

System	Inputs			Outputs			
	U	G	F_{in}	R	T	EX (and EG)	F_{out}
Leaves CUE_{leaf}	Gross photosynthesis	Net photosynthesis	–	Dark respiration, photorespiration	Senescence		–
Microorganisms $CUE_{microbial}$	Organic C uptake	Net biomass production	–	Growth, maintenance, overflow respiration	Cell decay, predation	Extracellular poly-saccharides and enzymes	–
Animals CUE_{animal}	Food ingestion	Net biomass production	–	Growth, maintenance, overflow respiration	Mortality, senescence, predation	Mucus and DOC exudation (and egestion)	–
Plants CUE_{plant}	Gross photosynthesis	Net biomass production	–	Growth, maintenance, overflow respiration	Mortality, senescence, herbivory	Root exudates, C export to symbionts	Loss due to disturbance, gaseous C other than CO ₂
Soils CSE_{soil}	Litterfall and rhizodeposits (\approx NPP)	Net soil C balance*	Throughfall	Heterotrophic respiration	–	–	Leaching, erosion
Sediments $CSE_{sediment}$	NPP (\approx 0 in deep sediments)	Net sediment balance*	C Deposition	Heterotrophic respiration	–	–	Erosion
Ecosystems and watersheds $CUE_{ecosystem}$ (or $CSE_{ecosystem}$)	Gross primary productivity	Net ecosystem productivity	Lateral C inputs (CSE: deposition)	Autotrophic and heterotrophic respiration	–	–	Gaseous C other than CO ₂ (CSE: leaching, erosion)