

<b>Community structure</b>		
<i>Ecosystem characteristic</i>	<i>Trends in ecological development (Odum)</i>	<i>Complex Ecosystem Theory (Schneider &amp; Kay)</i>
Species composition	Changes rapidly first, slower later	
Species diversity	Increases initially, then becomes stabilised or declines in old stages, as size of individuals increases	
Total biomass (B)	Increases	Larger ecosystem biomass
Non-living organic matter	Increases	
Food chains	From linear chains to more complex food webs	Longer food chains

<b>Energy flow (Community metabolism)</b>		
<i>Ecosystem characteristic</i>	<i>Trends in ecological development</i>	<i>Complex Ecosystem Theory</i>
Gross production (P)	Increases during early phase of primary succession, little or no increase during secondary succession	More exergy capture
Net community production (yield)	Decreases	
Community respiration (R)	Increases	Higher transpiration in terrestrial systems More energy flow activity within the system
P/R ratio	From $P > R$ to $P = R$	Higher respiration
B/P and B/R ratios (Biomass supported / unit energy)	Increases	More effective exergy consumption
Overall efficiency of energy utilisation	Increases	Increases

<b>Biogeochemical cycles</b>		
<i>Ecosystem characteristic</i>	<i>Trends in ecological development</i>	<i>Complex Ecosystem Theory</i>
Mineral cycles	Becomes more closed	Less leaking (export) of material from the system
Overall efficiency of nutrient utilisation	Increases	Increases
Turnover time and storage of essential elements	Increases	Longer cycles (Longer average cycle length)
Internal cycling	Increases	Turnover time of cycles or cycling rate diminishes, The proportions of material flowing in cycles increases.
Nutrient conservation	Increases	

<b>Natural selection and regulation</b>		
<i>Ecosystem characteristic</i>	<i>Trends in ecological development</i>	<i>Complex Ecosystem Theory</i>
Life cycles	Increasing specialisation, length and complexity	More types of organisms (higher diversity)
Symbiosis	Increasingly mutualistic	More articulated food web, Species will occupy higher average trophic levels
Information	Increases	Increased organisation and diversity increase the information content of the community.