



Ecosystems: living communities

What is an ecosystem?

Mike Gillman:

Ecosystem – what is it? What does it mean? How can we define what an ecosystem actually is? Well, there are two ways of doing it - two definitions, two schools of thought. In the red corner, supporters of a geographical definition. They would say that an ecosystem is an area where groups of organisms experience similar conditions. These guys talk about the rainforest ecosystem, the Arctic ecosystem, that sort of thing. Defined like this, ecosystems tend to be well – big! It's a widely used definition. You will have heard politicians talk about ecosystems like that and conservation groups tend to do the same thing. On the other hand – over here in the blue corner – are people who prefer a different definition. These people say it's not just an area. It's a living system of energy transfer, of nutrients being passed up and passed on. It's all about the system itself, not the box it comes in. This is the approach that would have been favoured by one of the founding fathers of the science ecology – Sir Arthur Tansley. His view of an ecosystem revolved around his concept of the biome, which we would today call a community. He saw a community as being

“The whole complex of organisms naturally living together, whose life must be considered and studied as a whole.”

Tansley's main interest was in plants so his work and ideas tend to focus on them. He defined plant communities as:

“Any collection of plants growing together which has a whole, certain individuality.”

Tansley's ideas were controversial and much debated. But they found favour in North America and Europe and today form the basis of the British National Vegetation Classification. The key thing is Tansley's ideas of communities were not just about geographical location they were about how species interact together. And so was born Tansley's definition of an ecosystem.

“A wider conception still is to include with the biome or the physical and chemical factors of the biome's environment or habitat as parts of one physical system, which we may call 'an ecosystem', because it is based on the 'oecos,' or home of a particular biome. All the parts of such an ecosystem, organic and inorganic, biome and habitat, maybe regarded as interacting factors.”

So there it is. That's what we mean by an ecosystem. And for the purposes of this course we will define an ecosystem as:

“A set of organisms and abiotic components linked by processes of energy transfer and cycling of materials.”

And that I reckon is a win for the blue corner.