

Ecological periodic tables: in principle and practice

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“Science is organized knowledge.” Immanuel Kant (1724–1804)

Ecological periodic tables are an information organizing system with categorical habitat types as elements and predictably recurring (periodic) properties of a target biotic community, such as its relative species richness, abundance and biomass, as attributes. Ecological periodic tables are founded on the ecological tenet that habitats structure biotic communities and its corollary that habitats are templates for ecological strategies. They are a durable, open and flexible system that accommodates all operationally defined habitat types and biotic communities for which the periodicity of habitat usage patterns by a biotic community have been empirically substantiated. Discovering quantitative, periodic habitat usage patterns requires quantitative, representative, unbiased sampling of a biotic community across habitat types at ecologically relevant temporal and spatial scales. Like chemical periodic tables, the Linnaean system of classification and the Hertzsprung–Russell diagram in chemistry, biology and astronomy, respectively, ecological periodic tables are simple, easy to understand, exceptionally useful and they foster the expansion of scientific understanding, theory and inquiry.