

5.1

LIFE IN ALL ITS FORMS

0:11–0:42 How diverse is life? How many species are there? How varied is life? This is a quality that naturalists refer to as biodiversity.

BIODIVERSITY

Life exists in a thin sphere around the surface of the earth. This is called the biosphere. You can think of it as a bit like the skin on a balloon. It probably goes up a mile or two where you can find migrating birds quite high up and you can also find drifting bacteria. It may go down a mile or two as well where you find organism deep in the oceans and even in crevices in rocks.

0:42–1:30 But how many species are there? The truth is we don't really know but we know there are a lot. The first modern attempt to count and classify species was that of the Swedish naturalist Linnaeus, who published a

famous work in 1735 in which he estimated there might be about 4,000 species, but these were mostly large species.

By the late 19th century, naturalists estimated that they had to be at least half a million species. And by 2011, most biologists would say there were perhaps 9 million different species and some were saying that there might be up to a hundred million, and that's not counting bacteria, which change so fast so we can't really count them. But only about one million of these have actually been classified and named and defined.

So how would you count them? There are lots of methods. Some are just very painstaking. You take an area and you go through it slowly with a magnifying glass and you count. But one method that ecologists use is using mist nets. These are nets with very fine meshes and you throw them over an area of rainforest or grassland and you spray everything inside it and you stun them and you go and you just count.

And when they do this, almost invariably, they'll find within just a few square meters, they can count a thousand or more species and almost invariably too, there'll be a few that have never been seen before, never named, never classified.

So if you were to go out into your back garden, how many species do you think you could find? How many species of ferns, how many flowers, how many birds, how many worms, how many cockroaches, how many bugs of various kinds?

1:30–2:08

COUNTING SPECIES

2:08–2:39

STAGGERING DIVERSITY

And now imagine seven billion other humans doing that and now, think about the possibility that there maybe other living planets in our galaxy.

Some people would say there could be millions of them, each with its own millions of diverse species. Life really is staggeringly creative and diverse.