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Breaking the mold

Peninsula Permaculture · October 15, 2020 · Page A-13



By Alex Féthière

Photo in the print edition: The white filaments show active fungal decomposition, and across the blade is a capillary root thirsting for something in this duff pocket. (Journal photo by Alex Féthière)

Leaves fall from trees in our cities and become a nuisance wherever they land. Lubricating driveways, cluttering landscaping and clogging drains, they are cursed wherever they interact with the built environment. The National Audubon Society estimates that 8 million tons of leaves are deposited in landfills every year, which is a tragedy in light of dead leaves' purpose.

In the forest, leaves die to regenerate the forest floor, enriching the soil tilth and nutrients as they become humus (organic matter). Leaf duff contains 50% to 80% of the nutrients, predominantly minerals, that a tree mines, and the tilth (soil structure) is improved by the lignins and cellulose.

These plant fibers are shredded by worms and tiny bugs to fluff up the soil so air and water can pass through it more freely. (Some species of worm can drag this tattered matter up to 6' into the soil.) It provides a rich growing medium for the fungi so essential to forest health. You can see the white strands of fungal mycelia on the forest floor making a banquet of the leaf litter; fungi are the main actors in rendering dead leaves.

Leafmold is a concentration of this resource that capitalizes on natural processes. It abounds in trace minerals, particularly calcium and magnesium, and is one of the best amendments to enliven clay soil. Seattle's Interbay P-Patch reports improved soil fertility after amendment with leafmold.

In addition to bestowing micronutrients and soil structure, leafmold is said to increase water retention by 200% to 500%. One investigator found it holds 4.5 times its weight in water. Simply by heaping up dead leaves to retain heat and moisture over the winter, we encourage the slow decay that produces fine, fragrant duff in one to two years.

The rate of decomposition and nutrient profile depends on the leaves used. In our region, I have found alder, willow, cherry and cascara to break down quickly, whereas bigleaf maple is still identifiable as such over a year later. Conifer needles are even slower to break down, and trees in the *Juglans* genus like walnuts should not be included in leafmold because of allelopathic (harmful to most plants) chemicals in their composition.

Heaps of appropriate leaves can be distributed over raised beds or in-ground plantings to weather into the soil over winter. Leaves can be mowed or weed-whacked to speed their rot and reduce their

mobility. Leaf layers will help prevent erosion and nutrient leaching. In the spring one can plant directly into soil after making clearings in the remaining leaf layer.

Some folks even use a couple of feet of leaves to create in situ root cellars, keeping crops like carrots and beets in the ground, protected from frost damage. I suspect this would encourage beasts raiding the undercover larder.

Leafmold silos can be made of chicken wire fence-stapled to wooden posts. They can be closer to forest edges because the feedstock is so much bulkier than the finished product. "Leaf boards," simple 6-inch x 24-inch pieces of plywood, make it easier to scoop up piles of raked leaves.

My silos are at least 4 feet deep and placed over weedy areas I want to smother. The combination of nitrogen in the weeds and carbon in the leaves will speed composting and lure earthworms to agitate the lot.

A word of caution, however. Overzealous harvesting of leaf litter undermines habitats of forest critters and eventually impoverishes forest soil. The best collection sites are urban or suburban, on sidestreets where pollution is least and leaves are wasted. You might say the best collection site is a curb in a quiet cul-de-sac: just punch holes in the garbage bag for air circulation, let in some water and wait a year or two.

When I take leaves from the forest, I do it early in autumn before the trees have disrobed completely. I collect from basins where several inches of leaves deposit. I make sure to leave enough that next year's leafmold will be just as rich.

■ *Alex Féthière has lived on Harstine Island long enough to forget New York City, where he built community gardens and double-dug his suburban sod into a victory garden. He can be reached at onlandist@gmail.com.*

Originally published in the print edition of the Shelton-Mason County Journal, October 15, 2020, page A-13.

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