SEX, DRUGS, & ROT’N’MOULD

Giuliana Furci had been working for the fungi for years, we caught up with her to find out what she’s learned

SUKAYNA POWELL
Coming 'out of the forest' after ten years exploring fungal diversity, Chile’s first female mycologist Giuliana Furci set out to champion her fungal friends’ cause in halls of state and schoolrooms all over the world. As the Executive Director and founder of the Fungi Foundation, an international organisation dedicated to representing the interests and future of fungi globally, through research, documentation, education and legislation, she spends most of her time raising awareness of the third 'F' - Flora, Fauna, AND Fungi. Happily, she still gets to go into the forest regularly, collecting evidence for crucial ancient habitat protection, and meeting many interesting mushrooms. We spoke with Giuliana about her path, her goals, and her values. And about sex, drugs, and rot'n'mould. This interview has been edited for clarity and length.

Sukayna: You have been accomplishing some amazing things - one of the biggest is getting some constitutional protection for fungi for the first time in the world. How was it navigating the politics around conservation, something that is difficult for a lot of people, what did you learn during lobbying and that sort of thing?

Giuliana: When the time came that there was an opening in the environmental legislation here in Chile, I had already been working for the fungi in the forest for maybe ten years. So the first big problem was that to be able to make any change in public policy, you had to leave the forest. It's not a job that you can do from a laboratory, you can't do it from the forest, you can't do it from a research institute, you can't do it from a company. It's the job, traditionally, of an NGO that is working in the halls of congress, and preparing minutes and drafts for decision makers. So that was one big first lesson. If you work for the fungi you might have to do things you don't really want to do. But my motto is 'perfect is the enemy of good'. And I've always lived by that. So perfect was staying in the forest discovering fungal diversity, but good was getting legal protection for them for the first time in the world.

And then the whole two years of trying to work this kingdom of organisms into legislation was difficult because first I had to make everybody see me, and see a fungus. So I had to blend my identity with the mission. And here in Chile, unfortunately, the word for mushroom is the same as the word for 'penis' in general slang. It's a Quechua word: 'k'illampa'. So I had to navigate all these stupid jokes, from ministers to senators to you know... 'oh I've got a k'illampa too!' and you'd be like 'uhhhhh'. And that took a while, but it gave a way in - to take on the jokes.

What I learned is that the language of public policy is an economic language and ultimately what made the decision tilt was that it wasn't extremely expensive to incorporate fungi into environmental legislation. What's important is that getting fungi mentioned in legislation isn't an end, it's a beginning. So what many celebrate as an accomplishment, as 'oh something's done', for us is truly the start of another process and that's the regulatory process, and the implementation.

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The counterpart to having legislation is taxonomy - figuring out the extent of this kingdom. As you said that's where you started, in identification and research. How important for global conservation and restoration is it for us to put a lot into global taxonomic endeavours?

Well, it's an interesting question because as important as species are - and they are extremely important on one level of the conservation research, especially when it comes to applications, species and strains are very important - in a global scenario of conservation where, for example, governments are today subscribing the commitment to protect 30% of their territories by 2030, species do not become the agents of conservation.

Today, thankfully, countries are looking to preserve and conserve habitats, because that habitat will encompass all the species that are in there. And it's quicker to conserve that habitat than it is to find out what all the species are, and then red list them, and then do a species by species effort. Of course there are many more levels to that, but I think today the correct path is to concentrate on habitat protection and then go on to document more diversity. But we don't have time to use diversity, especially unknown diversity, as leverage for habitat protection.

It's a central point of our work, in fact that's what we do, to a large extent. For over two decades my speciality, even before the foundation existed, and now that I'm working there, my focus has been to go to places where nobody's ever been before to discover fungal diversity and I think it's fundamental. Another really important piece of our work at the foundation is the documentation of all known ancestral and traditional uses of fungi in the world. I think that there are extremely good reasons to focus on those.

In terms of diversity we know very little and in terms of habitats, in very sensitive habitats, because fungi are species specific, host specific in many cases, and so we can find fungal arguments that can help leverage habitat protection. We know that there are some species of polypores that only grow on trees that are older than 400 years old, and that those polypores have antivirals that aren't found anywhere else in nature, so through the compounds found in the fungus that grows only on old trees, you have a reason to protect old forests.
And then we have the Elders program. We believe that there's no need to keep looking to the future for nature-based solutions for the health of people and planet, when humanity has culturally co-evolved for millennia with several species of mushroom, conks, yeasts, and moulds, that are a natural place to go to look when there are different ailments. And we've found amazing discoveries, from species whose interior liquid cures ear infections in the Amazon, to the use of spores - in different regions of the world - mixed with animal fat to make sunblock! You can see these repeating patterns all over the world and what we're seeing basically is cultural co-evolution, and possibly cultural co-evolutions of uses that have evolved several times.

They're great ideas but the feasibility of rewilding prolifically is a complex one because of the host specificity, because of the specificity of the symbiosis. I think that the use of these organisms to better soil health is mandatory. It's a no brainer. I think ultimately in these places that are not so remote, the important thing is to let things rot. More than bringing in lots of different species. If you just let what there is rot, you're in a really good place. And as we always say, it's not rock and roll anymore, it's rot and mould, and we've got to let rot and mould live, you know. So yeah, sex, drugs, and rot and mould, basically.

Yeah, well decay proves that death doesn't exist.

On habitat restoration, would you say it was enough to protect and restore ancient habitats or should we be thinking about ways to incorporate mushrooms and fungi into urban greening policy or sustainable farming? There's a lot of people working on ideas which are a little bit snake oil-y in some places, but also some people who are quite keen to look at bringing more diversity into places which are less remote.

Absolutely. Off topic a bit, but there's a lot to be said about the relationship between death and decay and environmental sustainability, and getting people to embrace the inevitability and the beauty of death and decay.
Exactly, it's getting people more attached to the notion that it all goes back into the 'big life'.

Slight digression, but it's all related trying to keep life going for the foreseeable future. Speaking of, your foundation's working on curriculum templates to encourage public school educators to educate students about fungi at all key grade stages.

For the mycologist, where people see death we see rebirth. And where people see decomposition we see recomposition. And so ultimately we really need to be very clear that energy is not lost, it's transformed, and that's super important.

Yes. What we're doing is developing a global curriculum from pre-kindergarten to senior year, so the whole cycle of twelve to thirteen years. We believe that in public schooling around the world at least as much as is taught about plants and animals should be taught about fungi. You can't really understand nature without them.

It's an undertaking that takes a long time for a variety of reasons. First of all there has to be a pairing of the curriculums with nation curricula and also with other topics that are taught. You can't teach fungal cell biology if they haven't studied the cell yet. We do have a preliminary curriculum that will very possibly start implementation next year, and that's big news!

When my mother studied biology and she studied the eukaryote cell, they didn't know that there was a mitochondria. The mitochondria wasn't something that was taught with the cell. And today nobody would dream about teaching the cell without first and foremost looking at the mitochondria. And I think this will be the case for mycology. I think we're at the same point with the whole kingdom that we were with the mitochondria fifty years ago.
Hopefully we can just spread as much curiosity as possible and accelerate that process.

It's spectacularly important to remind people about something that they sort of already know, but they don't know how much there is to know.

So the foundation has recently gone international, how are you hoping to grow and move your impact out into more spheres?

Language is important because language creates reality. Just the fact that we’re still only talking about flora and fauna as the representatives of macroscopic diversity in a given place is incorrect and outdated. And so we’ve also focused a lot on delimiting the correct language. We have a whole program that is dedicated to helping organisations and institutions transition towards mycologically inclusive language.

Yes, so the third F, the inclusion of fungi in the three Fs is important.

It was sort of the other way around, our work already had a very large international impact and it sort of always has. We’ve worked with almost all continents and many many dozens of countries and people in different countries, and I think it was a logical step to use the right language and to say it, to acknowledge it. We really are and have been for many years a global organisation, but we’re based in a country where there’s no culture of philanthropy, and it’s been very difficult, we’ve survived by miracle, and opening in the US has really been an important fundraising step, because in the US there is a philanthropic culture.

And also I think that because we have so many large mycorrhizal networks - mycorrhizal because it’s symbiosis, it’s not just hyphae, but other organisms, other people - it was time for us to consolidate and show how big we are. How is our work going to change? Really not much. What has changed is that we’ve decided not to pursue small scale endeavours, like doing introductory courses on mycology, which were important when we started. We were the first NGO on earth to do this, now there are many new groups who are doing this. And it’s perfect, and it’s something that they can do well. We really need to focus on triggering structural change, so that those smaller NGOs and researchers and mycologists can continue doing their work. That’s our responsibility.
No. It's incredible, because you know, in my lifetime - so I started 23 years ago working for them, and I'm the first female mycologist in Chile, and I had to travel outside my country to meet the first person I ever met who loved them as much as I did, so being a witness to this has been a privilege. It's a privilege to witness the fungal fascination, but it also is a responsibility for those of us who have decades of knowledge, and of networking, and especially experience in the field. I go out every year, and I write field guides, and I've been with them (the fungi) in different countries, and that's where the knowledge comes from. It's from spending time with them in their home. And there's a responsibility in sharing that and in witnessing and being part of this awakening in a responsible way.

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