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Topsoil: The earth's unsung hero

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It takes nature 100 years to produce just one inch of topsoil.

years to produce just one inch of topsoil.

By Patrick Picard, Owner of Equinox Landscape, Petaluma February 25, 2010 04:16 pm

There is a quiet crisis occurring on our planet you won't find on the evening news or the front page of your morning paper. Crop land worldwide is shrinking by more than 37,000 square miles a year (the size of Indiana) due to soil erosion. According to Dr. David Pimentel, professor of Ecology at Cornell University, "Soil erosion is second only to population growth as the biggest environmental problem the world faces."

Currently, the U.S. is losing soil 10 times faster than nature can produce it. China and India are worse yet, losing their topsoil 30 to 40 times as fast. Imagine a dust bowl scenario across the globe and you will begin to understand the severity of the problem. The majority of this soil washes into rivers, streams and lakes, making waterways more prone to flooding and contamination from fertilizers and pesticides. What makes it more alarming is the fact it takes nature 100

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Walking on a miracle

Topsoil is the unsung hero of our natural world. We walk on it every day and seldom stop to think what a miracle it is. Below our feet billions of organisms, some microscopic, some much larger, are busy decomposing today's dead material, turning it into tomorrow's living nutrients. They are the most efficient recyclers on the planet, with next to nothing being wasted. For the last billion years the soil food web, as these organisms are referred to, has been making all life possible on this planet. The extent to which these bacteria, fungi, earthworms, etc. are active in our soil determines the fertility of our land. Without these organisms we would undoubtedly perish.

If we humans left these soil critters alone to do their jobs, the soil would be fine. However, mankind seldom leaves the natural world alone, especially since the invention of chemical fertilizers and pesticides. By producing carbohydrates and proteins and secreting them through their roots, the plant controls the soil food web for its own benefit, yet we somehow believe we know better what is needed for our plants than they do. In the process we have damaged the soil so severely through our use of chemical fertilizers, compaction, over-plowing and deforestation (just to name a few) that the regular functions of soil organisms cannot provide all plants need.

Techniques to undo the damage

Soil degradation along with accelerated erosion may eventually determine the fate of modern civilization, much the way it contributed to the decline of ancient Greeks and Romans. Now more than ever it is paramount we understand the function of the soil food web we are so dependent upon.

Solutions exist to undo the damage that has been done. With the work of people like Dr. Elaine Ingham, soil food web expert, and the many techniques taught in permaculture classes throughout the world, real solutions for rebuilding soil and maintaining undisturbed natural lands are becoming more common.

By applying organic compost, cover crops, nitrogen-fixing plants, mulch and compost tea, we can assist soil critters in doing their work to rebuild topsoil.

Compost tea is perhaps the most exciting new technique. It is the cheapest and most effective way to get life back into severely damaged soil. Soil experts are tailoring compost teas to restore specific microbes that can fight off disease causing pathogens. It's time these microscopic heroes receive the recognition and respect they deserve for maintaining life on this planet.

Patrick Picard is a permaculture designer and owner of Equinox Landscape, an ecological landscape company that designs, builds and maintains gardens by paying attention to the soil and the critters that inhabit it.

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