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Popular-science summary of the project „Scientific laws in evolutionary biology”

The concept of the laws of science makes us think above all of physics. The most of the people mentioned in the same breath Newton's laws of dynamics, the Archimedes' law of buoyancy of liquid, or the second law of thermodynamics. About the laws of other sciences we hear rarely (even if talking about 'hard' sciences such as chemistry), or it soon becomes clear that given laws are 'the laws' in name only and are rather more or less unreliable generalizations.

The question that arises is whether the laws we can seek in other areas, especially in biology? After all, it is often said that the twenty-first century is the century of biology (as the twentieth century was the century of physics). The seemingly is easy to answer to this question - in biology there is no scientific laws. All biological "laws", eg. the famous Mendel's laws proved to be no exception-free under certain circumstances. The problems with this hasty response begin when we analyze the evolutionary biology (especially its hard core, i.e., population genetics - a field which describes how change the frequency of genes in the population). Within these disciplines we can find at least two interesting laws: the law of natural selection, which says when the population will evolve and the Hardy-Weinberg equilibrium that says what is the frequency of alleles (variants of a gene) in the population if the population fulfills a number of conditions. So if there are laws of evolutionary biology, that they are also the laws of all biology! The problem is worth of serious examination and has further consequences. You can e.g. to ask if biology is a discipline autonomous (or relatively independent) from physics and chemistry? If in biology are laws, they just describe this 'mysterious area belonging exclusively to biology' - they say about the properties and their relationships, which appear only in living systems.

The question of the existence of the laws in evolutionary biology and the analysis many of its consequences is the purpose of this project.