery procedure" for monophyletic taxa results in an inclusive hierarchy of "groups under groups", which is incompatible with Darwinian causes of evolution, predicting an exclusive hierarchy of ancestors and descendants. If it is agreed that successful scientific explanation must link hypothetical causes to observed effects in a testable manner, the conclusion must be that macroevolutionary scenarios built on species, or higher taxa, are descriptive rather than explanative. The Darwinian unit of evolution is, in fact, the geographically determined population, not the species (as Darwin himself realized). The alternative is to treat the inclusive hierarchy of species and higher taxa, and the pattern it reveals through time and space, as a reflection of history, which means that causes of this historical process are not only non-Darwinian, but remain a "black box" (Nelson, 1989) until today.

Nelson, G. 1989. Cladistics and evolutionary models. *Cladistics* 5:275-289.