

Trees: The Lungs of the Earth

By Francie McGowan

Without plants in general, and trees specifically, we would not have oxygen. Trees function as the lungs of the earth. Trees release oxygen when they use energy from the sunshine to make glucose from carbon dioxide and water. It takes six molecules of CO₂ to produce one molecule of glucose by photosynthesis, and six molecules of oxygen are released as a byproduct. Forests are essential to life on earth. Yet, we take them for granted. We ravage rainforests and conifer forests for wood and land development and, generally, don't understand how important and fragile they are.

We usually think of a forest as a vast area filled with individual trees. We just assume they are individuals and, aside from pollinating and dropping seeds to propagate, they don't have anything to do with one another. Nothing could be further from the truth. Under the forest floor is a vast network of soil fungi that, through the tree roots, connects all the trees together. This has been referred to as the "wood wide web" and is a means of communication from one tree to another. A forest can be thought of as a super-organism with electrical pathways connecting it. To harvest trees without understanding this is to damage the living pathways of the forest.

Trees are social beings and they care for each other. Through the thin fungal threads (mycelium), they share sugars and nutrients with each other. In exchange, the trees provide the fungi with carbohydrates. The fungi help the trees suck up water and provide phosphorus and nitrogen. This is a truly symbiotic relationship that is essential for a forest to stay healthy.

Scientists have come to realize the interconnectedness of forests relatively lately and much research still is being done on just how this wood wide web functions. This is an important field because it will change the way we deal with and save our dwindling forests. This may impact how trees of a forest are harvested and forests are managed in the future.

John Muir wrote, "Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home. Wilderness is a necessity." We are lucky to be living in the Sierra Nevada with its beautiful forests. In honor of Arbor Day this past week - April 24th - it is a perfect time to appreciate what a treasure we have. In these months of social distancing, it is a great time to get out of the house to a safe place away from people. Time to go into the forest and breathe the fresh air that the slow-down of industry has afforded us.

Spring is a perfect season for a walk in the forest to "take a bath." The concept of forest bathing is Japanese. They call it "Shinrin-yoku." It means taking in the forest atmosphere, and is a medicinal infusion of nature when escaping from the noisy world we inhabit. To take this bath, you just have to walk silently through the woods and listen to birds, feel trees and plants, sit and meditate or just breathe in the aroma of the forest. It is important to be silent so you can hear the wind in the trees or water running in a creek. It is amazing what goes on in the wilderness when you stop to listen.

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While the COVID-19 virus is still among us, we remain sheltered in so our lungs won't become compromised and under attack. This lung metaphor to address the function of trees in the world is apt, especially now. Trees are essential to our survival – they are our ventilators.

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