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From Mechanism To Model: Functional Forms in Nutrient Colimitation

The nutrient limitation status of primary producers and other organisms in ecosystems is of increasing importance as human activities continue to alter the relative abundances of nutrients in ecosystems. In recent studies, there has been growing evidence of multiple nutrients being limiting rather than just one, causing ecologists to search for mechanisms to explain these patterns and to try new functional forms in models to obtain nutrient colimitation. However, I will show in this lecture that how the mechanisms are translated into functional forms can result in large differences in ecosystem dynamics and functioning. This result suggests that greater care must be taken in the formulation of models such that they accurately reflect the mechanisms in the field.