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NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

By John Ferguson

Subject: trees (part 2b) – the benefits

Health:

- Many trees produce a wonderful fragrance from leaves, flowers, roots, bark, and wood that stimulates our immune system.
- Looking at green leaves from trees help us relax and stimulates our immune system for better physical and mental health.
- Exposure to trees and other greenery lowers human heart rates and relaxes brain wave patterns.
- Airborne chemicals emitted from green leaves lowers our blood pressure and helps us feel good.
- Many trees have medicinal properties in their leaves, bark, roots, flowers, and fruits or seeds.
- Sounds from multiple song birds living in the trees lowers our stress levels.
- The fragrance of the forest floor from fungi and other microbes decomposing dead wood (from the trees) lowers our blood pressure and sharpens our mental focus. It also increases production of serotonin and other beneficial chemicals in our brains.
- Parks with trees promotes greater physical activity.

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- Girls whom have a view of trees at home, score higher on self-discipline tests.
- Trees provide oxygen for us and other life forms to breathe.
- The canopy of trees protects children from ultra-violet radiation and can reduce exposure by 50% or more.
- Trees provide food for humans, animals, birds, insects, and other life.
- Studies have shown that if there is a view of trees out their windows patients heal faster with fewer complications.
- Children with ADHD show fewer symptoms when they have access to trees and nature.
- Exposure to trees reduces mental fatigue and improves one's mood.
- Neighborhoods with trees have less crime than neighborhoods without trees.
- The environmental benefits of trees reduce asthma attacks and severity.
- Trees by lowering particulate matter pollution outdoors, reduced indoor particulate pollution in adjacent homes by 50%
- One study found that in areas without trees there was an abundance of disease carrying mosquitoes. Conversely, areas with lots of native trees had very fewer disease-causing mosquitoes.
- Another study that covered 35 counties in the USA, found that in areas with greater tree cover, children had far less cases of diarrheal disease.
- Trees can provide nutritious food. An apple tree can produce 15-20 bushels of apples each year. Numerous fruit trees can grow on a standard urban lot.

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Economic:

- Trees provide shelter, fuel, food, medicine and building materials.
- Trees reduce the heat island effect in our cities as well as lower our electric bills (as much as 50% in some areas)
- The evaporation from a single tree can produce the cooling effect of a ten-room sized air conditioner operating 20 hours per day
- A lush canopy can reduce summer temperatures 6-8 degrees as compared to neighborhoods without trees
- Trees around agricultural land increase yields of the main crop, and reduces insect and disease problems.
- Trees clean the air, produce oxygen, intercept airborne particles, and reduce smog which helps meet urban air pollution requirements.
- In urban areas with trees there are lower crime rates.
- Trees used as windbreaks can reduce residential heating costs 10-15%, while shading and evaporative cooling can lower cooling costs by 20-50%
- Urban forests improve water quality.
- A Palo Alto study found that trees in the city can intercept 135 million gallons of rainwater reducing flooding.

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- Trees capture and slow rainfall, their roots filter water and recharge the water table this reduces run-off, which reduces flooding, which saves stormwater management costs
- For every 5% increase in tree cover added to a community, storm water runoff is reduced by approximately 2%
- Trees clean and reduce polluted water from reaching our bays.
- Homes with trees sell more quickly and are worth 5-15% more than those without trees.
- Homes where the entire street is lined with trees sell for an average of 25% more than the same houses without trees.
- Trees enhance economic stability by attracting businesses, since people linger and shop longer when trees are present and they spend more money
- When a canopy of trees is present, apartments and offices rent more quickly, have a higher occupancy rate, workers have less absenteeism and are more productive.
- Trees reduce wind velocity during storms reducing the damage.
- Trees can be harvested for crafts, building materials, and to flavor grilled meat.

I love to use mesquite, pecan, hickory, oak, persimmon, and other woods to smoke meat when I am barbecuing, as each contributes a different flavor to the meat.

- If only three trees were planted for every unshaded single-family home in US cities, this would be 100 million additional trees, saving society \$2 billion per year in energy costs.

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- Lower income neighborhoods have less trees and the lack of trees is associated with the problems they face.

- A study from The USDA Forest Service (published in Urban Forestry and Urban Greening, June 2016) found that trees just along streets in California produced benefits of one billion dollars per year. By category: carbon storage - \$10.3 million, removal of air pollution - \$18.5 million, interception of rainfall - \$41.5 million, and energy savings - \$101 million.

They also bolster property values and home sales price to the tune of \$839 million! **For every dollar invested in street trees, the trees returned \$5.82 in benefits.**

- Another study found that urban areas will continue to grow and predicts that urban land will increase another 163 million acres by 2060. Currently the 5.5 billion trees in urban areas that contain 127 million acres of leaf area and 44 million tons of dry weight leaf biomass.

These trees provide over \$18 billion in air pollution removal, \$5.4 billion in reduced building energy usage, and \$4.8 billion worth of carbon sequestration every year!

- Researchers at Oregon State University and the U.S. Geological Survey have found that some tree species “eat” rocks. They found that red alder in a symbiotic relationship with microbes uses bacteria to fix nitrogen from the atmosphere and dissolves rocks releasing elements like calcium and phosphorus. This process accelerates rock dissolution releasing more minerals to help trees and plants grow. Which will eventually help form rich fertile soils. Proceedings of The National Academy of Sciences (2019).

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“The wonder is that we can see trees and not wonder more”

Ralph Waldo Emerson

A few good books for gardeners on trees:

"Nature's Best Hope- A New Approach to Conservation That Starts In your Yard" by Douglass W. Tallamy, Timber Press, 2019, ISBN-13: 978-1-60469-900-5

The Nature of Oaks – The Rich Ecology of Our Most Essential Native Trees by Douglas Tallamy, 2021, Timber Press, ISBN: 978-1-64326-044-0

FINDING THE MOTHER TREE – Discovering the Wisdom of the Forest, by Suzanne Simard, PhD, Borzoi Books, 2021, ISBN: 978-0525-6569-098

The Hidden Life of TREES - What They Feel, How They Communicate - Discoveries from A Secret World, by Peter Wohlleben, Greystone Books, 2015, ISBN 978-1-77164-248-4

TREE STORY – The History of the World Written in Rings
By Valerie Trouet, John Hopkins University Press, 2020, ISBN: 978-1-4211437774

The environmental group “Houston Wilderness “, has prepared a list of native “super trees” for providing environmental benefits. <https://houstonwilderness.org>

The report can be found [here](#).

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If you need tree work done or consulting, I have had multiple customers whom voluntarily told me, they used a company called Arbor True for their tree work and were very pleased.

I have had the pleasure of knowing and working with Brad Phillips the founder of this company for many years. They are ISA certified arborists, very knowledgeable and extremely nice good people. If you need tree work done correctly or just some consulting, they are a great company to call.

[ArborTrue Tree Service](http://arbortrue.com/)

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