

THE AMERICAN BEECH

StandingNation-Human Alliance Bulletin

The Green Psychiatrist

TREES reduce human anger, anxiety, and depression. Researchers have posited a number of ways this positive relationship between the presence of trees and human emotions might work. Is it the fractals we see? The phytoncides we smell? The forest biome we breathe in? Something else? Whatever is at work, it does work.

In 2018, the results of a study of 585 participants, who took regular brief walks through city or forest environments, were published. Two instruments—the Profile of Mood State (POMS) questionnaire and the State-Trait Anxiety Inventory—were used to assess mood and anxiety level after walking:

The results revealed that walking through forest areas decreased the negative moods of “depression-dejection”, “tension-anxiety”, “anger-hostility”, “fatigue”, and “confusion” and improved the participants’ positive mood of “vigor” compared with walking through city areas. Furthermore, a significant correlation was found between participants’ trait anxiety levels and their changes in the subscale of “depression-dejection” of POMS after walking through forest areas. A more effective reduction in the feeling of “depression-dejection” after walking through forest areas was observed for participants with high trait anxiety levels than for those with normal and low trait anxiety levels.¹

¹ Song, Chorong; Ikei, Harumi; Park, Bum-Jin; Lee, Juyoung; Kagawa, Takahide; Miyazaki, Yoshifumi. 2018. "Psychological Benefits of Walking through Forest Areas" *Int. J. Environ. Res. Public Health* 15, no. 12: 2804. <https://doi.org/10.3390/ijerph15122804> (Accessed 2/21/21).

This study showed the psychological benefits of walking through forest areas and identified a significant correlation between psychological responses to walking through forests and trait anxiety levels.

We do know at least one piece of this puzzle: "Essential oils [phytoncides], which are distilled from plant materials have been shown to reduce the effects of depression anxiety, and stress . . ."2

One prescription of which we all might take advantage? Breathe deeply midst the forest's fractals and green!

Diplomatic Relationships

- ✠ The American beech is a host tree for at least 19 species of butterflies and moths, including the emperor moth and the red-spotted purple butterfly.
- ✠ Songbirds like northern flickers, woodpeckers (hairy, red-headed, red-bellied, and pileated) tufted titmice, blue jays, American crows, and white-breasted nuthatches; game birds like wood ducks, quail, grouse, and wild turkey; and mammals, like white-footed mice, chipmunks, gray fox, and flying squirrels, raccoons, deer, and black bear eat the fruit of the tree, the beechnut.
- ✠ In addition to the nuts providing food for game animals, beechnuts are used in fattening poultry.
- ✠ Beechnuts yield an edible oil.

² Julia Previn, *The Healing Magic of Forest Bathing: Finding Calm, Creativity, and Connection in the Natural World* (New York: Ten Speed Press, 2019), 76.

✠ Native Americans believed that a beech tree was protection against lightning, a belief that was adopted by early settlers (“A beech is never stuck by lightning.”) This “folk belief” recently had scientific verification. “The beech really does resist the electric current much more vigorously than the oak, poplar or willow. The general conclusion from a series of experiments is that trees “poor in fat” like the oak, willow, polar, maple, elm and ash oppose much less resistance to the electric current than trees “rich in fat” like the beech, chestnut, linden and birch.”³

✠ “Arborglyphs,” “dendroglyphs,” and “silvaglyphs” are all words that describe the results of the ancient tradition of carving shapes and/or symbols into a living tree. In the case of the beech, depending on who’s opining, this is the species of tree most associated with books, knowledge, and creativity. The smooth-skinned, thin, light grey bark of beech trees has often proven irresistible to those wishing to immortalize their true love with a heart-bound set of initials or their presence by carving their name and the date for future generations to see. The carving scars easily and remains legible as the tree grows.

However, carving into a tree’s bark may damage the tree, by allowing insects or fungi to enter the tree’s interior, setting the stage for the deadly beech bark disease, and/or by damaging the phloem, the vascular tissue that conducts sugars downward from the leaves, under the bark.

A Tourist’s Testimonial

The quantity of water loss in transpiration is often surprisingly great. It has been estimated in one case that a beech tree

³ Harriet L. Keeler, *Our Native Trees: And How to Identify Them* (New York: Charles Scribner’s Sons, 1905), 383.

110 years old, in one summer transpired approximately 2250
gallons of water . . .⁴

—Joseph Young Bergen and Otis William Caldwell

Tree-Tripping

A beech tree is a wonderful partner with whom to begin nature journaling. I first became aware of the activity of nature journaling two decades ago when I was designing a writing course “Journaling as Writing Tool” for college students and happened across the beautiful book, *A Trail Through Leaves: The Journal as a Path to Place*, by Hannah Hinchman⁵, a Wyoming artist, writer, and naturalist. The book both shows examples of and explains how to keep a nature journal. Hinchman recommends the books of another nature journalist, Clare Walker Leslie,⁶ that presents additional examples. John Muir Laws, a scientist, educator, and author⁷, who teaches nature journaling, defines it as “a strategy that we use to help us look more deeply into the world, to see things that have been around us our entire life, but we’ve never noticed . . . and also to be able to remember these details.”

Why a beech tree? From a beech tree’s unusual cotyledon (seed leaves) to its habit (architecture), from its stiletto beech buds to its beechnuts, from its wide-spreading roots to its silvery bark, there is much to note and sketch. But then, I share a beloved

⁴ Joseph Young Bergen and Otis William Caldwell, *Practical Botany* (Boston, MA: Ginn and Company, 1911), 18.

⁵ Hannah Hinchman, *A Trail Through Leaves: The Journal as a Path to Place* (New York: W.W. Norton & Company, 1999).

⁶ Among other books, Clare Walker Leslie (clarewalkerleslie.com) is the co-author of award-winning *Keeping a Nature Journal: Discover a Whole New Way of Seeing the World Around You* (North Adams, MA: Storey Publishing, 2003)

⁷ John Muir Laws (johnmuirlaws.com) is author of *The Laws Guide to Nature Drawing and Journaling* (Berkeley, CA: Heydey, 2016) and *How to Teach Nature Journaling: Curiosity, Wonder, Attention* (Berkeley, CA: Heydey, 2020)

beech tree, situated on the property line of our backyards, with my neighbor to the east, and have the opportunity to watch it in all its seasons.

Of course, if you don't have a beech tree in your vicinity, you could always go find one to observe, to depict on paper with notes and pencil lines, or instead you might to go with what you *do* have around you. Make a list of trees you can visit, identify them, and then keep a notebook of what you notice, what you see from day to day, season to season. My beech tree hosts a dray of gray squirrels every year, so my nature journal might note how many babies appear come spring.

All you need to create a nature journal is observation time, any sort of notebook you like, something you can write and sketch with; a pencil will do, and the willingness to see⁸. If you possess an artistic bent, you may want to try pens and/or watercolors to enliven your sketches. While my mother is an artist, I tend to stick to words and simple sketches of some detail that catches my attention. I do like creamy paper with some tooth to it. Some recommend radiograph pens. You do not need to have an artistic temperament to be able to look at a tree and translate what you see onto lines on a page. Should you try nature journaling, you may discover you've found a form of meditation that suits you.

When you go nature journaling with trees, you may want to begin by:

- Dating your entry
- Identifying the tree
- Considering where is the tree is in its annual cycle:

⁸ *The Zen of Seeing: Seeing/Drawing as Meditation* by Frederick Frank (NY: Vintage Books, 1973) is a helpful guide to this process.

- Is the tree dormant?
- Is the tree budding?
- Is the tree leafing?
- Is the tree flowering?
- Is the tree producing its fruit?
- Are the tree's leaves changing color?
- Is the tree dropping its leaves?
- What do you notice about how the tree looks today?
- Are there fungus, insects, birds, and/or animals in community with this tree?
- What do you wonder about this tree?

Here are some simple things to draw:

- A leaf
- A flower, fruit, and nut
- A branch with leaves on it
- The tree's trunk
- The tree's roots
- The habit—the shape of the entire tree.

You may want to go online to see examples of how ordinary people—not necessarily writers or artists—keep nature journals. About six weeks after the COVID-19 novel coronavirus arrived in Britain, the Natural History Museum in London posted “How to Make and Use a Nature Journal,”⁹ a perfect stay-at-home and enjoy-the-

⁹ <https://www.nhm.ac.uk/discover/how-to-make-and-use-a-nature-journal-to-record-your-wildlife-obs.html> (accessed 10/19/20)

outdoors activity. This natural history museum was not alone. As the virus spread, so did the activity. Other natural history museums came up with particular projects for nature journals or “field journals,” as they are also called. The Carnegie Museum of Natural History, the North Carolina Museum of Natural Sciences, and the Smithsonian Center for Education and Museum Studies are just a few other natural history museums with online instructions for making a nature journal or for projects involving nature journaling. Some offered 2020 summer programs online for kids and/or teens involving nature journaling. Search online for “examples of nature journals” to view some truly amazing and inspiring pages from the nature journals of “citizen scientists.”

And, in fact, observations from some nature journals may be submitted online to iNaturalist (inaturalist.org), a joint initiative of the California Academy of Sciences and the National Geographic Society, advertised as the largest groups of naturalists in the world, a site where you can record your observations, share with fellow naturalists, and discuss your findings.

Tree Dreams

- 🔗 Do you know any beech trees?
- 🔗 Have you ever seen the scarring resulting from human carvings on the bark of a beech tree?
- 🔗 Have you lived near—and through—the destruction of a natural area?
- 🔗 Have you ever participated in trying to save a natural area? Did the natural area include trees?

🔗 Are there natural areas with trees you'd like to help preserve? Is there an organization involved in saving this area?

Tree's Big Idea: **TRANSPIRATION**

Transpiration is the process of water movement through a tree. This process includes water being taken up by the roots, the water's movement through the tree's xylem¹⁰, and ultimately its release into the atmosphere as water vapor from the tree's leaves. Only a very small percentage of water—3% or less—taken in by the tree from the soil is used for growth or photosynthesis. In photosynthesis, carbon dioxide enters leaves through open pores on the underside of the leaves called stomata. The open stomata also allow water vapor to escape. Water is pulled up the tree under tension as water is lost from the leaves by transpiration.

However, some researchers think the murmurs from the trees may be coming from:

. . . tiny bubbles of carbon dioxide in the narrow water-filled tubes. Bubbles in the pipes? That means the supposedly continuous column of water is interrupted thousands of times. And if that is the case, transpiration, cohesion, and capillary action contribute very little to water transport.¹¹

So much we don't know.

¹⁰ A tree's xylem (aka sapwood) is the vascular part of its wood that carries water and minerals up the trunk.

¹¹ Peter Wohlleben, *The Hidden Life of Trees: What They Feel, How They Communicate—Discoveries from A Secret World* (Vancouver/Berkeley: Greystone Books, 2015), 59.