

Plant the Right Tree in the Right Place the Right Way

by Pam Louks, Community & Urban Forestry Coordinator and Certified Arborist for the Indiana Department of Natural Resources, Division of Forestry

Right tree, right place, right way are the three "R's" of tree planting. Choosing the right tree for the right place and planting it the right way can go a long way to creating and replenishing a sustainable urban forest. A sustainable urban forest is one that is healthy and mature enough to offer a multitude of benefits. It also includes newly planted trees that are selected, planted and cared for to ensure a long life—thus creating a sustainable urban forest.

The benefits of trees that grow into a sustainable urban forest are enormous. Consider the urban forest canopy in Chicago, which annually removes 15 metric tons of carbon monoxide, 84 metric tons of sulfur dioxide, 89 metric tons of nitrogen dioxide, 191 metric tons of ozone and 212 metric tons of particulate matter (D. Nowak, U.S. Forest Service Urban Forest Ecosystem Research Unit). If that can happen in Chicago, think how Indiana's air quality could be improved if the right trees were selected for the right place and planted in the right way.

According to the U.S. Census Bureau, more than 75 percent of Hoosiers live in cities, towns and suburban areas. We have allowed our woodlots to be bulldozed, crop fields to be filled with homes and shopping centers and edges mowed for that just perfect look. Many large, mature trees have been removed to accommodate needed roads, highways, new curbs and sidewalks.

All of these practices have created a void of mature trees. Many of the newly planted trees in these areas do not survive into maturity. They are planted, they die, they are replanted, they die, and the cycle continues.

This type of tree planting does not do the Earth or its inhabitants any good because the trees are not allowed to reach maturity. The more mature a tree is the more benefits we derive from it. Dying trees do not help create a sustainable urban forest, which means cities and towns will not have mature trees providing their many benefits.

A sustainable urban forest is important for many reasons. . .

TREES!

- Give us oxygen
- Reduce our energy consumption if sited and planted properly
- Attract wildlife
- Combat many pollutants and collect particulate matter from the air
- Give us cleaner water by resulting in less runoff and erosion and preventing the transport of sediment into streams.
- Raise property values by as much as 10 percent.
- Increase the economic viability of our cities and towns. People are more prone to shop in green areas. Businesses are more apt to relocate to these areas.
- Reduce domestic violence (Human Research Laboratory, Kuo and Sullivan).
- Decrease stress

The benefits of the largest plants on earth are endless, but only if they live. The Community and Urban Forestry

(CUF) program of the Department of Natural Resources (DNR), Division of Forestry, provides federal grant dollars to cities, towns and non-profits to enhance or establish urban forestry programs. We try to ensure that the tree planting components of these projects are ones that will result in a sustainable urban forest, which will provide benefits for many, many years.

And, yes trees and roads can live in harmony. Trees need to be planned into the projects. That means that a planting strip of six or more feet needs to be planned into the project in order to accommodate large trees that will grow into maturity. Small trees need strips at least three feet wide and medium trees need four to six feet of planting space. The width of the tree lawn determines what size tree can be supported by the soil and water in the space.

The more progressive communities in Indiana who have urban forestry programs have ordinances that determine spacing, distance and pruning requirements so that trees will not interfere with traffic signs, become visual hazards to drivers,



Trees and roadways can live in harmony.

interfere with traffic flow, pedestrians or tall vehicles.

Not only do we need to select the right tree for the right place and consider how large the tree will grow, we need to plant the tree right. And, in Indiana, that is a problem that I see quite often. Trees all over the state are being placed in sites that are too small and they are being planted incorrectly.

The CUF program receives many calls regarding newly planted trees that are dead or declining. Generally, the stress is not caused from transplant adjustment, but from improper planting techniques.

To combat this problem, the CUF program has developed tree-planting guidelines to guide tree planters. The International Society of Arboriculture, The US Forest Service, the Indiana Urban Forest Council, Purdue University, School of Forestry and the Indiana Arborist Association have contributed to the technical specifications of the tree planting guidelines.

Indiana Urban Forest Council (IUFC) board members are concerned about the incorrect planting seen in Indiana and throughout the Midwest. The statewide urban forestry not-for-profit provides education and networking opportunities for cities, towns, volunteers and urban forestry professionals.

"If we just would choose the right tree for the right place and plant it right, we would alleviate many of the maintenance issues that arise when the three "R"s of tree planting are not followed," said Lee Huss, IUFC board member and City Forester for Bloomington.

"Education is a big part of tree planting. It just is not as simple as buying a tree and putting it into the ground," he said.

The Indiana Arborist Association (IAA) agrees. Rita McKenzie, Chapter Administrator of the IAA and Purdue University urban forester has seen many problems regarding improper tree planting in Indiana.

"Basically, we are suffocating the trees to death or causing many stress problems that stem from girdling root. The proper planting techniques developed by the IDNR are good and technically correct ones," she said.

Urban forestry professionals such as arborists and city foresters, who have the charge of caring for trees in cities and towns—the urban forest, have found the following to be problems with newly planted trees:

1. The trees are being planted too deep.

2. The twine and wire baskets are impeding growth.

3. The trees have no after care.

These professionals have found that, although the trees were being planted with the top of the root ball at grade level as nursery and DNR instructions specified, they were still being planted too deep.

Purdue Forestry implemented a project in which they inspected nursery stock and newly planted trees. They discovered that the actual trunk flare, which is the main root that flares out at the base of the tree (flare), was many times three to six inches below root ball soil. With the trunk flare already under the root ball soil, the depth problem was compounded with the planting hole being too deep, then backfilled, and mulch piled on top of that.

"We found this mounding of soil on top of the root ball to be present at many of reputable, upscale nurseries we investigated," said McKenzie.

But nurseries are just trying to get the trees out to their customers. They are not deliberately promoting improper planting methods.

"It is an unfortunate fact that digging methods cause mounding of additional soil on top of the root ball," said Mark Ringenberg, owner and operator of Ringenberg Nursery near Fort Wayne.

"We just have to alert planters that they need to look at the root ball after the tree is placed in the hole, they need to look for the trunk flare. If it can't be seen, it is up to the planter to remove the soil until the taper is revealed," Ringenberg said.

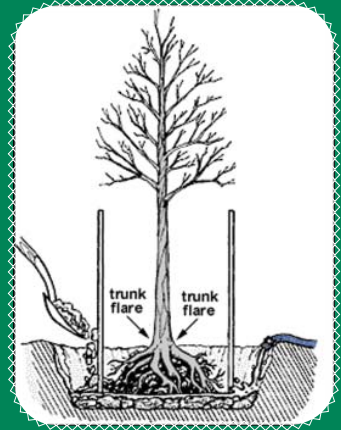
What planters are inadvertently doing whether they are volunteers, municipal workers, landscapers, or contractors hired to do the job, is either writing a death warrant for the trees or creating many future and unnecessary maintenance issues. Tree roots need oxygen to survive and being planted too deep does not allow them to get it. Indiana tree planters lose many trees because of being planted too deep or they develop maintenance and risk issues due to the complications of stem girdling root (SGR). What happens is that roots encircle the tree because they have nowhere else to go. These roots, as they seek oxygen, eventually make their way up to the top of the soil and begin to encircle the trunk. SGR causes a host of future maintenance issues and can bring forth stressors into the health of the tree and eventually make it a risk tree that can impact persons or objects near it as it fails.



Bad Mulching Job



Good Mulching Job



Trunk Flare

Websites to Visit for More Information

Dr. Ed Gilman, Tree Planting; Univ. of Florida

<http://hort.ifas.ufl.edu/woody/planting>

Indiana DNR

<http://www.in.gov/dnr>

Trees are Good

<http://www.treesaregood.com>

Tree Link

<http://www.treelink.org>

Indiana experts agree that in order to grow a sustainable urban forest in Indiana and for private property owners to have matured, healthy trees on their new lots, trees need to be planted according to these guidelines. It may take a little extra time to plant trees in this way, but our healthy environmental future depends on it.



PLANT it RIGHT

Planting a tree is not a simple act. It is an art and attention must be given to many details to keep the tree healthy.

1. Dig a hole that is shallow and wide. The trunk taper or the zone of rapid taper should be at grade level (or even a little higher in wet or heavy clay, poor draining soil).
2. Put the tree in the hole. Stabilize the ball. Cut or bend the top $\frac{1}{2}$ of

the basket (biodegradable or not) off the root ball. Remove ropes and twine off and away from the trunk. Pull down or cut the top $\frac{1}{2}$ of the burlap (synthetic or not) off the root ball. The point here is to uncover the top $\frac{1}{2}$ of the root ball.

3. Find the trunk flare. For trees that don't normally have flare or trunk taper, find the zone of rapid taper of the uppermost root coming out of the trunk base. This needs to be at grade level. Soil mounded on top due to nursery production methods may need to be removed. This is important so the roots will have enough oxygen to thrive and survive.
4. Begin to fill in the hole with dirt and irrigation. Don't pile dirt on top of the root ball or it will end up putting the flare or zone of rapid taper below grade.
5. Mulch with no more than two to three inches of mulch out to or beyond the canopy drip line. Pull the mulch at least two to three inches away from the trunk.
6. Remove trunk wraps, wires, tags etc. Clip dead or broken branches.
7. Irrigate the tree to supplement natural rainfall.

If installers, landscape architects, contractors, volunteer tree planters, and anyone else who likes to or has the job of planting trees, we just may, by working together, be able to enhance the environmental health of our state with healthy, sustainable, urban forests.

Trees give us oxygen. Without it, we can't breathe. "People who will not sustain trees will soon live in a world which cannot sustain people"—Bryce

For more information on urban forestry, grant programs, technical assistance on how to plant a tree, Tree City USA and the other services CUF offers, please call 317-915-9390 or email Plouks@dnr.IN.gov.

IDNR, DIVISION OF FORESTRY COMMUNITY & URBAN FORESTRY TREE PLANTING SPECIFICATIONS RECOMMENDED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE

Tree Planting Guidelines For Balled - Burlapped

Limit pruning at time of planting. Prune only crossover limbs, co-dominant leaders, and broken or dead branches.

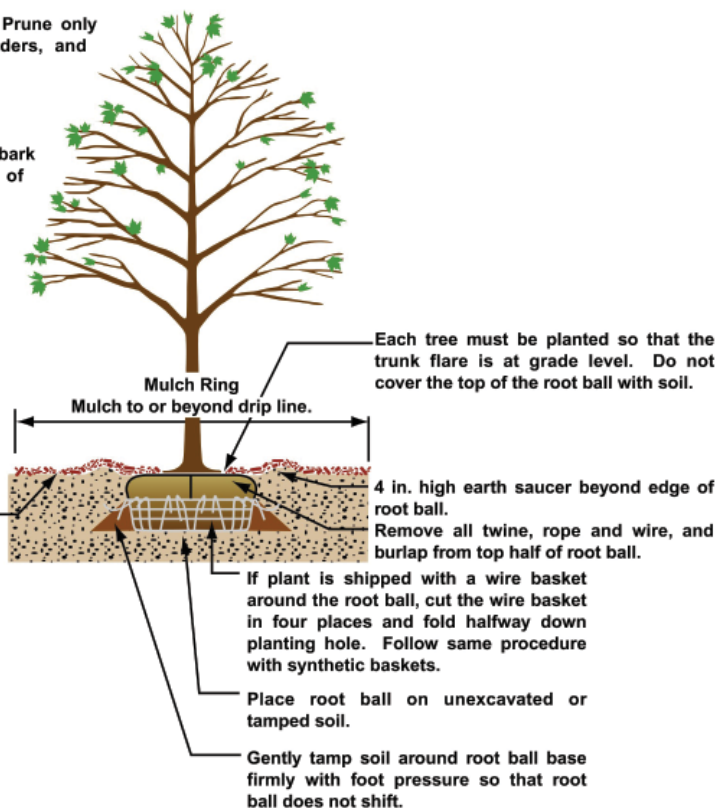
Stake trees only if in a windy site.

Wrap tree trunks only if it is a thin bark species. Remove wraps at end of winter.

If possible - mark the north side of the tree in the nursery, and rotate tree to face north at the site when ever possible.

In wet or slowly draining areas - position the (flare) 1-2 inches above grade.

2 in. mulch. Do not place mulch in contact with tree trunk. Maintain the mulch weed-free for a minimum of three years after planting.



For plantings not covered by paving or grating.

