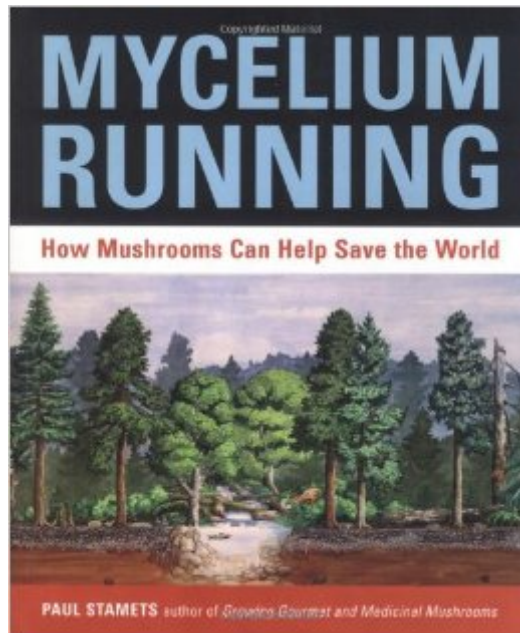


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# Mycelium Running: How Mushrooms Can Help Save The World



## Synopsis

Mycelium Running is a manual for the mycological rescue of the planet. That's right: growing more mushrooms may be the best thing we can do to save the environment, and in this groundbreaking text from mushroom expert Paul Stamets, you'll find out how. The basic science goes like this: Microscopic cells called mycelium--the fruit of which are mushrooms--recycle carbon, nitrogen, and other essential elements as they break down plant and animal debris in the creation of rich new soil. What Stamets has discovered is that we can capitalize on mycelium's digestive power and target it to decompose toxic wastes and pollutants (mycoremediation), catch and reduce silt from streambeds and pathogens from agricultural watersheds (mycofiltration), control insect populations (mycopesticides), and generally enhance the health of our forests and gardens (mycoforestry and myco-gardening). In this comprehensive guide, you'll find chapters detailing each of these four exciting branches of what Stamets has coined mycorestoration, as well as chapters on the medicinal and nutritional properties of mushrooms, inoculation methods, log and stump culture, and species selection for various environmental purposes. Heavily referenced and beautifully illustrated, this book is destined to be a classic reference for mushroomed generations to come.

## Book Information

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## Customer Reviews

Last summer I attended one of Paul's seminars at Fungi Perfecti. Living near by it was easy to attend however I had absolutely no knowledge of mushrooms other than eating Portobellos et al.,

and reading a little about the possibility of plugging stumps and logs. In fact, at the seminar I felt a bit out of place amongst all of the others who had particular goals and agendas for being there. I figured a bit of education could help me understand this whole mushroom thing. When I left I was completely blown away by all of the possibilities that mycelium offer and by Fungi Perfecti's excellent presentation of this data. Most all of what Paul and his staff taught in this seminar is in this book. This fascinating book is a treasure trove of effective low tech methods for 'running mycelium'. Paul describes everything from gardening techniques to soil restoration to health care application using typical gourmet mushrooms (oh what Oyster mushrooms can do) and many other species. As a scientist, he backs his data with reputable references. He also uses language that may be challenging to those not educated in the biological/medical sciences. However, not unlike Dr. Andrew Weil's publications, it is nearly impossible to simplify this type of information without giving all audiences from foresters to backyard gardeners to medical practitioners enough information to help everyone understand how powerful this natural filter in soil is regardless of their educational background. Mycelium Running has very high quality color photos, detailed 'how tos' anyone can follow and specifics describing the chemistry of this powerful ally in its myriad of uses. This is a wonderful text that hopefully will assist us in restoring our battered environment and ailing health one backyard and human body at a time. For what it is worth, this is perhaps the most important and interesting book I have purchased in years. Now I have piles of cardboard stacked around my property successfully running all kinds of mycelium from spent mushroom kits. I expect to further the 'running' using the techniques from this book to build more productive gardens and help keep Rue Creek running clean. Because of Fungi Perfecti and Mycelium Running's superb information, I have truly become 'beshroomed'. I now go out of my way to educate friends, relatives, neighbors and co-workers alike of the beneficial effects of growing better gardens, managing yard waste (instead of burning), mitigating damage by clear cut logging, cleaning up polluted soil and water ways, removing termites and ants (cannot wait to get an off the shelf solution for this!), alternative/supplemental solutions for treating disease/cancer and every day use for maintaining good health. All of this is painstakingly described in this book; simply amazing. Paul and his staff are the type of people who do wonderful things for humanity. So wonderful, it makes me want to start a new career and open a natural healing center. Because of Mycelium Running, it would seem there is high probability of significant grassroots restoration of earth and human body. Do yourself a huge favor and spend the money to get this book; it is worth its weight in gold. Next thing you'll find is that you'll be running mycelium in some way, shape or form. It is that easy. Kudos to Paul, Dusty and FP staff for your dedication and hard work!

One of my students recommended this book and I had no idea what I was getting into. A book on fungi that I can't tear myself away from? Yes, it's true. Stamets has made mushrooms his life's work. He knows them like no one else. He presents information based on real science, yet he writes in an easy-to-follow conversational tone. And anyone with a bit of patience can grow fungi using the methods Stamets describes. The things he and his colleagues are doing with mushrooms and tree fungi will astound you. A common mushroom that eliminates diesel fuel from contaminated soil! A tree fungus that out-competes (controls) American Chestnut blight! Erosion control, sewage treatment, enhancing forest health and human health... the list is long and truly inspiring. I am eager for warmer weather so I can get outside and start my own experiments with fungi. And perhaps best of all is the fact that most of these incredibly useful organisms are also edible gourmet delights! This is my first book by Paul Stamets. I am now ready to buy his earlier works (as well as a good field guide to mushrooms and other fungi).

Paul Stamets truly knows the material and has some great insights into the world of growing mushrooms. He succinctly describes how the science of the relatively unknown 5th kingdom (fungi) can be applied to mycoremediation to help unpollute the planet. Even though this sounds like a heavy subject, the material is understandable for people with little scientific or fungal knowledge and helps anybody understand how they too can get closer to mushrooms.

When research biologist Paul Stamets suggests fungi can help save the world, he is absolutely serious. In fact, he contends they can rescue it in several different ways. There are the medicines to be derived from fungi, probably more than we can yet imagine. Fungi for insect pest control. Fungi can absorb and often digest toxics from their environments---toxics as diverse as heavy metals, PCB's, oil spills, and radioactivity. Fungal partnerships can revolutionize our farming methods. And we can heal the ecosystems of damaged forest lands by introducing selected fungal species into those environments. Paul Stamets is one of the visionaries of our time. He is revolutionizing the ways we look at fungi. This book starts by teaching the basics of mycology. Mycelium are fungal threads that form a network, usually underground. Mushrooms are just their fruiting bodies. Mycelium are so tiny that one cubic inch of soil can contain enough to stretch for 8 miles. But mycelial networks can cover as much as thousands of acres, making certain varieties of fungi the largest organisms in the world, as well as some of the oldest. Fungi build soil by breaking down organic matter, and even cracking apart rocks. Besides that, fungal mycelium enter into symbiotic

relationships with trees and other green plants, helping them get water and nutrients from the wider environment by surrounding and even penetrating the roots. Paul Stamets believes mycelium are information sharing membranes in their environments. He says they are aware, react to change, have the long term health of their host environment in mind, and devise diverse enzymatic and chemical responses to challenges. He cites research to back up these ideas. In other words, he is telling us fungi are intelligent, sentient organisms. Because they regulate the flow of nutrients through the food chain, we can use them to bioengineer ecosystems. It has been estimated that three fourths of our medicines come from nature originally. Fungi, Paul Stamets claims, show incredible promise as sources of future pharmaceuticals. Many kinds of fungal mycelium compete with bacteria and viruses in the soil, and in doing that, they secrete a variety of chemical substances that kill those microorganisms. So fungi could protect us from microbial infections in three ways: as antibiotics, by increasing our immunity to fight diseases, and by constructing mycelial mats to filter disease contaminated water. He says, "Preliminary studies on mushrooms have revealed novel antibiotics, anti-cancer chemotherapeutic agents, immunomodulators, and a slew of other active constituents." Stamets himself has discovered and patented fungal extracts effective in protecting human blood cells against pox viruses. This particular fungi that kills pox viruses lives only in the old growth forests of the Pacific Northwest, as do many other fungal species in that wet climate. He reminds us that these have been logged to the point where only 5% of the old growth are left standing, and who knows what other medicines have been, or still could be lost by this practice. He also discusses the effectiveness some fungal species have shown against the HIV virus, so research is actively continuing on that front. This book contains information on using selected mycelium as "mycopesticides" to control certain insects, such as ants, termites, or beetle blights in forests, with negligible damage to other species or the environment. And these mycelium will continue to grow and offer long term protection. Mycoremediation is the name Paul Stamets gives to the "use of fungi to degrade or remove toxins from the environment" by using mycelial mats. Fungi can be used to clean up mercury, polychlorobiphenols (PCB's), fertilizers, munitions, dyes, estrogen-based pharmaceuticals, neurotoxins--including DDT, dioxins, and stored nerve gas. Fungi can also break down oil spills, although several patents on some species are stopping the use of them for clean-ups, he tells us. Mycoremediation apparently takes quite a bit of skill in choosing the best fungi for a given situation, considering both beneficial and hostile competitive microbes in the environment. Also in some cases, these toxin-absorbing mushrooms need to be harvested and taken to toxic waste sites to be stored, incinerated, or otherwise recycled, he advises. This book advocates no-till farming, because tilling breaks up mycelial mats, which then lets the soil erode.

No-till farming also disrupts wildlife less, uses less energy and fertilizer, and releases less carbon dioxide into the atmosphere. He tells us that polysaccharides secreted by mycelium bind soils from erosion. And many temperate fungal species produce glycoproteins to protect mycelium from freezing with the added benefit that they protect green plants during extreme cold. Mycelium decomposing organic matter also raises soil temperatures. So by encouraging mycelium formation, farmers can build soils while creating mycofiltration membranes to trap farm pollutants, such as water run-off contaminated with manure. Mycelium Running has a large section of detailed information on farming and gardening with mycelium. Paul Stamets explains the principles of mycoforestry, which preserves native forests, recovers and recycles debris, enhances replanted trees, and strengthens sustainability of ecosystems. He describes methods of introducing certain species of fungi into recently logged or burned areas to aid in forest recovery, using native fungal species and matching them to the trees they usually partner. When the mycelium eventually put up mushrooms to reproduce, those are eaten by birds and other animals, who further fertilize the soils and drop seeds from other plant species there, so the new ecosystem develops quickly. The last approximately one third of this book is devoted to detailed information on many individual fungal species, their natural habitats, methods of cultivation, how to harvest and cook them if they aren't poisonous, their possible medicinal properties, and their potential for mycorestoration of ecosystems. Paul Stamets has a retail company called Fungi Perfecti, which sells equipment for growing fungi, spores, kits to grow them, fungal medicinals and other fungal derived products, books about fungi, gifts, etc. All the products are certified organic by the Washington State Department of Agriculture. He also offers classes in growing mushrooms and other fungi, and occasional classes in mycorestoration at his place near Olympia, Washington. You can get a color paper catalog from Fungi Perfecti, or visit his web site: [...] Paul Stamets has received many awards from environmental organizations for his research on fungi and repairing damaged ecosystems. He has written numerous articles and academic papers on medicinal, culinary, and psychoactive mushrooms, and several books on mushroom cultivation. Mycelium Running is a beautiful book with color photos and illustrations on almost every page. This is THE book to read if you are interested in using mushrooms medicinally, ridding environments of toxic chemicals, recovering damaged forests, or practicing sustainable agriculture, particularly permaculture. review by Sher June, [...]

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