

Productivity and ecosystems

What is gross primary productivity (GPP)?

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Write the equation for net primary productivity.

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What does NPP represent?

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How do you calculate efficiency of energy transfer?

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Name four reasons energy is lost between trophic levels.

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Why is dry mass used to measure biomass?

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Define population.

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Define community and ecosystem.

$NPP = GPP - R$, where R is the energy lost in plant respiration.

The total chemical energy fixed by photosynthesis in a given area in a given time.

$$\left(\frac{\text{energy or biomass in the next trophic level}}{\text{energy or biomass in the previous level}} \right) \times 100.$$

The energy stored in plant biomass, available to the next trophic level and decomposers.

Water content varies and water stores no chemical energy.

Respiration (heat), egestion, excretion, and parts not eaten.

Community: all the populations of different species in a habitat. Ecosystem: the community plus the abiotic environment.

All the organisms of one species living in a habitat at the same time.

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Give two biotic and two abiotic factors.

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Define niche.

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What happens if two species have the same niche?

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How does niche account for distribution?

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Why are quadrats placed at random?

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When is a transect used?

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How do you estimate the size of a population using quadrats?

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What is a pioneer species?

The role of a species in its habitat, including its interactions with biotic and abiotic components of the environment.

Biotic: competition, predation. Abiotic: temperature, light, pH, water availability.

A species is found only where the conditions and resources of its niche are available.

They compete strongly and one tends to outcompete and exclude the other.

To show how distribution changes along an environmental gradient.

To avoid bias and make the sample representative.

The first species to colonise bare ground, tolerant of harsh conditions, which changes the environment for others.

Mean number per $\text{m}^2 \times$ total area of the habitat in m^2 .

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What is a climax community?

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**What is the difference between
primary and secondary succession?**

Primary starts on bare land with no soil.
Secondary starts where soil already exists.

The stable end point of succession, in
balance with the abiotic environment, with
no further net change.