



Biodiversity

Fynbos, a floral kingdom

Johnathon Silvertown:

I'm Jonathan Silvertown and I'm Professor of Ecology in the Department of Life Sciences at the Open University. On the research side I'm working in South Africa with colleagues on a project in which we're looking at the ecology and the hydrology, and evolution in a kind of habitat called fynbos, which is a heathland type of habitat, and I'm involved in various other projects, for example the Evolution MegaLab, which is a trans-European project to survey polymorphism in the banded snail, and also the thing called the Biodiversity Observatory. What biodiversity means is the riches of life in all its different forms so, for example, the number of species and within species the number of different genotypes, the number of different genetic types, if you like, that there are. And there are good practical reasons why these things matter and there are also aesthetic reasons why these things matters, so I mean we wouldn't like to live I think, any of us, in a world without flowers, without bees, without birds, and so on, so that's the aesthetic reason. But there are also good practical reasons and I can give you an example from the work we're doing in the fynbos in South Africa. Now the fynbos actually covers the mountains of the Western and Eastern Cape, and those mountains are the catchment for the cities and for the agriculture which is very important to the economy of the Cape of South Africa. And what happens is, of course, the rain falls on the fynbos, it filters through down into the aquifers and then at some point it's removed and used by people. Now what's happening at the moment is that the fynbos is being invaded by plants from other continents, particularly pines from North America, and Australian plants as well, and these plants are not native but they are, so they don't have any natural enemies in the Cape and as a consequence they grow fantastically well. The trouble is that they use a lot more water than the native plants do so when these plants invade the fynbos the amount of water that finds it way through to the aquifers decreases. It's been calculated some of these alien trees use five or six times as much water as the natives do. They also threaten the native biodiversity which is unique in South Africa, a very large part of it is found nowhere else, and so this is an example where the native biodiversity is of practical importance, because if it disappears you lose water as well, but it's also of aesthetic importance because of its uniqueness. We're working with CapeNature who are the government body that works with nature conservation in the fynbos in the Western Cape, and we're working under a British scheme called the Darwin Initiative, which is funded by the Department of the Environment, Food and Rural Affairs, and it's part of the UK government's commitment to the Rio process, to preserving biodiversity, and essentially what we're doing is we're studying the ecology of plants in fynbos in order to understand the relationship between the water supply in the eco system, in the soils, and what this does to the community that's there, and because those communities are unique and are closely linked to the water supply, if you alter the water supply you might lose some of the species, and so we already have expertise on that kind of relationship in British meadows, and we're using that expertise in South Africa to first of all discover whether the same relationship applies and we've found out that it does, and then to help people in South Africa manage these fynbos habitats in a situation where the water supply might well change for a variety of reasons, for example climate change is going to change the rainfall without any doubt, and also obstruction of water from the aquifers might possibly change the water supply to the fynbos, and that might then affect vegetation. So what we're doing is working with people in South Africa who do the research because South Africa has its own expertise in these areas, but by working together of course we can do things that neither of us can do on our own, and then we're also training people in CapeNature to do research in eco hydrology and to use that in the management of these important habitats.