

Illinois Trees

The Quarterly Publication of the Illinois Arborist Association



Restoration Pruning of Storm Damaged Trees

by Jake Miesbauer

Every year untold numbers of trees are damaged – be it from ice, rain, or wind storms, or from mistreatment as in the malpractice of tree topping. As arborists, it is our job to do our best to help these trees overcome the damage that has occurred and – as much as possible – regain a healthy and structurally sound canopy through crown restoration. According to ANSI Standards: “Restoration shall consist of selective pruning to redevelop structure, form, and appearance of severely pruned, vandalized, or damaged trees” (ANSI A300 (Part 1)-2008). Depending on the severity of damage, this process will likely consist of the management of epicormics sprouts (or watersprouts).

Sprouting is a natural and necessary response to storm damage, and can also be triggered by other stressors such as drought, fire, frost damage, disease, and insect infestation. Sprouts arise either from dormant (latent) buds that may be several years old, or from adventitious buds that develop from callus tissue at the wound location. Because of the nature of how they arise, sprouts are initially weakly attached to the phloem and outer layer of xylem on the parent stem. With each successive growing season, however, they become more strongly attached as more overlapping growth rings make the attachment more secure. On older sprouts, collar formation has been observed on some species.

The goal of arborists should be to manage sprouting branches in a manner that helps them form the new structure of the tree crown. Over time, properly managed restoration can great-

ly help to improve tree structure, although in most cases it is unlikely that tree structure can be fully restored. It is also important to keep in mind that it may not be practical or possible to restore trees that have received severe structural damage – especially to the trunk. In such cases, these trees should be removed. There has been very little scientific research on the topic of sprout management and crown restoration, and much of what we know comes from experience and observational work.

The first step in the crown restoration process will ideally take place shortly after the damage occurs. At this time, branches that are broken near their union with the trunk should be removed. When branches are broken further out, a reduction cut

should be made back to a lateral branch with a diameter that is ideally at least 1/3 the diameter of the reduction cut. If there are no sizeable lateral branches present, it is permissible to make a heading cut back to a small lateral branch or visible node.

Sprouting branches will typically start to develop within one growing season from when the damage occurred, and may begin to emerge within weeks depending on factors such as species and what time of year the tree was damaged. Typically, several sprouts will develop



Figure 1

near the broken end of the branch (Figure 1 upper arrow) as well as along the length of the branch (Figure 1 lower branch with 3 arrows). It is important to let the sprouts grow and develop for a period of time before restoration begins. Damaged trees are stressed because they lost part of their capacity to make energy when branches – and foliage – were lost. Tapping into their stored energy reserves to make new sprouts adds to the stress. Trees rely on the foliage on new sprouts for photosynthesis,

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Illinois Arborist Association Mission Statement

*"Foster interest, establish standards, exchange professional ideas
and pursue scientific research in Arboriculture"*

President's Message

Don Roppolo

The holidays have passed and we are well into 2016. The IAA board has been working on plans for the New Year since the end of 2015. The board of directors and a few passionate met for a full day working on the strategic plan for the IAA. We reviewed all the initiatives we worked on in 2015 and planned that we would like to work on in 2016. The requests for funding were made and now the 2016 budget has been approved. Many existing initiatives as well as new ones are being funded.

One of our items with continued funding is the Advanced Training program. We are fortunate to have a very unique Advanced Training program in our chapter. The IAA developed the program to deliver training in various aspects of Arboriculture for those individuals who want to continue to learn and grow professionally beyond the Certified Arborist credential. If individuals complete five classes in each of the four domains they receive the IAA Advanced Training Qualification. The domains are: Tree Site and Selection, Pest Diagnosis and Management, Tree Work, and Urban Forestry. The Advanced Training program delivered several great classes last year. Steve Lane is the new Advanced Training chair and is planning to offer even more classes this year. In the strategic plan meeting we decided to allocate more money to the program to help expand and offer more training opportunities. One of the areas added for this year is aerial lift training. Keep an eye out for upcoming classes for opportunities to continue to invest in yourself and or your employees. Read more about the program on our website.

<http://illinoisarborist.org/cart/advanced-training-for-certified-arborists/>

There are many other great initiatives that could help save lives which will continue to be funded this year like electrical hazard training, invaluable chainsaw training, TRAQ (tree risk assessment qualification, a new ISA credential) training, chipper training and outreach to fire departments regarding aerial rescue. We have also increased funding for outreach to students and potential arboriculture students.

These are just some of the great initiatives your valuable membership dollars are going toward funding in 2016. Thank you for your support of the IAA and its mission to "foster interest, establish standards, exchange professional ideas and pursue scientific research in Arboriculture".



Sincerely, Don

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The advertisement for Nelson Tree Service, Inc. is divided into several sections. On the left, there is a large group photo of many employees sitting on a grassy field. Below this photo is the company logo, which consists of the word "Nelson" in a large, bold, black font with a stylized tree branch integrated into the letter 'o', and "TREE SERVICE, INC." in a smaller, black, sans-serif font below it. To the right of the group photo is a white service truck with an aerial lift extended upwards. A worker in a hard hat is visible in the basket of the lift. The truck has the "Nelson" logo on its side. Below the truck photo is a black box containing white text that reads: "Contact the following Nelson representative to discuss your vegetation management needs: John Reis at 1-708-269-0075". At the bottom left of the advertisement, there is a large, stylized leaf graphic. Below the leaf is the text: "Safety & Professionalism Our basics. Your assurance of a job well done."

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which helps replace the lost energy reserves and assists in other necessary tree functions such as growth, defense, and reproduction. Foliage also provides shade to protect the newly exposed bark on the top of the branch from sunscald damage – which can especially be a problem on thin barked branches or branches that have been newly exposed to the sun due to foliage loss higher in the crown.

It will usually take a few years before the first sprout management pruning treatment is necessary, and is dependent on species, climate, and tree vitality among other factors. This is arguably the most important step in the restoration process. The general rule of thumb is to retain 1/3, reduce 1/3, and remove 1/3 of the sprouts on a branch. Care must be taken when selecting which sprouts to retain and which to remove, as these decisions will heavily influence the future structural strength and integrity of the crown. Foremost in this process is to decide which sprout will take over as the new leader of the branch. For branches that originally had a sizeable lateral branch to prune back to, the lateral branch will usually become the new leader. For branches that received heading cuts, the new leader will ideally be growing vigorously and located near the end of the branch. This sprout and other sprouts that are well positioned and spaced along the parent branch should be retained. Using Figure 2 as an example, Branch A would be retained as the leader, and Branches E and I should be retained without further pruning. Sprouts that are tightly spaced or poorly located for future growth should be reduced using reduction pruning cuts or removed altogether. Reduction pruning will help improve taper and slow branch growth, allowing them to gradually develop as new lateral branches. Referring again to Figure 2, Branches C and F are well-spaced and vigorous. They should be reduced back to lateral branches, as indicated by the arrows. Branches B, G, and H should be removed because they are tightly spaced and crowding the leader. Branch D originated from a latent bud on the underside of the branch, but as is often the case with sprouts, it quickly curved and started growing straight upward. It should be removed now to prevent it from rubbing with the parent branch and causing further injury as it becomes larger. The goal here is to create a structure of well-spaced scaffold branches that

have room to grow and develop without interference from an abundance of sprouts.

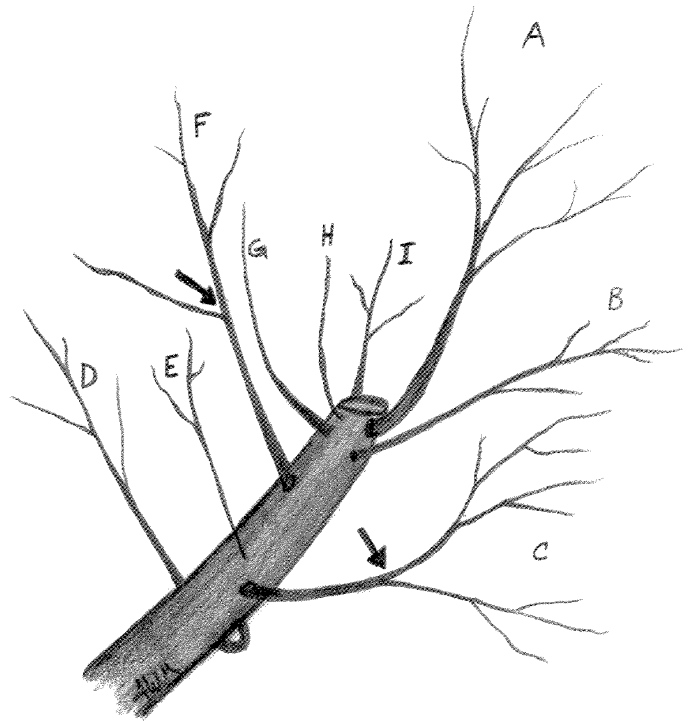


Figure 2

If there is a dead stub beyond the live branch wood it should be removed. This will help speed up the process of woundwood sealing over the wound. Use care to not cut into live tissue, as this will breach the barrier zone that has formed between the injury and the new growth, thereby allowing pathogens to invade. Decay will often form where pruning cuts – especially heading cuts – occur. There is some research to suggest that vigorous sprout growth near the cut surface might speed up wound closure rate and help slow the spread of decay, but further studies are needed to help us better understand this process.

There is an alternative method to consider, especially on species that poorly compartmentalize decay. During the first pruning cycle, rather than forcing a sprout near the tip to take over as the new leader, select the sprout a little distance back from the tip that exhibits the most vigor and vitality to be the new leader. Retain the branches near the tip, reducing any that are growing vigorously. Referring again to Figure 2, Branch F would be selected as the future leader. Branches A and B would be reduced back to a lateral branch. Branch C would be reduced back to the arrow, Branch D would be removed, and Branch-

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Restoration Pruning of Storm Damaged Trees

(continued from page 4)

es E, G, H, and I would be retained without pruning. In the subsequent pruning cycle, the main branch would be reduced back to Branch F, thereby allowing the new leader to establish without decay present at the base. By this time, the health of the branch will likely be improved to better seal the pruning cut and slow the spread of decay.

The goal of subsequent pruning cycles should be to continue improving structure following the guidance above. Work to maintain a strong leader with healthy but subordinated lateral branches. Branches that were originally retained will likely require reduction at some point, especially if they are oriented vertically and interfering with branches higher in the crown. It is likely that new sprouts will develop between pruning treatments. Some of them may be retained as part of the branching structure, while others will need to be removed. Ideally, restoration treatments should continue for several pruning cycles, with a greatly improved canopy developing over time. Although severely damaged trees will usually not regain their pre-storm structure, sprouting branches will eventually form the future crown.



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Utilizing Technology to Improve Natural Disaster Restoration Efforts

by Brian Sprinkle

THE CHALLENGE

Wildfires are a natural part of many ecosystems. For those who live and work within areas susceptible to fire, the destruction can come quickly and be catastrophic. Utility infrastructure is not immune to fires, and utilities can become overwhelmed with the amount of damage caused by a fire. In an emergency situation, such as the California Valley Fire, a well-devised plan speeds up the restoration process and improves efficiency.

One of the biggest challenges during an emergency power restoration event is the accurate planning of work and the collection of data. Frequently, these events are characterized by haphazard work done with very little planning or documentation.

SOLUTION: GE MAPSIGHT

CN Utility Consulting used GE MapSight 300 to document damaged hardware and identify trees that required work after the Valley Fire. Normally these would be separate tasks, but the versatility of MapSight allows these tasks to be completed simultaneously. Using advanced GPS locating technology (sub-meter accuracy), customizable software, and a precision measuring device, CN Utility Consulting was able to create time-stamped, geo-referenced work inspections. Inspection plans captured a variety of information crucial for the restoration process. Some of the key information collected included: location, unique pole or tree identification number, tree quantity, tree species, diameter at breast height (DBH), prescription type, priority rating, and any necessary comments.

HOW IT WORKS

When the device interfaces with a computer, all data is exported as a PDF, CSV (Excel file), KMZ (Google Earth), and SHP (GIS) file. While the data is primarily used to support tree work and provide actionable work

requests, there are some additional benefits as well. Infrastructure-related PDFs were delivered to overhead maintenance crews to support the reconstruction process. Tree-related PDFs were delivered to tree crews, and then signed and returned to the utility after the tree work was completed. PDF documents were also provided to the insurance company as documentation showing the damage to the infrastructure and utility forest. The raw data was quantified in the CSV file to estimate time and resources required to complete the tree work, as well as document the extent of the damage to the utility forest. The Google Earth KMZ file provided an interactive map that displayed all photos and collection data for the trees or poles in question. If the client chooses to do so, the SHP file, which is used to store the location, shape and attributes of geographic features, can be integrated into a utility's GIS system as another layer to be toggled.

Wildfires, hurricanes, tornadoes, and other of natural disasters have a common denominator; they are destructive and cause catastrophic damage to our way of life. While we can't prevent natural disasters from occurring, we can improve the restoration process. MapSight is a powerful tool that can be harnessed to improve restoration efforts and improve efficiency in the midst of chaos.

Get Certified!

Call the IAA Office for details on how to become certified.

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Deam Oak Benches by Brandon Dobnick

This past spring I had the pleasure of competing at TreeStuff's "Jambo 2" tree jamboree climbing competition down in Belleville, Illinois at the Meurer Brother's campgrounds. After attending Jambo 2 I looked back on the prizes that were distributed to the competitors and I was just in awe of the overwhelming support that was raised for this event and the generosity of so many great companies. I was wowed that so many people had gathered to put this event on. All of that got me thinking.... What am I doing for my chapter climbing competition to make it better? What can I do, what is something really fun that isn't already being done, and how can I make an impact in the here and now, but also for the generations to come? After ruminating on this for some time I came up with the idea of using my talents and some talents of close friends and family to give back to climbing competition which I personally have gotten so much out of. So my partner's (Dan Dobnick & Steve Skorup of Hardwood Solutions: a division of S.A.W. Inc.) and I all got together and said lets come up with something to donate for the top placer finishers who make it to the finals, or the master's challenge event. Ok, I'll admit, I did a little begging for their help in making "something" happen in a very short window.



While all of this was going on, I had transitioned primary jobs to working at the Morton Arboretum in Lisle, Illinois as one of their staff arborists. The past few years of drought and stressors were unfortunately starting to cause us to remove some larger specimen oak trees on the grounds, which got me thinking further... "What if the Arboretum could donate some logs towards my idea." So I got the ok from the Arboretum, and ended up selecting a Deam's Oak, *Quercus deamii*, which was not only part of the Oak collection but tied back

to the Illinois Arborist Association's logo (white oak leaf). What does the IAA have to do with a Deam's Oak? Well, a Deam's Oak is a blend between a true White Oak, *Quercus alba*, and a Burr Oak, *Quercus macrocarpa*. Being that this tree was part of the Oak collection, means it was planted from a seed in 1930 and was 85 years old when it died. This tree was around for Gandhi's Salt march, WWII, the birth of the first computer, color T.V., and host of other world and local events. The International Society of Arboriculture was founded in 1924, so this tree has been around nearly the entire time our umbrella organization has been in existence, and is almost as old as the Morton Arboretum itself (est. 1922).

So this tree has seen a lot, as most have, and that is something that many people I talk to don't really consider. Yes trees are old, and they have been around for a long time, but many people don't fully see that all trees, whether small or big, tall or squat, young or old tell a story. I have the pleasure of working at The Morton Arboretum and it is not just a walk in the woods, but it is a place where trees speak, they tell a story in their rings of the past and show what use to be. I think this is one of the great un-grasped treasures that nature and trees have to offer a society overwhelmed by technology. Nature is simple and yet utterly complex and that is where the beauty is. My woodworking company, Hardwood Solutions: a division of S.A.W. Inc. is seeking to grasp that beauty, and bring it to life in its entire splendor. Our goal, as a company, is to embody what Aristotle said about art, "The aim of art is to represent not the outward appearance of things, but their inward significance". Hopefully we were able to bring to life the beauty and the story this eighty five year old oak tree has told into a practical piece of furniture that will last for generations.



(continued on page 9)

Deam Oak Benches (continued from page 8)

We ended up making an extra bench which was donated to the IAA's annual conference, where there it is able to raise money for the TREE Fund (Tree Research and Education Endowment). If you go to www.treefund.org you can learn more about how the TREE Fund works to sustain the world's urban forests by providing funding for scientific research, education programs, and scholarships related to arboriculture and urban forestry. It is my passion to see that the generations to come not only have a place to experience nature and trees, but are able to cultivate their minds in order to create a greener, healthier, and more beautiful world. It was our pleasure in making these benches, and it was a great opportunity to give back to an organization that has given me so much. There is always some arena where you can use your talents to better your surroundings; you just have to find where that may be. I will leave you with this; take some time out of your busy, technologically overloaded day and take a stroll through your local woods, a park, or even your own back yard. Don't just look at the trees, but close your eyes and listen to the rustle of the leaves as the wind blows through them, and take a minute or two and think

Calendar of Events

May 23, 2016

Certification Exams
Downers Grove Public Works Department.

June 23 & 24, 2016

IAA Summer Conference at Allerton House
Monticello.

July 18, 2016

Certification Exams
Downers Grove Public Works Department.

September 12, 2016

Certification Exams
Downers Grove Public Works Department.

September 19, 2016

Certification Workshops
Downers Grove Public Works Department.

October 18 & 19 2016

IAA Annual Conference & Trade Show
Tinley Park Convention Center.

November 21, 2016

Certification Exams
Downers Grove Public Works Department.



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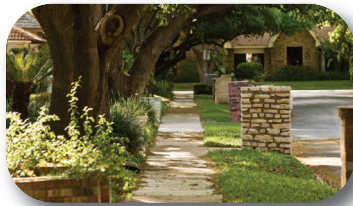
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