

# THE SHADE TREE

A BI-MONTHLY BULLETIN DEVOTED TO NEW JERSEY'S SHADE TREES

**Volume 91 – March - April 2018 – Issues 3 & 4**

*This Issue Presents...*

A Note from our Executive Director  
NJ Federation Officers and Directors for 2017 – 2018  
Why Do Trees, Plants Make Us Feel So Good?  
LTE Page: Snow and Woody Plants  
Roots of Change for The Better  
A Eureka Moment for The Planet

## A NOTE FROM OUR EXECUTIVE DIRECTOR

There are minor changes on the horizon and I'm hopeful you will ride with me as we transition to running the operations of the Federation more efficiently so that we may better serve our growing membership and save trees at the same time!

Thank you if you have provided us with your email address so that we may send you our bi-monthly newsletter electronically. Thank you also to those of you who have notified the office that you would like to continue to receive a hard copy of the bi-monthly newsletter.

Please make special note that **OUR EMAIL ADDRESS HAS CHANGED: IT IS NOW "TREES@NJSTF.ORG"**. Be sure your records are updated accordingly.

The Executive Board is in the process of preparing this year's program for the 2018 Shade Tree Federation Conference to be held at the Crowne Plaza in Cherry Hill, NJ on Thursday and Friday, October 18-19, 2018. Stay tuned for some exciting details to be released as the year progresses!



## **BULLETIN OF THE NEW JERSEY SHADE TREE FEDERATION**

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# **NJ FEDERATION OFFICERS AND DIRECTORS FOR 2017 - 2018**

The New Jersey Shade Tree Federation held its 92nd Annual Business Meeting on November 29, 2017. It was held at Rutgers University, in Blake Hall on the Cook Campus in New Brunswick, New Jersey. At that meeting, the annual election of officers was held. The new officers and directors are listed below.

### **Officers:**

*\*Jason Grabosky, PhD – President, Rutgers University*

*\*Liz Stewart – Vice-President, River Edge Shade Tree Commission*

*Donna Massa, Executive Director*

### **Directors:**

**2018:** Bob Turner, Nelson Tree Service

Mary Evangelista – State of New Jersey

Vacant position with March 2018 resignation of Jim Nichnadowicz

*\*Brittany Carino – Atlantic City Electric*

**2019:** Michael Zichelli – Borough of Glen Ridge

Frank Gallagher, PhD – Rutgers University

William Comery – Borough of Paramus

Paul Cowie – Paul Cowie & Associates

**2020:** *\*Wayne Dubin – Bartlett Tree Experts*

*\*Brian Hartel – PSE&G*

*\*Barbra Ronca – Raritan Township*

*\*Richard Wolowicz – RichView Consulting*

*\*Elected at the 92nd Annual Business Meeting.*

# WHY DO TREES, PLANTS MAKE US FEEL SO GOOD?

Earth Talk, July 29, 2015

Trees are known to improve air quality by capturing six common air pollutants and toxic gases: ground-level ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. In fact, a single tree can absorb 10 pounds of air pollutants per year. In a study published in 2014, U.S. Forest service scientists and collaborators calculated that trees are saving more than 850 human lives a year and preventing 670,000 incidents of acute respiratory symptoms. The researchers valued the human health effects of the reduced air pollution at nearly \$7 billion every year.

“We found that, in general, the greater the tree cover, the greater the pollution removal and the greater the removal and population density, the greater the value of human health benefits,” said Dave Nowak of the U.S. Forest Service.

More recently, a 2015 study from the Centre for Research Environmental Epidemiology (CREAL) in Barcelona, Spain, found that children exposed to more greenery — as measured by satellite imagery of their schools and neighborhoods — demonstrated better attention skills and memory development. While the association was partly mediated by reductions in air pollution, Mark Nieuwenhuijsen, one of the study’s authors, noted that he and the study’s other researchers don’t think it’s all air pollution: “I think it’s also some kind of direct effect...you see quite a beneficial effect of green space on mental health.”

Numerous recent studies have focused on the positive effects that exposure to trees and nature has on our mental health. A recent study published in the journal *Nature* combined satellite imagery, individual tree data, and health surveys from 31,109 residents of the greater Toronto, Canada area, and found that people who live in areas with higher street tree density report better health perception compared with their peers living in areas with lower street tree density.

“People have sort of neglected the psychological benefits of the environment,” says Marc G. Berman, an author of the study and professor of psychology at the University of Chicago. “I’m very interested in how the physical environment affects the brain and behavior.”

Such studies correlate to the “biophilia hypothesis” associated with German-born American psychoanalyst Erich Fromm and Harvard evolutionary biologist Edward O. Wilson. The hypothesis proposes that humans have evolutionary biological and psychological needs attached with the natural world. According to the book, *The Biophilia Hypothesis*, co-edited by Wilson and Yale social ecology Professor Stephen R. Kellert, relentless environmental destruction could have a significant impact on our psychological and spiritual quality of life.

## **SNOW AND WOODY PLANTS**

“Snow is both friend and foe to trees and shrubs,” says Tchukki Andersen, staff arborist with the Tree Care Industry Association. “Snow causes its share of damage, as we all know, but in many cases, it also protects plants and their roots against extreme fluctuations in temperature that could damage or even kill them.”

Snow does cause four kinds of damage: bending; breaking; splitting and falling or uprooting. Whether woody plants will be damaged in one of these ways depends upon several factors. Coniferous evergreens, for instance, can bear more snow weight than broadleaf evergreens. A tree’s form can also be a factor in how well it will withstand heavy snow. Pine (low altitude), spruce and fir with spread branches are more likely to be damaged by heavy snowfall than trees with steeper angled branches.

Arborvitae is a good example of a plant that doesn’t handle heavy snow well. They tend to get tall, with multi-stemmed branches that are low to the ground.

“Snow will cause the branches to separate,” says Andersen, who doesn’t recommend planting arborvitae species in areas that get lots of heavy wet snow. She also recommends against planting them near buildings where snow can fall off the roof all at once in large piles. Small, rounded woody-stemmed plants would be a better choice but make certain to give them enough root space away from the structure.”

A tree’s structure is also a factor in whether it will be damaged by ice storms. A tree with good, right-angle branches will have less trouble than one with narrow crotches.

The type of snow is an important factor in potential damage to trees. Obviously, wetter snow is more damaging because it is heavier. And when the snow falls can be a factor. With a wet snow in March, when there are no leaves on the branches, the tree may be able to withstand damage pretty well. But that same snow in late spring or early fall, when the tree is filled with leaves, could add unbearable weight.

On the plus side, snow moderates root temperatures and provides moisture for spring. Snow helps insulate the ground, which is beneficial for two reasons. First, snow is a poor heat conductor, so the temperature changes very slowly from the top layer of the snow to the bottom. This keeps the ground from heating and cooling as air temperatures fluctuate. Heating and cooling often cause the ground to heave, which can be damaging to roots. Keeping the ground temperature more constant is a better environment for healthy roots. A covering of snow can help keep the ground warmer. Pile eight inches of snow on the ground and soil temperature seldom falls below 23 degrees.

“Finally, a little breakage isn’t always bad,” insists Andersen. “Nature prunes trees, too. A wet snow may break off small twigs and dead branches. It can do a good job of pruning that way.”

*This information is brought to you by the NJ Board of Tree Experts and the Tree Care Industry Association.*



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# WHY DO TREES, PLANTS MAKE US FEEL SO GOOD?

*Continued from Page 19*

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“Why do people bring flowers to the hospital all the time? Is it just superficial? Is it just a nice gesture, nice but not important? I would suggest that it is a much deeper recognition of the healing effects associated with affirming life,” Kellert told Yale 360. With more than 80 percent of Americans living in urban areas, this newer research implies an indispensable need for growth and implementation in urban tree planting, urban greening and biophilic design in educational institutions and places of business for enriched physical and mental health.

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## ROOTS OF CHANGE FOR THE BETTER

By Dr. Edward F. Gilman • Western Arborist, Fall 2009

### Roots in Natural Settings

Perhaps one in a billion seeds becomes a mature tree. In the forest, rodents eat seeds, some are devoured by insects, some seeds rot and some produce poorly formed root systems. Roots on trees in nature result from seeds germinating on the forest floor. Root systems on mature trees have distinctive characteristics that allow them to become large. They develop a spreading array of 6 to 12 relatively straight, large diameter roots growing radially and mostly horizontally outward from the trunk.

We can expect the trees we plant in a landscape to become large and produce benefits for everyone to enjoy. This makes it especially important that root systems have characteristics allowing them to grow to maturity. This process begins early in the first stage of propagation when the seed or rooted cutting forms its first roots.

### Propagating Liners

Most growers germinate seeds or stick cuttings directly in the field, in small containers or in common trays of substrate. Trees in common trays must be carefully transplanted to a container of some type or planted into field soil. Root defects can form when a tap root is bent at planting. Bent tap roots are hard to correct and can negatively impact tree health and stability.

Trees propagated in containers have their challenges, but technology can help. Roots grow around the pot and down to the bottom naturally or they are deflected there by container walls. This root form can result in tree instability and an abnormally deep root system not well suited for compacted soil in urban landscapes.

New propagation techniques including pots of thin paper, Oasis® cubes and others show promise in production quality root systems. Roots should be straight and may branch but should not be directed down or around the container wall. These defects can become a permanent part of the root system and hamper

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## **ROOTS OF CHANGE FOR THE BETTER** *Continued from page 22*

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proper growth or could predispose the tree to instability or an early death. Once roots begin circling or diving down the side of the pot they should be removed entirely when shifting to larger containers so retained root segments are radially oriented, relatively straight and growing mostly horizontally from the trunk. A look inside root balls that we typically plant shows that this not happening with enough regularity.

### **Roots in Container Nursery**

Root management continues in a container nursery that grows finished landscape trees. The goal is to produce a root system with straight roots growing radially away from the trunk, not deflected down or around the pot. If this does not occur, ‘shaving’ off the root ball periphery at each shift to a larger container appears to accomplish the same objective. Our research shows that if you manage irrigation carefully following treatment, caliper and height should not slow appreciably as a result of treatment. Some nurseries in Florida and California are practicing a version of this and learning how to use it. In addition, root flare should be at or close to the surface. If the root flare is just a couple inches beneath the substrate surface, roots deflected by the container wall can girdle the stem.

### **Roots in Field Nursery**

Roots pruned several times in the nursery grow denser with smaller diameter roots and fewer large roots. This has been shown to increase digging, survival and improve landscape performance. Nurseries that routinely move trees from one field to another during production automatically prune roots. Quality nurseries that produce certain trees without moving them practice root pruning in place.

### **Manage Roots at Planting**

Root defects including those circling the trunk or growing downward should always be corrected before planting. This can be done by cutting away the outer ½ to 1 inch of the root ball periphery where the roots are often matted or deflected around or downward by the inside surface of the container. It’s also important to remove excess soil on the top of the root ball down to where the first main roots originate to check for circling roots close to the trunk. A sharp digging space or hand-saw can be used to shave peripheral roots on container grown trees. Radically slicing of the root ball, a more conventional treatment is less effective. Roots matted against burlap on field grown trees should be also shaved at planting. If the root ball has no serious defects within the interior, this procedure will help ensure that most circling and diving roots are severed and that the new roots will grown outward, horizontal to soil surface to better stabilize trees.

# **A EUREKA MOMENT FOR THE PLANET: WE'RE FINALLY PLANTING TREES AGAIN**

By John Vidal, The Guardian February 13, 2018

China plans to plant forests the size of Ireland. Latin American countries have pledged to restore 20m hectares of degraded forest and African countries more than 100m hectares. India is to plant 13m hectares, and on a single day last year 1.5 million people planted 66m trees in Madhya Pradesh alone.

Much of Europe is physically greener than it was just a few years ago. England is to plant 50m trees in a new coast-to-coast forest and newly planted saplings now cover tens of thousands of hectares of former farmland in Ireland, Norway and France. From Costa Rica to Nepal and Peru to Mongolia, tree planting has become a political, economic and ecological cause, and a universal symbol of restoration, regrowth and faith in the future. More than 120 countries promised in 2015 to plant and restore large areas of forest as a response to the climate crisis, and the UN has set a target to restore 350m hectares by 2030 – an area bigger than India.

This enthusiasm for a greener world, expressed in trees, is inspiring and overdue. For 200 years forested countries barely knew what to do with their trees. They were treated as expendable and a waste of space. But in a great cultural shift, they have changed from being dark and fearsome places to semi-sacred and untouchable.

And why not? In this new ecological age, we have learned that trees have far more value than providing timber: they keep soils moist, prevent floods and provide shelter, store carbon, beautify landscapes, protect water sources, increase biodiversity, improve conservation and induce human wellbeing. So woe betide councils such as Sheffield that want to cut down trees. From the Newbury bypass protests 20 years ago to today's battles to save the ancient woodlands along the route of the HS2 rail link, there are few surer ways of angering people than cutting down their trees.

We are seeing a great global attempt to plant and restore forest land but paradoxically we are still losing tree cover. The rate of global deforestation has slowed by more than half in 25 years but tree loss jumped 50% in 2016, and 2017 is likely to have been worse.

The greatest threat to trees used to be loggers and the expansion of farming. These are still a threat, but human-caused deforestation and degradation make forests more fire-prone, and disease, droughts linked to climate change and harmful beetles are likely to kill trees in greater numbers.

In two years, many millions of hectares of forest have burned across North America, South America, Australia and Europe. Some of the wild fires were

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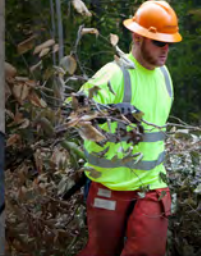
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deliberately set, but the spike reflects the warming of the land and is just one of the many consequences of climate change. Equally, tree diseases are now rampant and forests are succumbing to drought, disease and insects – much of it driven by climate change.

We must keep planting trees but think differently. Mass, state-sponsored tree-planting has a reputation for being expensive and badly managed. When forests are planted on an industrial scale, up to 20% of the trees may die within a few years. It costs around £720 a hectare to plant a forest, so it would cost around £250bn to plant the 350m hectares that countries have signed up to. That money is just not available to developing countries. But there is a solution. Increasingly a system known as agro-forestry is proving itself. Here, trees and shrubs are being grown around or among crops, often on degraded forest land. There are around 2bn hectares of this land around the world and restoring it with agro-forestry can not only put food on tables but create hundreds of thousands of jobs and address climate change.

There have been remarkable successes. Just 30 years ago Niger was an impoverished, drought-prone country. It had been persuaded by development experts from rich countries to intensify its farming by clearing large areas of land and planting huge fields of wheat and maize. It largely failed and the soil blew away. The story, recounted by the author Fred Pearce, goes that, to save time, young men returning from working abroad in the 1980s planted their crops without first clearing the land. To their surprise, their grain yields were much better than in neighboring fields that had been cleared of all woody plants. When the same thing happened the next year, the villages got the message: trees were good for their crops.

Since then, something like 200m trees in Niger have been planted or encouraged to naturally regenerate on 5m hectares. Food production has increased by 600,000 tons a year in the places where the trees have returned.

The government's part in this success story has been minimal. Agro-forestry spreads spontaneously as farmers and landowners see the benefit of combining crops with trees. The trees provide fodder for livestock, fuel, medicines, fruits and cooking oil and regenerating the land has cost perhaps \$20 a hectare. The Niger government helped mainly by changing the law to allow farmers who plant trees to profit more.

Pakistan, too, has shown spectacularly how to combat climate change and reduce instances of flooding and natural disasters. Thousands of nurseries have been set up in the past three years in Khyber Pakhtunkhwa province, communities have distributed for free more than 150m trees from the nurseries, existing forests have been densely planted and expanded, and large areas of degraded land have been allowed to regenerate naturally. The result will not be seen for many years, but more than one billion trees have been planted, and 350,000 hectares of forest and farmland regenerated for not much more than £100m – roughly what it would cost to build two miles of dual carriageway road in Britain.

Similarly, in Malawi, Mali, Ethiopia and elsewhere, farmers are now planting, protecting and managing many more trees on their farms. The Seno plains of Mali are unrecognizable from 30 years ago and in the Tigray region of Ethiopia, nearly 1m hectares of unused land have been regreened and transformed. Crop yields are increasing, and fewer young people are leaving their villages. And in India, the Araku project has seen local communities plant millions of fruit trees and coffee bushes. Nearly 15,000 acres have been revitalized.

Agro-forestry is changing farming and addressing climate change in many countries as surely as the “green revolution” swept through the world promising higher yields with chemicals in the 1960s and 70s. It depends for its success on changes in attitudes, shifts in behavior and improved management practices. It requires communities to work together, local knowledge and governments to reform land laws and help to educate. But it does not need large amounts of money.

Great areas of Indonesian, Congolese and Latin American forests are still being lost to the loggers and the palm oil companies, but we are seeing a heartening response to the linked climate and food crises. It is too early to think that we are ecologically more literate, but there is a real sense that governments are beginning to understand that change best comes from the grassroots and is both needed and possible.

*John Vidal is The Guardian’s former environment editor*

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