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## JOHN'S CORNER:

### NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

*by John Ferguson*

Often one of the goals for gardeners is to provide habitat for wildlife. This can range from butterflies, moths and hummingbirds to birds and small mammals. Over the last few years I have been studying the role of fire in nature and its importance in creating habitat. Many readers of this newsletter have very large lots of an acre or more to weekend farms with dozens of acres or more. The benefits of using fire as a management tool continues to increase as we learn more about the role of fire in preserving eco-systems.

A new paper in the journal **Frontiers in Ecology and the Environment** (July, 2019) looked at the role of fire in preserving endangered species. In southern states the endangered species act has been used to justify the use of prescribed burns in our pine forests. As a result, a once endangered bird, the red-cockaded woodpecker has made significant recovery in recent years. However, in the western states it is the opposite. In that area they choose not to use prescribed burning and as a result the spotted owl population continues to decline. Both bird species require the more open habitat created by fires that remove understory and other unwanted species.

In the west this idea of not using prescribed fires has created a massive buildup of fuel on the forest floor that has led to the disastrous wildfires on the west coast this past year. Hats off to the John Warner and the Texas Forest Service team in their management of the Jones State Forest off FM1488 where prescribed burns are a regular management tool. To see a small controlled burn at the state forest:

<https://www.facebook.com/WilliamGoodrichJonesStateForest/>



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Texas Park and Wildlife, NRCS, Texas Forest Service and other agencies along with the prescribed burn associations can help landowners use this tool to improve their properties.

Here is a link to a short video by the City of Austin's fire department uses prescribed burns and how their Wildfire Division conducts a prescribed burn: [Click to watch this video of fire cadets conducting a training burn at Indiangrass Preserve.](#)

I read a paper this morning in the Journal Nature Geoscience (2019) from researchers studies at several universities. They found that although wildfires from landscapes emit carbon during the burning, however the rapid regrowth re-captures much of the carbon that was released. They also found that a lot of pyrogenic carbon is produced (charcoal, biochar, etc.) that is stable and locks up carbon for centuries or more in the soil. Over time there is a net storage of carbon in the soil by wildfires. They point out that this does not occur if forests or peatlands are burned as it may take hundreds or even thousands of years to recapture that carbon.

**We** have often talked about the dangers of eating genetically modified crops (GMO's). A bioengineer (Dr. Caius Rommens) who worked for Monsanto has revealed that the GMO potatoes contain and accumulate all kinds of deadly substances. He worked to genetically engineer over 5,000 varieties of potatoes and he found that NONE of these variations increased the vigor or yield potential of the plant. He later found that these GMO potatoes absorbed more toxic chemicals and at least two toxins that were not absorbed by regular potatoes. Additionally, the GMO potatoes had less flavor. They also hid bruised areas so consumers would buy potatoes with rotten areas that could cause illness. Some varieties also



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contained an antifungal protein that triggers violent allergic attacks in humans. He recently published a book about the dangers of GMO potatoes called, “ Pandora’s Potatoes ”. The best way to protect one’s family is to purchase organic potatoes or at least Non-GMO varieties.

Potatoes are an easy to grow plant in our vegetable gardens or even a spot in our flower beds. A trick I use is to plant the cut potato into pieces and plant them as normal. As the leaf growth appeared, I place straw around the plant. As it grew taller, I would add more straw eventually reaching 12-15 inches thick. What I learned as the potatoes matured, I did not have to “dig” them. The potatoes would grow at the boundary of the soil and straw mulch. I could lift up the straw mulch and just break off the mature potatoes and leave the smaller ones and put the mulch back in place. This allowed the smaller ones to mature and I could repeat the process several times. This method yields far more potatoes per plant than digging them up.

**A** study by the International Wines and Spirits Record shows that organic wine consumption continues to grow rapidly and is expected to hit 87.5 million cases annually by 2022. Europe will account for more than 78% of global sales. Several studies have found that organic wines just taste better and they do not have the toxic chemicals in conventionally produced wine.

Note: My wife and I often visit Rohan’s Meadery and Winery located between La Grange and Round Top. They have some excellent wines and meads including some sparkling wines. Best of all they are all organic. They also sell raw unfiltered honey that is the best I have ever had. Visit their website for more information: <https://rohanmeadery.com/>



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There are many methods to make compost, some of these are very fast and others are very slow. A report in the journal Environmental Science and Technology (June 2019) found that biodegradable food containers often contain chemicals called PFAS (per-and polyfluoroalkyl substances). If given enough time microbes will break down these chemicals. However, over 95% of all commercial composters in the United States use fast methods where these chemicals do not have enough time to biodegrade as it is a cheap way to produce a low-quality low-value compost. When this cheap compost is used the toxic chemicals are absorbed by the plants and into our bodies. As in all things, “One gets what they pay for”.

I recently read a paper titled, “The Orchard Ecosystem: Haphazard Mulching” published in the magazine Edible Landscaping by Michael Phillips. This paper was from his book, The Holistic Orchard: Trees Fruits and Berries the Biological Way . He states: quit worrying about the appearance of your garden and worry about the biology. Life thrives in a diverse environment hence this applies to mulch also. Our goal, plain and simple (in mulching) is to create fungal duff – that litter layer where mineralization and humidification take place. It is the preponderance of this fungal food that drive fungal dominance in our soils that we want for healthy trees and berries.

He explains that bark mulch (ex. pine or hardwood) which is high in tannins will suppress healthy plant growth in the garden and orchard alike. He talks about the issues and problems caused by many types of mulch then he goes into the good stuff. “Organic growers want ramial wood chips and ramial wood chips alone” applied directly to the living soil for a woody mulch. Note: At Nature’s Way Resources we call this same material made from hundreds of species our “Aged Native Mulch” rather than using the French word “ramial” since the 40 years of research was done at Universities in Quebec and published in French. He goes on to



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explain that levels of macronutrients and micronutrients are consistently higher in the leaves and fruit trees that are mulched using the material. Michael also authored the book:

**"Mycorrhizal Planet - How Symbiotic Fungi Work with Roots to Support Plant Health and Build Soil Fertility", Michael Phillips, 2017, Chelsea Publishing, ISBN: 978-1603586580**

Michael has written this book in a down-to-earth format that is practical, warm, and often humorous. All gardeners need to understand the information in this book. It is extremely up to date on the fungi-plant relationship and how critical it is, **IF** we want to grow beautiful flowers, delicious fruits, magnificent shrubs or trees.

Michael is a holistic farmer and writer who has authored several books on gardening. He has a gift of explaining complex science in layman's terms that anyone can understand. The book is full of pictures, diagrams, charts and tables to help the reader. When we have a functioning fungi-plant system that is working, most of our insect, disease and weed problems go away. He covers not only why and how the fungi-plant system works, but explains practices that destroy it and explains how to restore it in our gardens.

"This book will resonate with anyone who is fascinated with the unseen workings of nature and concerned about restoring the health of our soils, our climate, and the quality of life on Earth for generations to come."