THE TEMPORAL-SPATIAL ADAPTATION THEORY CLARIFIES UNDERSTANDING FOR CORRECT ACTIONS

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Species richness regularities:
The latitudinalcline in species diversity, the asymmetry in species richness between the northern and southern hemispheres, various patterns of species richness along mountain and continental slopes, the higher fidelity of tropical organisms to spatial and temporal habitats etc.

Relatively stable environment allows species to move more and more towards specialization with a simultaneous narrowing of their ecological niches that in turn leads to a reduction of niche overlap and greater species packing in communities (A).
In contrast, a wide range of regular environmental changes in time will cause various species to have not only very large, but also widely overlapping ecological niches (B). The competitive exclusion of much of species and a general impoverishment of biota is a predicted outcome of interspecific competition under such conditions.

Latitudinal gradients in species richness
(circle circles) and feeding specialization (open circles) of the butterflies of family Papilionidae. The data are pooled by bins of 10°, the value for each latitudinal segment is plotted at the middle of that segment.
Negative latitudes are in the southern hemisphere.
Modified from Becker (1973)

The relationship between the species richness
of all sessile organisms (solid line with crosses) on the fore reef at Discovery Bay, Jamaica, and the steepness of the reef slope (dashed line with triangles). Graphs at the top are for the relatively gentle slope of the eastern side of the fore reef.
Graphs below are for the steeper slope of the western side of the fore reef.
Modified from Hunter (1988)

We argue that during adaptation to a wide range of one and the same environmental factors in time, the high latitude species also become adapted to a wide range of those factors in space. As a result, they form not only very wide, but also widely overlapping ecological niches. This eventually leads to the competitive exclusion of much of species and a general impoverishment of biota. In contrast, relatively stable environments allows species to move more and more towards specialization with a simultaneous narrowing of their ecological niches that in turn leads to a reduction of niche overlap and greater species packing in communities.

In tropical mountains and on the continental slope, where the environment is stable enough, the degree of its differentiation depends mainly on the steepness of slope. And since the the steepest slopes tend to be located at intermediate elevations and intermediate bathyal depths, it is there that there are conditions for the highest specialization and closest possible packing of species.

Such a unified theory of species diversity may be referred to as the ‘temporal-spatial adaptation theory’. It will allow us to expand our understanding of the main underlying mechanisms responsible for species richness patterns, and provides a framework for new approaches to biodiversity conservation of both different regions and the planet as a whole.

Nikolay P. Kolomiytsev studied the summer avifauna of Central Kyrylukom, the biology and ecology of Mergus squamatus (Gosuil, 1864) and Chers肃us philobius (G. R. Gray & E. E. Gray, 1863), found the moment of transition of inanimate matter into living matter and what was the first dokus organism, established a new evolutionary factor.

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