MISSOURI
ForestKeepers MONITOR
SPRING 2015

INSIDE THIS ISSUE:

Soil Health

Contributed by Theresa Dunlap with the St. Charles County Soil and Water Conservation District

THE NATURAL RESOURCES CONSERVATION Service (NRCS) and the Soil and Water Conservation Districts (SWCD) in Missouri work with landowners and farmers to protect and enhance the natural resources that sustain farming, food production and, consequently, all life on Earth.

Over the past 50 years or so, the focus has been on "saving" the soil through the reduction of soil loss to erosion. Conservation practices such as grassed waterways and terraces have done an impressive job of keeping topsoil on the farms and reducing the amount of sediment and attached chemical residues that get into our nation's waterways.

In recent years, the focus is shifting from preventing soil erosion to building soil health. It's still important to keep soil where it is, where it can grow food for animals and people; but "feeding" the soil itself is proving to be vital to the health of the plants, animals and people that depend on it.

Soil is "fed" naturally through the beautiful cycles of nature; how we treat the soil will also determine its health. Repeated tillage, overuse of chemicals, stripping of vegetation, and repeated disturbance and compaction of soil will kill its life-giving force.

There is so much life in the soil. **In fact, there are more living organisms in one shovelful of productive soil than there are people on Earth.** Of course, most of that life is microscopic, but each organism plays a vital role in healthy soil and productive vegetation (as well as to the cycling of carbon and nitrogen). Protecting the life cycle within the soil will improve its ability to sustain plant life above.

CONTINUED ON PAGE 2

MISSOURI FORESTKEEPERS NETWORK

MISSOURI FORESTKEEPERS NETWORK

MISSION:
To develop a network of informed citizens working to conserve, sustain and enhance Missouri's urban and rural forest resources through volunteerism, advocacy, and management.

EDITOR:
Donna Coble

TECHNICAL EDITOR:
Nick Kuhn

ASSISTANT EDITOR:
Colleen Duhart

CONTRIBUTOR:
Mike Walsh

DESIGN:
501creative, inc.

ILLUSTRATIONS:
Courtesy of the Missouri Department of Conservation

The Missouri Forestkeepers Network is a statewide volunteer program administered by Forest ReLeaf of Missouri in partnership with the Missouri Department of Conservation. Membership is free.

FOR INFORMATION, CONTACT:
Forest ReLeaf of Missouri
4207 Lindell Blvd.
Suite 301
St. Louis, MO 63108
314-533-LEAF
(314-533-5323)

information@forestkeepers.org
www.forestkeepers.org

printed on recycled paper with 30% post-consumer waste

Soil Health

CONTINUED FROM PAGE 1

A healthy soil will also absorb and hold rainwater longer and provide it more efficiently to plants, which is very important during times of drought. Organic matter holds 18 to 20 times its weight in water, and in the top six inches of soil on a one acre plot that would translate into 27,000 gallons of water.

NRCS and SWCD are promoting "cover crops." The benefits are that the soil is disturbed less, is covered and therefore protected from the erosive impact of raindrops, and is "fed" through the decomposition of the plant material. There will be more biological life in the cover-cropped field, which aids in decomposition and increases nutrients.

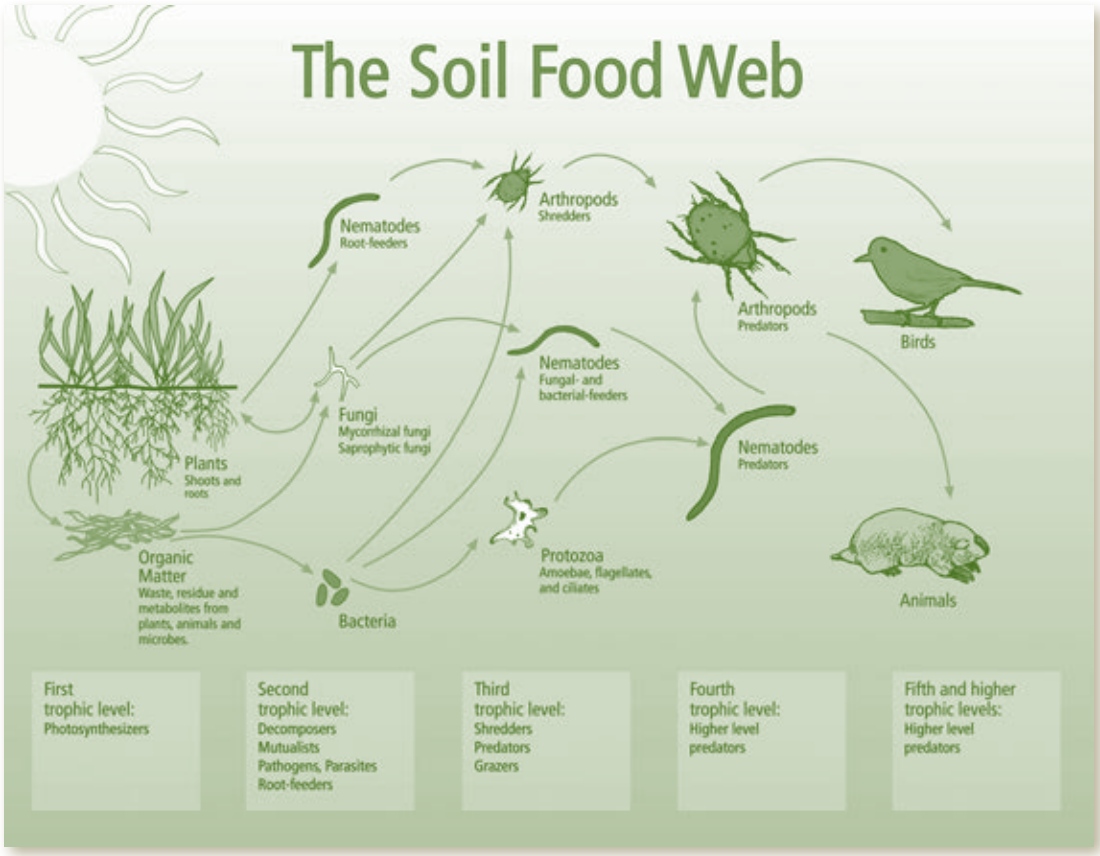
A forest or woodland, or any area with lots of mature trees, will have soils that have been fed by leaf litter and dead and decaying plants and animals, which is much like using a cover crop. Forest land is typically very high in organic matter.

To learn more about soil health, visit **http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/health/.**

STATEMENT FROM NRCS WEBSITE:

Soil is a living and life-giving natural resource.

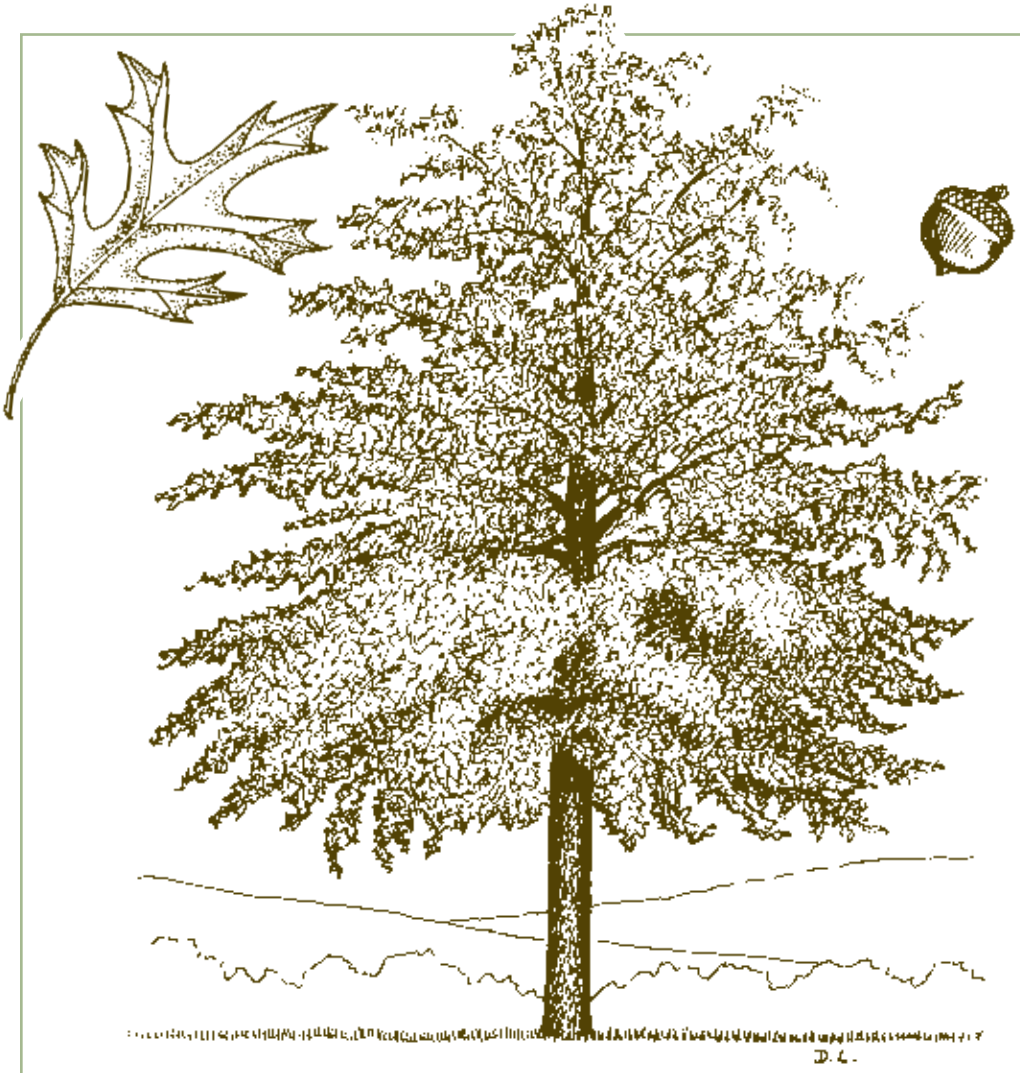
As world population and food production demands rise, keeping our soil healthy and productive is of paramount importance. **We believe improving the health of our Nation's soil is one of the most important conservation endeavors of our time.**



FEATURED SPECIES:

PIN OAK

Quercus palustris Muenchh



THIS TREE GROWS IN BOTTOMLAND forests in floodplains, along streams, rivers, sloughs, and edges of swamps.

FRUIT: Acorns, solitary or in clusters of 2-3, small, ⅜ to ½ inch long with small caps.

LEAVES: Simple, alternate, 4-6 inches long, 2-5 inches wide, usually broadest in middle, lobed with bristle tips, upper surface dark green, lower surface paler with tufts of hairs in the axis of the veins.

APPEARANCE: Large tree up to 100 feet with a tall straight trunk, a pyramid-shaped crown, and drooping branches on the lower ⅓ of young to mature trees.

Pin oak has been commonly found growing as street trees and yard trees since it was first cultivated for this type of use as far back as 1770! It is a relatively short-lived oak compared to others in that it only lives for 150 years or less. Compare this to Bur oak that can grow for more than 600 years. Pin oak lumber is commonly harvested to produce fuel, shingles, interior finishing such as flooring, and for general construction purposes.

SOURCE AND IMAGE: *Trees of Missouri* by Don Kurz

Treevia

FUN FOREST FACTS TO KNOW AND TELL!

Did you know that our native oak trees in Missouri are divided into two different subgroups? Our white oak group species have acorns that mature in 6 months, do not have bristle-tipped leaves, and have water-tight wood. Our red oak species have acorns maturing in 18 months, have bristle-tipped leaves, and do not have water-tight wood.

Q&A

Q: **Why are my Pin oak leaves turning yellow?**

A: Many of us have Pin oaks on our property or nearby. If that tree were planted, chances are, the leaves could turn yellow as the tree grows older. Most of the explanation can be attributed to iron availability in the soil due to soil pH. You normally find Pin oaks growing in acidic, bottomland soils. When we plant them in alkaline soils, like clay soils, the amount of iron available is "tied up" in the soil due to soil pH and is not available for the tree. When this happens the leaves will become "chlorotic" and turn yellow due to the inability of the tree to capture iron from the soil. Many species can do just fine in clay soils, for more information contact mike@moreleaf.org.

Have a question about Forestkeepers, trees, or what you read in this issue? Contact us at *information@forestkeepers.org* or by mail to: *Q&A*, c/o Forest ReLeaf of Missouri, 4207 Lindell Blvd., Suite 301, St. Louis, MO 63108.

Welcome New Members

We would like to welcome the following new members to the Missouri Forestkeepers Network:

Brendan Ackerman
Janet Altmann
Agustin Alvarez
Steven Anderson
Jessica Brown
Sara Collazo
Richard Coon
Matthew Donnelly
Amber Flaugher
Sharla Friend
Linden Friesen
Emily Geest
Nicholas Grable
Richard Harrison
Sean Kammerlohr
Drew Keefer
Craig Kunde
Tyler Luetkemeyer
Robert O'Connor
Eric Sands
Steve Schenck
Lauren Schnoebelen
Shaun Sigrest
Amy Stotler
Desiree Teter
Sharon Upchurch
Samantha Villaire
Garrett White

Do you know someone who might be interested in becoming a Forestkeeper? Call 314-533-5323 or visit *www.forestkeepers.org* for details on joining our Network of over 2,500 citizens who are working to conserve, sustain and enhance Missouri's urban and rural forest resources.

Family Activity

A seasonal project to enjoy with the whole family

Painting with Soil

SOILS ARE ONE OF OUR MOST IMPORTANT NATURAL RESOURCES, BUT THEY ALSO offer beauty that we often overlook. Soil colors serve as pigments in bricks, pottery and art work, among many other every day items. The color and texture of soil painting is fascinating and a creative opportunity for all ages.

Materials Needed:

- Soil from different areas (dried in air)
- Hammer/mallet
- Mortar and pestle (rubber-tipped)
- Paper cups (4 oz.)
- Pencils
- Ink pens (black, different tip sizes)
- Paint brushes (different kinds and sizes)
- Artist acrylic (clear gloss medium) OR Elmer's glue works too
- Sponges and rags
- Watercolor paper
- Masking tape
- Knee-high panty hose

Prepare Your Soils:

1. Gather many colors of soil
2. Place dried soil on a piece of paper and crush into pieces with hammer/mallet
3. Place some of the crushed soil into a mortar. Use a rubber-tipped pestle to crush the soil into a fine powder. Repeat to crush all of the different colored soils.
4. Place some of the powdered soil in a paper cup. Wrap a knee-high panty hose over the top 2 or 3 times. Turn cup upside down over a piece of paper and gently shake out finely powdered soil.
5. Place the different soils in paper cups — notice the different colors and textures.

Begin Your Artwork:

1. Lightly sketch artwork on watercolor paper with pencil, then use ink for permanent lines.
2. With masking tape, carefully tape paper edges to table. This is done so that the artwork will dry flat.
3. Pour small amount of artist acrylic in small paper cups. Add small amounts of finely powdered soil. You may want to add a few drops of water to the soil mix.
4. Experiment with depth of color and mixing the different soils.
5. Use different sizes and kinds of paint brushes, sponges and rags. Experiment and have fun!
6. Layer the colors. When your artwork is dry, you may want to apply another layer of soil paint.
7. You may want to use a black ink pen to make finishing touches on your artwork.
8. Display your artwork once it has completely dried!

Activity adapted from Soil Science Society of America, courtesy of the USDA National Resources Conservation Service.

FORESTKEEPERS BULLETIN

Know Your Soil

Nick Kuhn
Community Forestry Coordinator, ISA Certified Municipal Specialist & TRAQ with the Missouri Department of Conservation

WHEN ASSESSING TREE HEALTH AND WATERING needs, you should always check soil moisture first. Dry soil may dramatically affect tree health and waiting to water until a tree looks poor is not good management. Wilting is most people's indicator that their soil is dry but many things happen internally to a tree before leaves start to wilt. Two that we all should be concerned with are that photosynthesis and transpiration is halted to reserve water in tree tissues. This can lead to poor health, reduced stored energy, and wilting which is an outward sign of internal processes the tree is using to try and survive. Stem and root growth is halted leading to poor appearance, stunted growth, and lack of leaf cover to provide energy.

You can check your lawn, trees, fields and forests yourself by following a few simple steps. Consider the site you are concerned with checking. Look at the terrain and divide the area into upper and lower, east and west, forest and field — whatever makes that site different. You may need to consider that site over a few seasons to get a true idea of where water stands, where the trees or grass goes dormant early; use your knowledge and senses to read the landscape. Then take samples in each area at different times. Late spring after heavy rains, short summer rains, long hot summers, or windy autumns. Follow these steps and use the guide to determine your soil moisture:

1. Obtain a soil sample at the selected depth using a probe, auger, or shovel.
2. Squeeze the soil sample firmly in your hand several times to form an irregularly shaped "ball."
3. Squeeze the soil sample out of your hand between thumb and forefinger to form a "ribbon."
4. Observe soil texture, ability to ribbon, firmness and surface roughness of ball, water glistening, loose soil particles, soil/water staining on fingers, and soil color. [Note: A very weak ball will disintegrate with one bounce of the hand. A weak ball disintegrates with two to three bounces].
5. Compare observations with photographs and/or charts to estimate percentage of water available and the inches depleted below field capacity.

CONTINUED ON NEXT PAGE

CLIP AND SAVE

Previous
Technical Bulletins

More than 50 previous Technical Bulletins covering topics such as pests and invasive plants, managing wetlands or woodlands and proper pruning techniques may be accessed online at www.forestkeepers.org or by contacting Forest ReLeaf at info@moreleaf.org (314-533-5323).

Know Your Soil

CONTINUED FROM PAGE 5

The "feel and appearance method" is one of several scheduling methods used in irrigation water management (IWM). It is a way of monitoring soil moisture to determine when to irrigate and how much water to apply. Applying too much water causes excessive runoff and/or deep percolation. As a result, valuable water is lost, along with nutrients and chemicals, which may leach into the ground water. The feel and appearance of soil varies with texture and moisture content. Soil moisture conditions can be estimated, with experience, to an accuracy of about 5 percent. Soil moisture is typically sampled in I-foot increments to the root depth of the crop at three or more sites per field. It is best to vary the number of sample sites and depths according to crop, field size, soil texture, and soil stratification.

By checking soil moisture at different times of day and on a routine after rain events, you can learn drainage patterns, water holding capacity, and your tree and plants response to drought or excess water. To learn more, visit the Natural Resource Conservation Service (NRCS) online, or type in the following link for specifics on estimating water in your soil:

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_051845.pdf

If you are unable to view the document online, you can request a copy be mailed to you directly by calling 573-876-0911 and request publication *PA-1619 Estimating Soil Moisture By Feel & Appearance.*

Improving Your Tree, Shrub and Plant Health and Survival

SOIL TYPE, COMPACTION, AMOUNT OF ORGANIC MATTER, BASIC CHEMISTRY, PORE SPACE, DRAINAGE RATES AND ALL FACTORS TO KNOW ABOUT YOUR SOIL THAT WILL IMPROVE TREE, SHRUB AND PLANT SURVIVAL AND HEALTH.

- **Soil type is key.** Clay soil acts different than sandy or silty. Drainage, drying effects, and expected chemistry of soil are all different in each type. Plant species prefer different types and expected conditions of each type.
- **Organic matter and the changes it makes to soil is vital to soil health**. Healthy forest soils usually have enough while urban soils are poor. Adding mulch adds nutrients and these vital components.
- **Basic pH and nutrients like nitrogen, potassium and phosphorous provide building blocks for all plants to grow.** Always check pH as too high or low will restrict or make available all nutrients found in soil and dramatically affect tree and plant health. A soil test tells you what you need and only add for soil health NOT to force growth of trees and plants.
- **Pore space in soil lets tree roots breathe and provides places for water to infiltrate and adhere to soil particles.** Forest or undisturbed soils provide excellent pore space allowing water and organic matter to reach and feed deep roots. Compacted urban or frequently traveled soils get compacted and pore space is lost for years. This issue is known to gardeners and farmers as not to till wet soils because it stirs soil layers and removes pore space. Urban life, including occasional vehicle traffic and even one days' worth of construction, can impact soils for years.
- **Drainage rates will help you decide what to plant and how often watering is needed.** A test to perform before planting is to dig a hole and fill with several gallons of water. Time how long it takes to drain and check how wide soil got saturated. This test will help you choose species at planting time and how much water is needed in dry times.

CLIP AND SAVE

Show Me Trees for All Seasons Photo Contest

THANK YOU TO ALL FORESTKEEPERS WHO HAVE PARTICIPATED SO FAR IN THE SHOW ME TREES FOR ALL SEASONS PHOTO CONTEST!

CONGRATULATIONS TO OUR WINNERS SO FAR

Summer Round: **Besa Schweitzer**
Fall Round: **Sarah Moonier**
Winter Round: **Jessica Bell**
Spring Round: **Daisy Dreisewerd**

We will need YOUR help in determining a grand prize winner when the four seasonal winners go head to head this July. Be sure to "like" Forestkeepers on Facebook, (**https://www.facebook.com/missouriforestkeepersnetwork**), and the photo (summer, fall, winter and spring) that gets the MOST individual likes between when we make the kickoff announcement and July 31st wins a Forestkeeper package chock full of amazing gifts.

Emerald Ash Borer in Missouri

Contributed by Rob Lawrence

Emerald ash borer (EAB) has been detected in Wentzville. This is the third detection in the St. Louis area since the first detection about this time in 2014 in Lake St. Louis (St. Charles County). This latest, also in St. Charles County, is only about 5 miles from the Lake St. Louis find. The second detection was downtown in the City of St. Louis in May.

The Wentzville find is in a residential subdivision and was reported by a landscape management company who saw dying ash trees with D-shaped holes. A Missouri Department of Agriculture inspector investigated and found plenty of EAB symptoms, plus captured two flying EAB adults by hand.

To learn more about EAB in Missouri, what is being done and what you can do, visit **http://extension.missouri.edu/n/2537**.

MISSOURI ForestKeepers MONITOR
c/o Forest ReLeaf of Missouri
4207 Lindell Blvd., Suite 301
St. Louis, MO 63108

Non-Profit
Organization
U.S. Postage
PAID
St. Louis, MO
Permit No. 3900

MISSOURI FORESTKEEPERS NETWORK

Have YOU Registered Online Yet?

WHILE WE WILL STILL MAIL HARD COPIES OF reports for you to fill out and mail in, we encourage Forestkeepers to sign up online (if you have not done so) and take advantage of online reporting. You can even use the hard copy received in the mail to make notes and then submit your data online! Using the database leaves much less room for error and allows the Missouri Department of Conservation access to data almost instantly.

Many who have taken advantage of submitting their data online have already received their dry bag, perfect for camping and float trips. Another SURPRISE incentive will be available for all of those who submit their data online beginning this fall (*Fall Activity Reports, Tree Observations* and *Mast Survey*). Look for a hint in the photo to the right!