

All About the Small Water Cycle

Discussing the Ecological Processes

The Necessity of Water:

It is difficult to imagine a world without water. Nearly everything we do is reliant on water – from our own bodies and all the life around us to processing and production systems. As we work towards land stewardship and regenerative practices, we discover that we have a lot of work to do in restoring the water cycle. In this document, we will explore the more “localized” version of the water cycle known as the “small water cycle”.

The Small Water Cycle:

The small water cycle is a feedback loop. Groundwater is absorbed by the roots of plants, trees and shrubs, transpired into the air and returned back to the land again in the form of rain. Water moves through plants via transpiration culminating in evaporation from aerial parts, such as leaves, stems and flowers. We will look at three areas that affect this process: the soil, the plants and the trees.

Soil and the Small Water Cycle:

An important factor in the small water cycle is the soil’s ability to hold water. Good soil is like a sponge and is resistant to compaction (displaying a “chocolate cake-like” texture). Water infiltration is optimized and runoff is minimized. This also helps create healthy groundwater, which in turn improves plant health and the entire water cycle.

Plants and the Small Water Cycle:

“An imbalance in plant nutrition creates a need for more water” – John Kempf

Healthy plants simply operate in a more efficient and resilient manner than unhealthy plants. This, in turn, both reduces the plants’ need for water and increases transpiration. Maximizing plant coverage through intercropping and poly-cropping will also enhance this process.

Trees and the Small Water Cycle:

First Nations knowledge keepers have a saying: “The trees can call the rains to them”. Science has begun to catch up with this ancestral knowledge. We now know that trees, particularly multi story arrangements, slow down the air which gives water droplets a higher chance of forming.

To Conclude:

As we integrate regenerative knowledge and practices into traditional farming, we begin to get a sense of the overlapping nature of the principles and processes. At the end of the day, this is the nature of holistic practice.