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LILLIPUT EFFECT – TYPES, CAUSES AND SIGNIFICANCE FOR ORGANISMS UNDER UNFAVOURABLE ENVIRONMENTAL CONDITIONS

Summary

In its original version, Lilliput effect (LE) is defined as adaptive response of an organism to the deterioration of environmental conditions, involving after-event reduction of individuals body size in a given population. Currently, four patterns of LE are considered – preferential survival of smaller taxa (extinction of large taxa), dwarfing of taxa, miniaturization combined with additional morphological changes, and LE combined with Lazarus effect. As the main reasons underlying this phenomenon are mentioned: drastic temperature changes (climate warming or cooling), changes in sea salinity, sea acidification, depletion in oxygen of environment (anoxic and hypoxic conditions), sea level fluctuations, loss of symbiotic organisms, collapse in primary production and of food webs. However, LE is considered as effective adaptation for this type of unfavorable conditions, because dwarfed organisms require lower demand for certain environmental resources and quickly reach sexual maturity. The Lilliput effect has been described for many groups of organisms such as vertebrates, invertebrates, protists and plants.

Key words: adaptation, dwarfing, Liliput effect, miniaturization, mass extinctions