

## **Semiotic mechanisms of biodiversity: the case of wooded meadow**

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A. What are the basic types of rearrangements that living systems make in an ecosystem; how does this depend on the level of semiotic abilities?

1. Vladimir Vernadsky has stated very clearly that life is a geological force that shapes the Earth, and that life can do this in certain ways that are different from the changes outside the biosphere (i.e., caused by non-living systems). Life creates organic (code-based) mixtures as different from mechanical mixtures.

2. The way life modifies the place (or, the work life does) depends directly on the life's capacity to recognise (*merken*) and to operate (*wirken*), i.e., on its *umwelt* (using here the notions of Jakob v. Uexküll).

3. Vegetative, animal, and human modes of life (which correspond to different types of semiosis) shape the Earth in different ways.

3.1. Vegetative life (of pure iconic recognition and non-spatial *umwelten*) creates and stabilises the composition of its atmosphere and soil. It can stabilize the closed element cycles in an ecosystem. It establishes the organic patchiness.

3.2. Animal life (as different from vegetative one) can dislocate substance (due to its indexical and therefore spatial *umwelt*). It can make organic mixtures outside of its body. Rate of change is higher than in vegetative mode.

3.3. Human life makes modifications even faster. It can (due to its symbolic and therefore temporal *umwelt*) rearrange the developmental sequences (as specific to noosphere), e.g., via cultivation.

4. The instabilities created by vegetative, animal, and human modes of life correspond to different types of balancing mechanisms.

B. Let us analyse the biodiversity balance mechanisms of a semi-natural community, e.g., a wooded meadow.

Wooded meadows are park-like ecosystems consisting of native local species that have been created and sustainably managed probably during about 1500 years. Their species-richness is one of highest among European communities.