



**AGENDA
CITY OF WINDCREST, TEXAS**

PARKS AND RECREATION COMMISSION MEETING

October 09, 2013

6:00 P.M.

NOTICE IS HEREBY GIVEN THAT A MEETING OF THE WINDCREST PARKS AND RECREATION COMMISSION WILL BE HELD AT WINDCREST CITY HALL, 8601 MIDCROWN, WINDCREST, TEXAS ON THE 09th DAY OF OCTOBER 2013 STARTING AT 6:00 P.M. DURING THE MEETING THE FOLLOWING SUBJECTS WILL BE CONSIDERED AND THE COMMISSION MAY TAKE ACTION ON ANY OF THE LISTED SUBJECTS.

THE PARKS AND RECREATION COMMISSION RESERVES THE OPTION TO RECESS THE MEETING DURING THE EVENING OF OCTOBER 09, 2013 AND TO RECONVENE THE MEETING ON THE FOLLOWING DAY, OCTOBER 10, 2013 AT 9:00 A.M. AT THE WINDCREST CITY HALL, 8601 MIDCROWN, WINDCREST, TEXAS.

IT IS ANTICIPATED THAT MEMBERS OF OTHER CITY COUNCIL, BOARDS, COMMISSIONS AND COMMITTEES MAY ATTEND THE MEETING IN NUMBERS THAT MAY CONSTITUTE A QUORUM OF SUCH OTHER CITY COUNCIL, BOARDS, COMMISSIONS AND COMMITTEES, SO THAT NOTICE IS HEREBY GIVEN THAT THE MEETING IS ALSO A MEETING OF THE OTHER CITY COUNCIL, BOARDS, COMMISSIONS AND COMMITTEES WHOSE MEMBERS ARE IN ATTENDANCE. THE MEMBERS OF THE OTHER CITY COUNCIL, BOARDS, COMMISSIONS AND COMMITTEES MAY PARTICIPATE IN DISCUSSIONS WHICH OCCUR AT THE MEETING, BUT NO ACTION WILL BE TAKEN BY THE OTHER COUNCIL, BOARDS, COMMISSIONS AND COMMITTEES WHOSE MEMBERS ARE IN ATTENDANCE.

Ordinance No. 618 (09/20/10), Repealing Ordinance No. 593

At all City Council, City Commission or City Board meetings, the agenda shall include a "citizens to be heard" item. It is suggested that Citizens wishing to speak during this item sign in on the sign up roster prior to the meeting. During "citizens to be heard" comments, each individual may speak on an agenda item or any other matter affecting the city. In addition to the "citizens to be heard" portion of meetings, a person may make comments on agenda items prior to the vote on the agenda item. A member of the public will have a total of six (6) minutes to be heard during a City Council, City Commission or City Board Meeting. This does not include any responses from the body. The six (6) minutes time limit authorized herein may not be transferred to another speaker in whole or in part. The presiding Officer or his/her designee will assign a Time Keeper to each meeting. The Time Keeper will maintain strict compliance of the six (6) minute rule, stopping speakers who exceed the allotted time. As authorized by Section 551.042 of the Texas Government Code, the Presiding Officer may direct a City Official to make: a statement of specific factual information in

response to an inquiry made by a member of the public or of the City Council, or; a recitation of existing policy in response to an inquiry made by a member of the public or the City Council. Any deliberation or decision about the subject of the inquiry shall be limited to a proposal to place the subject on the agenda for a subsequent meeting. Any question posed by a Citizen, Council Member, Board Member or Commission Member for which an answer is not available at a meeting shall be answered by a member of the staff or Presiding Officer at the next regular meeting of the Body, if an answer is reasonably available and prudent. If the information is sensitive, staff will seek advice from the City Attorney.

REQUEST ALL PAGERS AND CELL PHONES BE TURNED OFF, EXCEPT EMERGENCY ON-CALL PERSONNEL. CITIZENS ARE ASKED TO REFRAIN FROM TALKING DURING COUNCIL PROCEEDINGS.

Meeting Chair: please remind each participant in your meeting that they must speak into a microphone; the recording is the Official Minutes of your meeting and all who speak must be recorded. All guest speakers and citizens to be heard must speak from podium. Please interrupt speakers during meeting if you recognize that they are not speaking into microphone and have them do so.

I. Call to Order, Pledge of Allegiance & Invocation

II. Citizens to be Heard on Subsequent and Non-Subsequent Agenda Items

A member of the public will have three (3) minutes to discuss non-subsequent agenda items.

A member of the public will have six (6) minutes to discuss subsequent agenda items.

Parks and Recreation Commission members may discuss and respond to current and past agendas on subsequent and non-subsequent agenda items by citizens to be heard.

III. Presentations

1. The Parks and Recreation Commission will receive an update from Doug Winnek regarding the status of the Civic Center Audio Visual system project. (Ref 07.01.13
http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=1087 00:18:33
07.10.13 P&R http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=1087
00:18:33 / 08.14.13 P&R
http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=1107 00:01:27)

IV. Old Business

1. The Parks and Recreation Commission will discuss having an additional marquee / "community information board" with new site location to be determined. (Ref: 12.03.12 SCCM
http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=991 01:05:30 /
08.14.13 P&R http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=1107
00:57:17 / 09.11.13 P&R
http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=1121 00:06:27)

2. The Parks and Recreation Commission will discuss placing bike racks within the city limits of Windcrest. (Ref: 08.14.13 P&R http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=1107 00:58:53 / 09.11.13 P&R http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=1121 00:03:12)
3. The Parks and Recreation Commission will “repeat” a discussion on the possible removal of the temporary Civic Center patio enclosure and options for a permanent solution. (Ref: P&R 01.11.12 http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=780 01:14:34 / P&R 01.18.12 http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=784 00:41:51 / P&R 01.25.12 http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=792 / 07.10.13 http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=1087 00:32:10)

V. Work In Progress

NONE

VI. Capital Improvement Projects

1. The Parks and Recreation Commission will discuss and may take action on a breakdown of Parks and Recreation Commission and Civic Center expenses. (Att. 1) (Ref 08.14.13 P&R http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=1107 00:51:21)

VII. New Business

1. The Parks and Recreation Commission will discuss and may take action on a standardized maintenance for trees. (Att. 2) (Ref 09.11.13 P&R http://windcresttx.granicus.com/MediaPlayer.php?view_id=8&clip_id=1121 00:15:05)
2. The Parks and Recreation Commission will discuss and may take action on Windbrook Estate Park.

VIII. General Announcements & Future Agenda Items Requested

Per Ordinance No. 618, repealing Ordinance No. 593; Section 9: Every agenda shall include an item entry granting a member the opportunity to propose an item for consideration of future agendas for Regular or Special Meetings. Any member may request the inclusion of such items at any meeting.

IX. Adjournment

I, the undersigned authority, do hereby certify that the above Notice of Meeting of the Parks and Recreation Commission of the City of Windcrest is a true and correct copy of said Notice and was posted on the bulletin board at City Hall of said City in a convenient place to the public and said Notice was posted more than seventy-two hours prior to the meeting on October 09, 2013.

By: , City Secretary

In compliance with the Americans With Disabilities Act, the City of Windcrest Council Chambers are wheelchair accessible, and accessible parking spaces are available. The City of Windcrest will provide for reasonable accommodations for persons attending Parks & Recreation meetings. To better serve you, requests should be received 48 hours prior to the meetings. Please contact Kelly Rodriguez, City Secretary, at 210-655-0022 ext. 2150 or Fax 210-655-8776.

I certify that the attached notice and agenda of items to be considered by the Parks and Recreation Board was removed by me from the City Hall bulletin board on the ____ October, 2013.

____ Title: _____

CITY OF WINCREST
REVENUE & EXPENSE REPORT (UNAUDITED)
AS OF: AUGUST 31ST, 2013

01 -GENERAL FUND

% OF YEAR COMPLETED: 91.67

DEPARTMENTAL EXPENDITURES	ORIGINAL BUDGET	AMENDED BUDGET	CURRENT PERIOD	YEAR TO DATE BALANCE	PRIOR YEAR YTD BALANCE	TOTAL ENCUMBERED	% OF BUDGET
06-PARKS & RECREATION							
=====							
SALARIES & BENEFITS							
01-506-010 POOL SALARIES	0	0	0.00	0.00	321.62	0.00	0.00
01-506-011 LONGEVITY	0	0	0.00	0.00	0.00	0.00	0.00
01-506-020 OVERTIME	0	0	0.00	0.00	0.00	0.00	0.00
01-506-030 SOCIAL SECURITY	0	0	0.00	0.00	24.60	0.00	0.00
01-506-040 HEALTH INSURANCE	0	0	0.00	0.00	0.00	0.00	0.00
01-506-050 RETIREMENT	0	0	0.00	0.00	0.00	0.00	0.00
01-506-060 WORKERS' COMPENSATION	0	0	0.00	0.00	0.00	0.00	0.00
01-506-070 UNEMPLOYMENT COMP-POOL	0	0	0.00	0.00	0.00	0.00	0.00
TOTAL SALARIES & BENEFITS	0	0	0.00	0.00	346.22	0.00	0.00
OTHER EXPENSES							
01-506-100 UTILITIES	0	0	1,658.56	15,955.20	8,258.46	0.00	0.00
01-506-130 TRAINING	2,000	2,000	0.00	176.51	1,448.96	0.00	8.83
01-506-240 CONTRACT MAINTENANCE OUTS	3,500	3,500	319.84	4,105.27	2,036.36	0.00	117.29
01-506-250 CONTRACT MAINT.-GREEN BEL	85,000	56,183	18,940.24	31,817.32	28,171.00	0.00	56.63
01-506-255 CONTRACT SERVICES - POOL	0	0	0.00	0.00	9,132.00	0.00	0.00
01-506-260 GREEN BELT CLEANING	2,500	7,500	0.00	3,366.50	7,885.74	0.00	44.89
01-506-430 SUPPLIES	12,000	9,504	200.04	6,555.58	16,175.08	0.00	68.98
01-506-431 EMPLOYEE APPRECIATION LUNCHE	75	75	0.00	75.00	75.00	0.00	100.00
01-506-520 EQUIPMENT REPAIR	4,000	4,000	429.87	3,433.67	4,623.82	0.00	85.84
01-506-630 FACILITY MAINTENANCE	17,000	17,000	1,016.45	13,918.07	485.53	0.00	81.87
01-506-631 POND MAINTENANCE	0	0	0.00	0.00	0.00	0.00	0.00
01-506-635 TREES / SHRUBS/LANDSCAPING	25,000	20,000	579.49	14,046.39	18,346.36	0.00	70.23
01-506-700 CONTINGENCIES	500	500	315.90	315.90	836.96	0.00	63.18
TOTAL OTHER EXPENSES	151,575	120,262	23,460.39	93,765.41	97,475.27	0.00	77.97
CAPITAL EXPENSES							
01-506-800 CAPITAL EXPENDITURE	0	0	0.00	30,291.21	11,332.70	0.00	0.00
01-506-810 CAPITAL IMPROVEMENTS	150,000	150,000	3,203.69	59,697.64	32,579.94	0.00	39.80
TOTAL CAPITAL EXPENSES	150,000	150,000	3,203.69	89,988.85	43,912.64	0.00	59.99
TOTAL 06-PARKS & RECREATION	301,575	270,262	26,664.08	183,754.26	141,734.13	0.00	67.99

CITY OF WINCREST
REVENUE & EXPENSE REPORT (UNAUDITED)
AS OF: AUGUST 31ST, 2013

01 -GENERAL FUND

% OF YEAR COMPLETED: 91.67

DEPARTMENTAL EXPENDITURES	ORIGINAL BUDGET	AMENDED BUDGET	CURRENT PERIOD	YEAR TO DATE BALANCE	PRIOR YEAR YTD BALANCE	TOTAL ENCUMBERED	% OF BUDGET
11-CIVIC CENTER =====							
SALARIES & BENEFITS							
01-511-010 CIVIC CENTER SALARIES	56,514	56,514	4,149.07	48,513.83	52,386.04	0.00	85.84
01-511-011 CIVIC CENTER LONGEVITY	0	0	0.00	0.00	0.00	0.00	0.00
01-511-012 STIPEND	2,584	2,584	0.00	2,543.72	1,745.27	0.00	98.44
01-511-020 OVERTIME - CIVIC CENTER	4,800	15,500	1,341.29	15,154.63	11,091.63	0.00	97.77
01-511-030 SOCIAL SECURITY	5,167	5,167	382.34	4,902.10	4,655.37	0.00	94.87
01-511-040 HEALTH INSURANCE	8,658	8,658	191.40	9,141.24	7,496.38	0.00	105.58
01-511-050 RETIREMENT	5,071	5,071	0.00	4,225.71 (	3,162.22)	0.00	83.33
01-511-060 WORKERS' COMPENSATION	3,589	270	0.00	270.00	2,249.21	0.00	100.00
01-511-070 UNEMPLOYMENT COMPENSATION	270	270	0.00	0.00	270.00	0.00	0.00
01-511-095 TERMINATION PAY-OUT	0	0	0.00	0.00	0.00	0.00	0.00
TOTAL SALARIES & BENEFITS	86,653	94,034	6,064.10	84,751.23	76,731.68	0.00	90.13
OTHER EXPENSES							
01-511-100 UTILITIES	17,000	19,200	1,942.79	19,309.44	8,048.71	0.00	100.57
01-511-430 SUPPLIES	5,500	5,500	0.00	2,373.53	3,652.21	0.00	43.16
01-511-431 EMPLOYEE APPRECIATION LUNCHE	150	150	0.00	150.00	75.00	0.00	100.00
01-511-512 STIPEND	0	0	0.00	0.00	0.00	0.00	0.00
01-511-630 FACILITY MAINTENANCE	25,000	26,291	0.00	29,098.44	22,792.58	0.00	110.68
01-511-700 CONTINGENCIES	750	750	0.00	0.00	424.09	0.00	0.00
TOTAL OTHER EXPENSES	48,400	51,891	1,942.79	50,931.41	34,992.59	0.00	98.15
CAPITAL EXPENSES							
01-511-800 CAPITAL EXPENDITURES	0	0	0.00	0.00	40,808.16	0.00	0.00
TOTAL CAPITAL EXPENSES	0	0	0.00	0.00	40,808.16	0.00	0.00
TOTAL 11-CIVIC CENTER	135,053	145,925	8,006.89	135,682.64	152,532.43	0.00	92.98



Best Management Practices for Tree Protection

Purpose

Provide the basic Best Management Practices (BMPs) that can be implemented within any Texas community to initiate the protection and preservation of existing community trees and natural populations of forest and woodlands.

Benefits

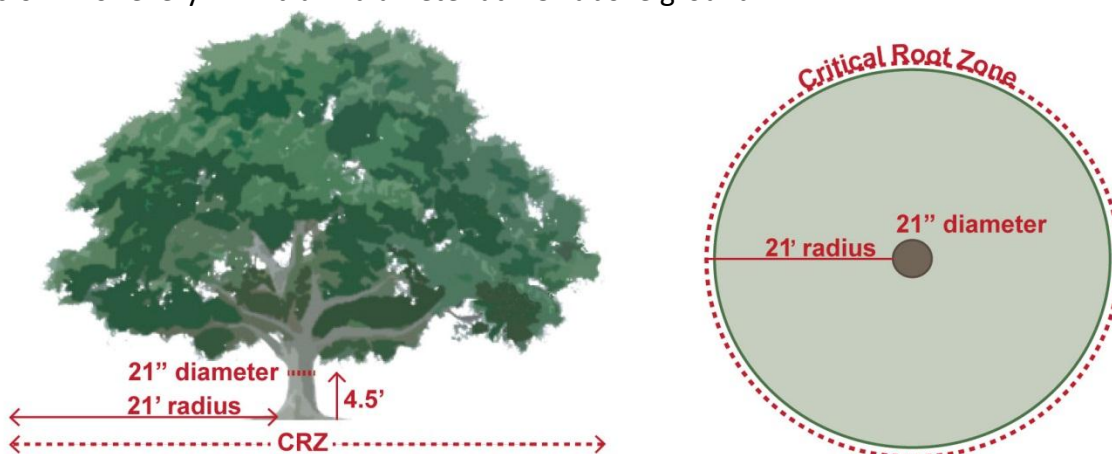
Trees provide a variety of social, economic, and environmental benefits to the community that often times go unnoticed. Trees increase property values, lower energy costs, improve air quality, reduce stormwater runoff, promote walkable communities and increase business sales, among many other benefits. These are some of the reasons many communities have already implemented tree protection codes.

With this in mind, it is crucial to implement BMPs for tree protection early on to ensure trees remain healthy and continue to provide benefits long-term. Since tree roots are not visible to the naked eye, they are often crushed, cut and suffocated during construction. A healthy mature tree has stored energy resources within it and can sometimes withstand temporary disturbances to its roots. However, damage to tree roots and surrounding soils are often permanent and compromise tree health in the short- and long-term. Continual disturbance overtime from pedestrian, vehicle, and construction activities only perpetuate the declining health of the tree and eventually leads to structural failure (dropping of dead limbs or the entire tree falling over), which can damage property and even cause injury to people. Implementing basic BMPs for tree protection early on reduces the likelihood of tree decline and failure due to construction activities.

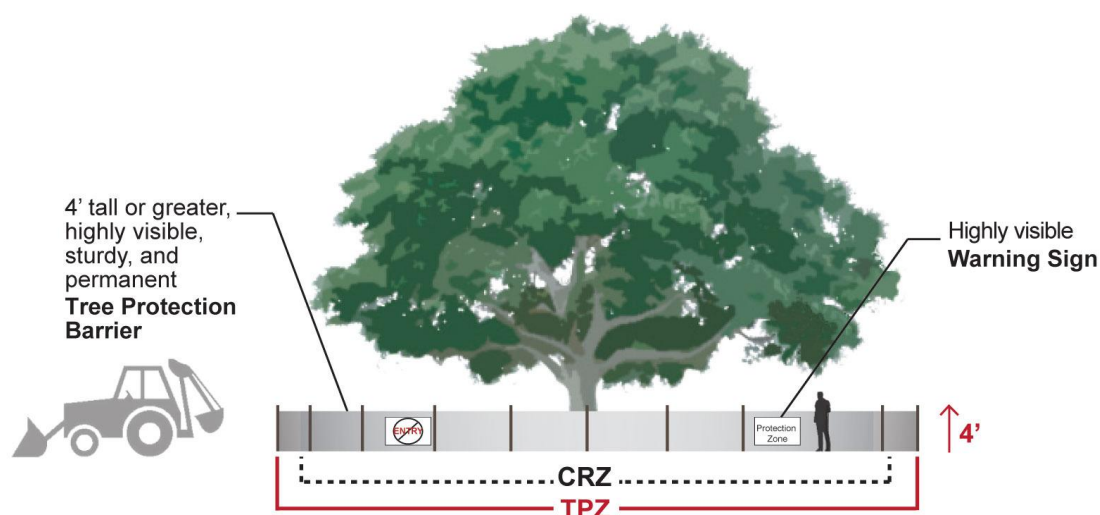
Definitions

Best Management Practices (BMPs) are general guidelines used in many different disciplines to help define the best currently known or accepted practice for an optimal outcome.

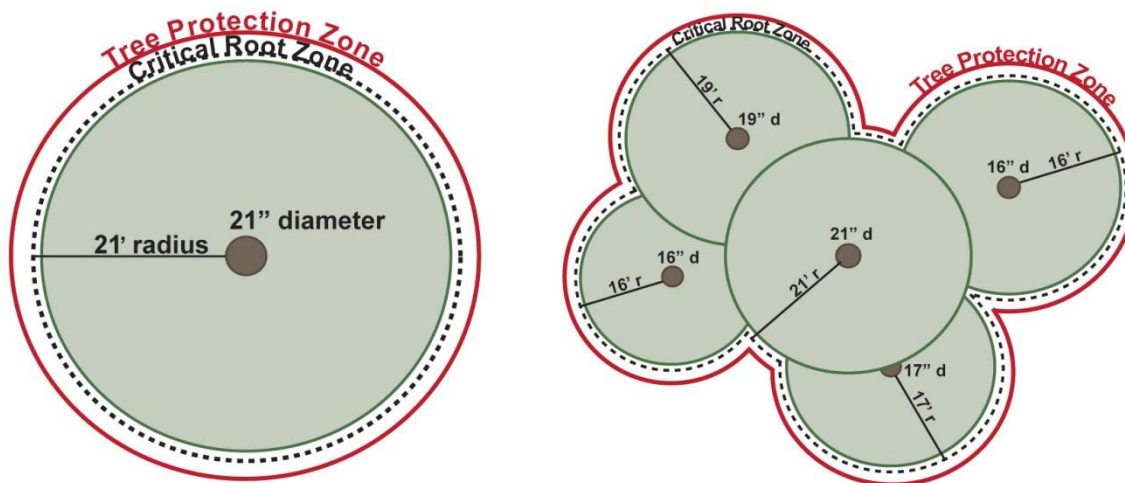
Critical Root Zone (CRZ) is the area of soil extending from the tree trunk where roots required for future tree health and survival are located. This area can also be defined as a circle with a *minimum radius* of 1' for every 1" in trunk diameter at 4.5" above ground.



Tree protection barrier encloses the Tree Protection Zone and is at least 4' tall, highly visible, sturdy, permanent and has warning signs on or near it for the duration of any construction activities.



Tree Protection Zone (TPZ) is an area where construction activities are prohibited or restricted to prevent injury to preserved trees, especially during pre- construction and construction, and includes the Critical Root Zone and/or beyond.



Best Management Practices

To promote the health of trees and stands of trees before, during, and after construction activities, follow these basic BMPs:

Planning Phase

1. Before assessing trees and other site structures and conditions, mark the site boundaries on plans and in the field to delineate which trees and stands of trees will be inventoried.
2. Perform a tree inventory that includes at minimum the location, size, and health of each tree and delineates quality stands of trees. Scope of the inventory should be based on communication and needs of the project team (developer, planner, engineer, architect,

landscape architect, and other professionals involved), as well as City ordinances. This is the time to confer with the project team on conceptualizations for site design, so that way long-term tree protection and health gets integrated into the design.

Tips

- When selecting trees to be saved on site, other factors to consider include tree structure, tree species and tolerance to construction activity, age and health of trees, and soil properties.
- In addition to preserving existing trees on site, consider communicating with the project team on areas suitable for future tree planting so that way healthy soils can be preserved during and after construction activities for the preservation of all trees on site.
- It could be useful to write a tree management report that identifies which trees are most suitable for preservation and those that should be removed due to potential impacts from construction activities or structures and infrastructure.

Design Phase

3. Communicate with the project team to accurately site structures and utilities and determine the trees to remain on site. Conserve and protect trees in stands or groups where possible. Make sure the trees and stands of trees selected to be saved go into plans and construction documents. Include in all plans the Tree Protection Zone (TPZ) for all saved trees to avoid conflict with the protected area and placement of structures and utilities during construction.

Tips

- Consider protecting beyond the Critical Root Zone (CRZ) of a tree to further protect the roots and soil essential to tree health and structural stability.
- If there are grade changes occurring on site, work with the landscape architect or engineer to incorporate the use of tree islands and wells to prevent disturbance to tree roots.

Pre-construction Phase

4. Prior to pre-construction activities, including tree removal, access roads, construction staging areas, and building layout, erect tree protection barriers to visually indicate TPZs. Be sure to:
 - Use tree protection barriers that are highly visible, sturdy, and restrict entry into the TPZ.
 - Install or erect signs along the tree protection barrier stating that no one is allowed to disturb this area.
 - Remove any branches or trees that pose an immediate risk to structures or people prior to any construction activities.

Tips

- Include highly visible language on all signs that specifies the financial penalties for violating policies.

Construction Phase

5. Communicate the intent of the tree protection barriers to the construction manager and workers to ensure that TPZs are not disturbed during construction activities. Have the construction manager sign a contract of compliance.

6. Prohibit these activities in the TPZ:
 - Stockpiling of any type, including construction material, debris, soil, and mulch
 - Altering soils, including grade changes, surface treatment, and compaction due to vehicle, equipment, and foot traffic
 - Trenching for utility installation or repair and irrigation system installation
 - Attaching anything to trunks or use of equipment that causes injury to the tree
7. Schedule site visits to ensure the contract is being met by the construction manager and that tree health is not being compromised by construction activity. Inspect and monitor trees for any decline or damages.
8. Keep in place all tree protection barriers until the project is completed.

Tips

- Sometimes site boundaries and existing site conditions prevent complete protection of the CRZ, so consider performing construction activities in these areas manually and installing trunk protection to prevent mechanical damage to the trunk.
- Apply at least 6" of mulch within the TPZ to prevent disturbance to tree roots and soil.
- Prior to any construction activity, consider taking photographs of the trees to be saved and surrounding areas to identify any construction damage caused to trees during construction.
- Add a penalty clause in the contract of compliance that prevents moving or altering the tree protection barrier and entering the TPZ.

Post-construction Phase

9. Perform a final inspection and continue monitoring after construction. Monitoring includes maintaining mulch, managing soil moisture, assessing tree damage, inspecting for insects and pests, and fertilization if needed.

Resources

- For information on managing trees during construction and guidelines for determining tree protection zones, see *Best Management Practices: Managing Trees During Construction*
- For more information on tree protection BMPs on construction and development sites, see *A Best Management Practices Guidebook for the Pacific Northwest*
<http://oregoncommunitytrees.org/tree-faqs/additional-resources/how-to-plant-a-tree/> and *A Community Forestry and Development Guide*
<http://www.urbanforestrysouth.org/resources/library/tree-protection-bmps-for-contractors-and-builders/view?searchterm=urban>
- For information on conserving wooded areas in developing communities see *Best Management Practices in Minnesota*
<http://www.dnr.state.mn.us/forestry/urban/bmps.html>
- Visit the Arlington Virginia webpage for standards on construction drawings
<http://www.arlingtonva.us/departments/CPHD/planning/docs/CPHDPlanningDocsLandscapeDocs.aspx>



USDA Forest Service

NA-FR-01-95

Northeastern Area State and Private Forestry

HOW to Prune Trees

Peter J. Bedker, Joseph G. O'Brien, and Manfred M. Mielke

Illustrations by Julie Martinez, Afton, MN

Introduction

The objective of pruning is to produce strong, healthy, attractive plants. By understanding how, when and why to prune, and by following a few simple principles, this objective can be achieved.

Why Prune

The main reasons for pruning ornamental and shade trees include safety, health, and aesthetics. In addition, pruning can be used to stimulate fruit production and increase the value of timber. Pruning for *safety* (Fig. 1A) involves removing branches that could fall and cause injury or property damage, trimming branches that interfere with lines of sight on streets or driveways, and removing branches that grow into utility lines. Safety pruning can be largely avoided by carefully choosing species that will not grow beyond the space available to them, and have strength and form characteristics that are suited to the site.

Pruning for *health* (Fig. 1B) involves removing diseased or insect-infested wood, thinning the crown to increase airflow and reduce some pest problems, and removing

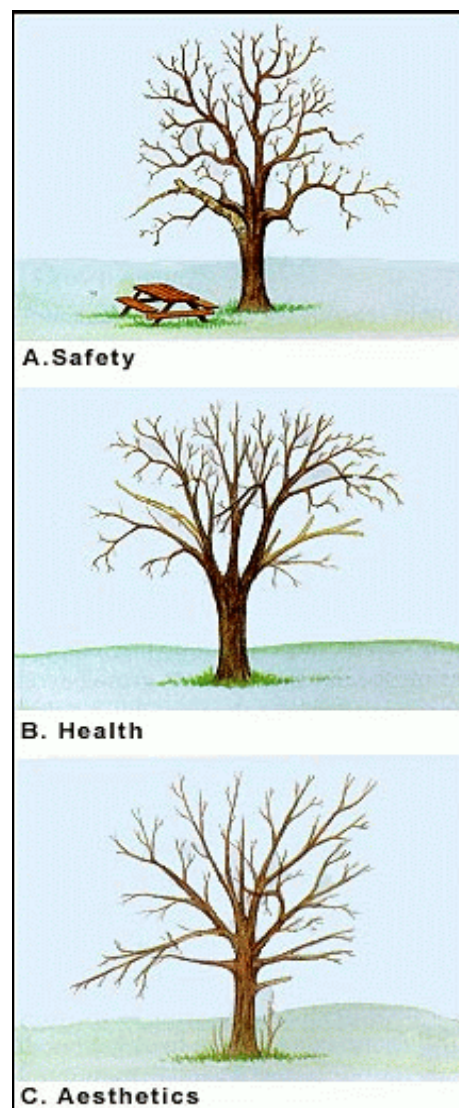


Figure 1. Reasons for pruning.

crossing and rubbing branches. Pruning can best be used to encourage trees to develop a strong structure and reduce the likelihood of damage during severe weather. Removing broken or damaged limbs encourage wound closure.

Pruning for *aesthetics* (Fig. 1C) involves enhancing the natural form and character of trees or stimulating flower production. Pruning for form can be especially important on open-grown trees that do very little self-pruning.

All woody plants shed branches in response to shading and competition. Branches that do not produce enough carbohydrates from photosynthesis to sustain themselves die and are eventually shed; the resulting wounds are sealed by **woundwood** (callus). Branches that are poorly attached may be broken off by wind and accumulation of snow and ice. Branches removed by such natural forces often result in large, ragged wounds that rarely seal. Pruning as a cultural practice can be used to supplement or replace these natural processes and increase the strength and longevity of plants.

Trees have many forms, but the most common types are pyramidal (**excurrent**) or spherical (**decurrent**). Trees with pyramidal crowns, e.g., most conifers, have a strong central stem and lateral branches that are more or less horizontal and do not compete with the central stem for dominance. Trees with spherical crowns, e.g., most hardwoods, have many lateral branches that may compete for dominance.

To reduce the need for pruning it is best to consider a tree's natural form. It is very difficult

to impose an unnatural form on a tree without a commitment to constant maintenance.

Pollarding and **topiary** are extreme examples of pruning to create a desired, unnatural effect. Pollarding is the practice of pruning trees annually to remove all new growth. The following year, a profusion of new branches is produced at the ends of the branches. Topiary involves pruning trees and shrubs into geometric or animal shapes. Both pollarding and topiary are specialized applications that involve pruning to change the natural form of trees. As topiary demonstrates, given enough care and attention plants can be pruned into nearly any form. Yet just as proper pruning can enhance the form or character of plants, improper pruning can destroy it.

Pruning Approaches

Producing strong structure should be the emphasis when pruning young trees. As trees mature, the aim of pruning will shift to maintaining tree structure, form, health and appearance.

Proper pruning cuts are made at a node, the point at which one branch or twig attaches to another. In the spring of the year growth begins at buds, and twigs grow until a new node is formed. The length of a branch between nodes is called an internode.

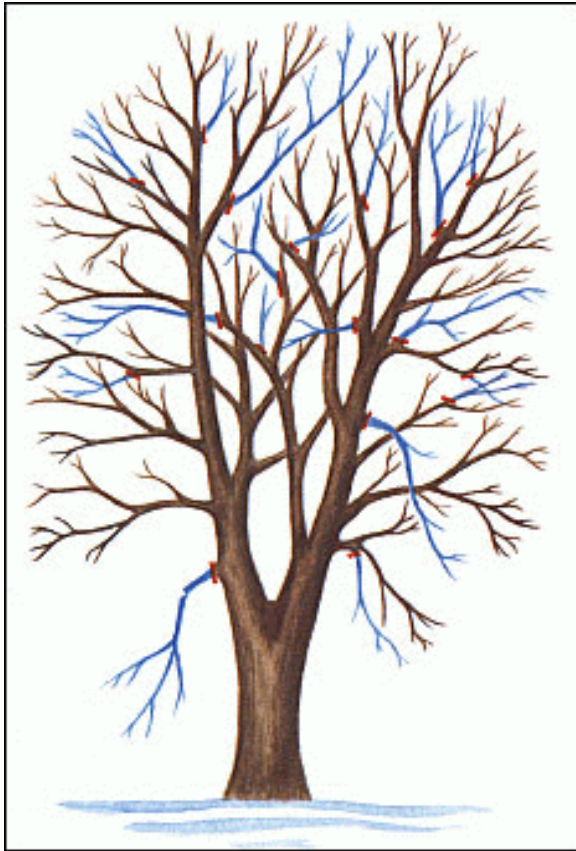


Figure 2. Crown thinning - branches to be removed are shaded in blue; pruning cuts should be made at the red lines. No more than one-fourth of the living branches should be removed at one time.

The most common types of pruning are:

1. *Crown Thinning* (Fig. 2)

Crown thinning, primarily for hardwoods, is the selective removal of branches to increase light penetration and air movement throughout the crown of a tree. The intent is to maintain or develop a tree's structure and form. To avoid unnecessary stress and prevent excessive production of epicormic sprouts, no more than one-quarter of the living crown should be removed at a time. If it is necessary to remove more, it should be done over successive years.



A. U-shaped strong union **B. V-shaped weak union**

Figure 3. Types of branch unions.

Branches with strong U-shaped angles of attachment should be retained (Fig 3A). Branches with narrow, V-shaped angles of attachment often form **included bark** and should be removed (Fig. 3B). Included bark forms when two branches grow at sharply acute angles to one another, producing a wedge of inward-rolled bark between them. Included bark prevents strong attachment of branches, often causing a crack at the point below where the branches meet. Codominant stems that are approximately the same size and arise from the same position often form included bark. Removing some of the lateral branches from a codominant stem can reduce its growth enough to allow the other stem to become dominant.

Lateral branches should be no more than one-half to three-quarters of the diameter of the stem at the point of attachment. Avoid producing "lion's tails," tufts of branches and foliage at the ends of branches, caused by removing all inner lateral branches and foliage. Lion's tails can result in sunscalding, abundant **epicormic sprouts**, and weak branch structure and breakage. Branches that rub or cross

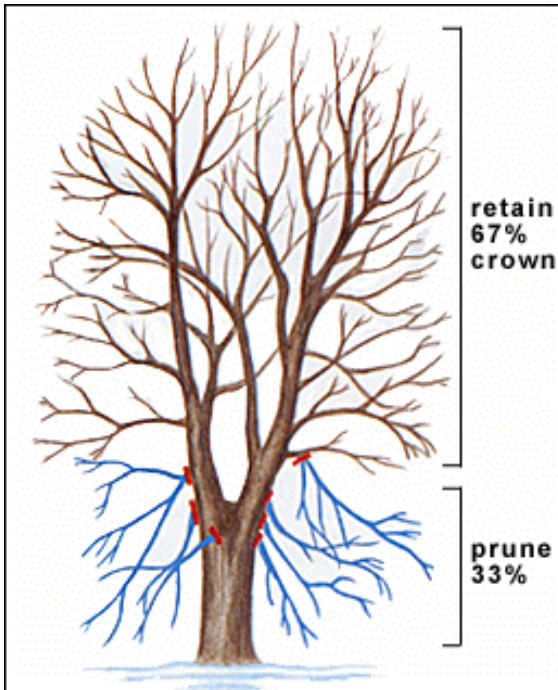


Figure 4. Crown raising - branches to be removed are shaded in blue; pruning cuts should be made where indicated with red lines. The ratio of live crown to total tree height should be at least two-thirds.

another branch should be removed.

Conifers that have branches in whorls and pyramidal crowns rarely need crown thinning except to restore a dominant leader.

Occasionally, the leader of a tree may be damaged and multiple branches may become codominant. Select the strongest leader and remove competing branches to prevent the development of codominant stems.

2. Crown Raising (Fig. 4)

Crown raising is the practice of removing branches from the bottom of the crown of a tree to provide clearance for pedestrians, vehicles, buildings, lines of site, or to develop a clear stem for timber production. Also, removing lower branches on white pines can prevent blister rust. For street trees the minimum clearance is often specified by municipal ordinance. After pruning, the ratio of the living crown to total tree height should be at least two-thirds (e.g., a 12 m tree should have living branches on at least the upper 8 m).

On young trees "temporary" branches may be retained along the stem to encourage taper and protect trees from vandalism and sun scald. Less vigorous shoots should be selected as temporary branches and should be about 10 to 15 cm apart along the stem. They should be pruned annually to slow their growth and should be removed eventually.

3. Crown Reduction (Fig. 5)

Crown reduction pruning is most often used when a tree has grown too large for its permitted space. This method, sometimes called **drop crotch pruning**, is preferred to topping because it results in a more natural appearance, increases the time before pruning is needed again, and minimizes stress (see drop crotch cuts in the next section).

Crown reduction pruning, a method of last resort, often results in large pruning wounds to stems that may lead to decay. This method should never be used on a tree with a pyramidal growth form. A better long term solution is to remove the tree and replace it

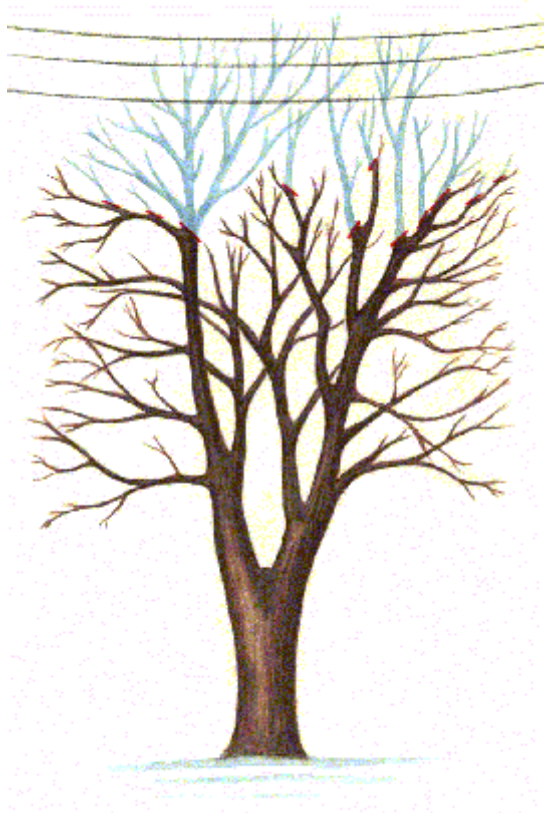


Figure 5. Crown reduction - branches to be removed are shaded in blue; pruning cuts should be made where indicated with red lines. To prevent branch dieback, cuts should be made at lateral branches that are at least one-third the diameter of the stem at their union.

with a tree that will not grow beyond the available space.

Pruning Cuts

Pruning cuts should be made so that only branch tissue is removed and stem tissue is not damaged. At the point where the branch attaches to the stem, branch and stem tissues remain separate, but are contiguous. If only branch tissues are cut when pruning, the stem tissues of the tree will probably not become decayed, and the wound will seal more effectively.

1. *Pruning living branches* (Fig. 6)

To find the proper place to cut a branch, look for the **branch collar** that grows from the stem tissue at the underside of the base of the branch (Fig. 6A). On the upper surface, there is usually a **branch bark ridge** that runs (more or less) parallel to the branch angle, along the stem of the tree. A proper pruning cut does not damage either the branch bark ridge or the branch collar.

A proper cut begins just outside the branch bark ridge and angles down away from the stem of the tree, avoiding injury to the branch collar (Fig. 6B). Make the cut as close as possible to the stem in the **branch axil**, but outside the branch bark ridge, so that stem tissue is not injured and the wound can seal in the shortest time possible. If the cut is too far from the stem, leaving a branch stub, the branch tissue usually dies and woundwood forms from the stem tissue. Wound closure is delayed because the woundwood must seal over the stub that was left.

The quality of pruning cuts can be evaluated by examining pruning wounds after one growing season. A concentric ring of woundwood will form from proper pruning cuts (Fig. 6B).

Flush cuts made inside the branch bark ridge or branch collar, result in pronounced development of woundwood on the sides of the pruning wounds with very little woundwood forming on the top or bottom (Fig. 7D). As described above, stub cuts result in the death of the remaining branch and woundwood forms around the base from stem tissues.

When pruning small branches with hand pruners, make sure the tools are sharp enough

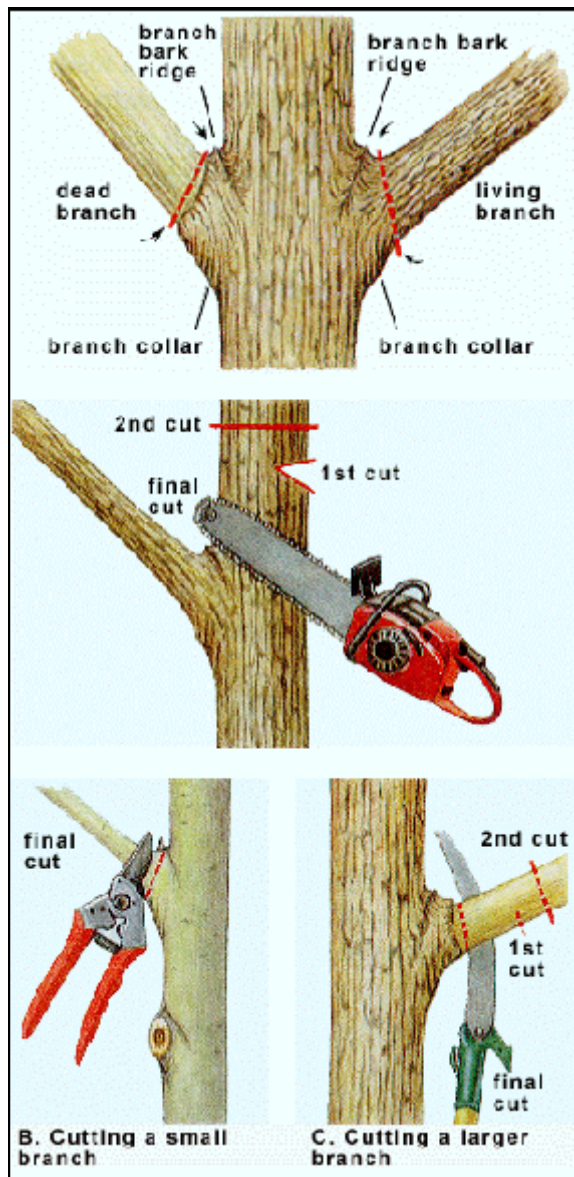


Figure 6. Pruning cuts

to cut the branches cleanly without tearing. Branches large enough to require saws should be supported with one hand while the cuts are made. If the branch is too large to support, make a three-step pruning cut to prevent bark ripping (Fig. 6C).

1. The first cut is a shallow notch made on the underside of the branch, outside the

branch collar. This cut will prevent a falling branch from tearing the stem tissue as it pulls away from the tree.

2. The second cut should be outside the first cut, all the way through the branch, leaving a short stub.
3. The stub is then cut just outside the branch bark ridge/branch collar, completing the operation.

2. Pruning dead branches (Fig. 6)

Prune dead branches in much the same way as live branches. Making the correct cut is usually easy because the branch collar and the branch bark ridge, can be distinguished from the dead branch, because they continue to grow (Fig. 6A). Make the pruning cut just outside of the ring of woundwood tissue that has formed, being careful not to cause unnecessary injury (Fig. 6C). Large dead branches should be supported with one hand or cut with the three-step method, just as live branches. Cutting large living branches with the three step method is more critical because of the greater likelihood of bark ripping.

3. Drop Crotch Cuts (Fig. 6D)

A proper cut begins just above the branch bark ridge and extends through the stem parallel to the branch bark ridge. Usually, the stem being removed is too large to be supported with one hand, so the three cut method should be used.

1. With the first cut, make a notch on the side of the stem away from the branch to be retained, well above the branch crotch.

2. Begin the second cut inside the branch crotch, staying well above the branch bark ridge, and cut through the stem above the notch.
3. Cut the remaining stub just inside the branch bark ridge through the stem parallel to the branch bark ridge.

To prevent the abundant growth of epicormic sprouts on the stem below the cut, or dieback of the stem to a lower lateral branch, make the cut at a lateral branch that is at least one-third of the diameter of the stem at their union.

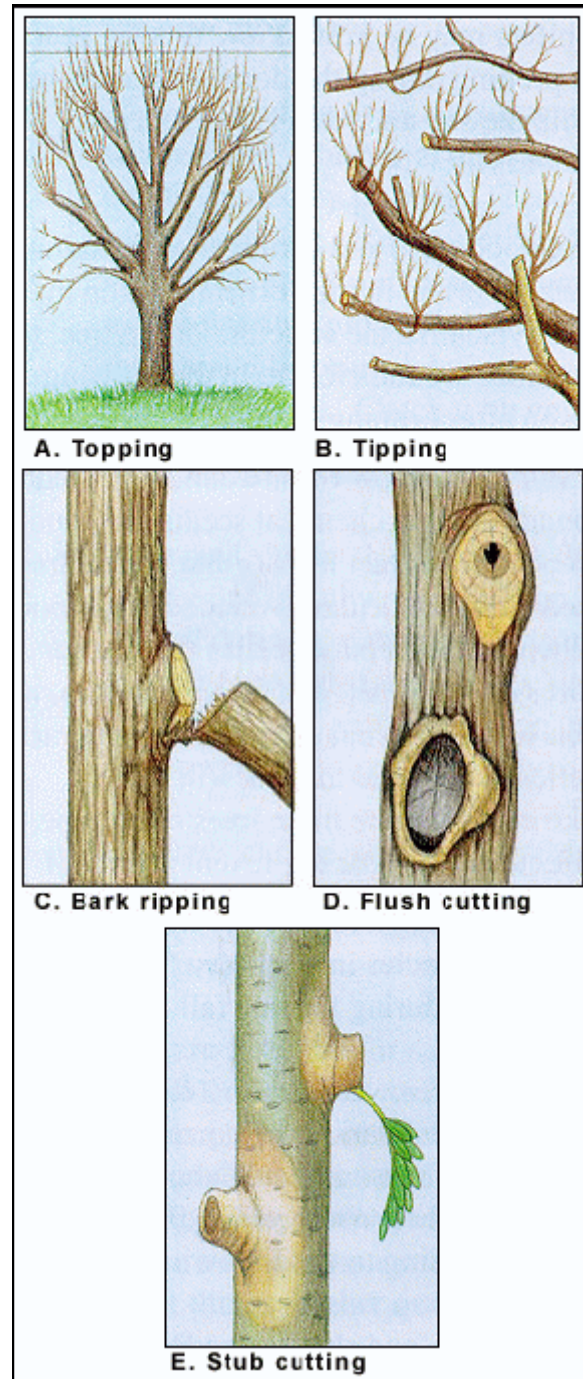
Pruning Practices That Harm Trees

Topping and **tipping** (Fig. 7A, 7B) are pruning practices that harm trees and should not be used. Crown reduction pruning is the preferred method to reduce the size or height of the crown of a tree, but is rarely needed and should be used infrequently.

Topping, the pruning of large upright branches between nodes, is sometimes done to reduce the height of a tree (Fig. 7A). Tipping is a practice of cutting lateral branches between nodes (Fig. 7B) to reduce crown width.

These practices invariably result in the development of epicormic sprouts, or in the death of the cut branch back to the next lateral branch below. These epicormic sprouts are weakly attached to the stem and eventually will be supported by a decaying branch.

Improper pruning cuts cause unnecessary injury and bark ripping (Fig. 7C). Flush cuts injure



stem tissues and can result in decay (Fig. 7D). **Stub cuts** delay wound closure and can provide entry to canker fungi that kill the cambium, delaying or preventing woundwood formation (Fig. 7E).

When to Prune

Conifers may be pruned any time of year, but pruning during the dormant season may minimize sap and resin flow from cut branches.

Hardwood trees and shrubs *without showy flowers*: prune in the dormant season to easily visualize the structure of the tree, to maximize wound closure in the growing season after pruning, to reduce the chance of transmitting disease, and to discourage excessive sap flow from wounds. Recent wounds and the chemical scents they emit can actually attract insects that spread tree disease. In particular, wounded elm wood is known to attract bark beetles that harbor spores of the Dutch elm disease fungus, and open wounds on oaks are known to attract beetles that spread the oak wilt fungus. Take care to prune these trees during the correct time of year to prevent spread of these fatal diseases. Contact your local tree disease specialist to find out when to prune these tree species in your area. Usually, the best time is during the late fall and winter.

Flowering trees and shrubs: these should also be pruned during the dormant season for the same reasons stated above; however, to preserve the current year's flower crop, prune according to the following schedule:

- ? Trees and shrubs that flower in early spring (redbud, dogwood, etc.) should be pruned immediately after flowering (flower buds arise the year before they flush, and will form on the new growth).
- ? Many flowering trees are susceptible to fireblight, a bacterial disease that can be spread by pruning. These trees,

including many varieties of crabapple, hawthorn, pear, mountain ash, flowering quince and pyracantha, should be pruned during the dormant season. Check with your county extension agent or a horticulturist for additional information.

- ? Trees and shrubs that flower in the summer or fall always should be pruned during the dormant season (flower buds will form on new twigs during the next growing season, and the flowers will flush normally).

Dead branches: can be removed any time of the year.

Pruning Tools

Proper tools are essential for satisfactory pruning (Fig.6). The choice of which tool to use depends largely on the size of branches to be pruned and the amount of pruning to be done. If possible, test a tool before you buy it to ensure it suits your specific needs. As with most things, higher quality often equates to higher cost.

Generally speaking, the smaller a branch is when pruned, the sooner the wound created will seal. Hand pruners are used to prune small branches (under 2.5 cm diameter) and many different kinds are available. Hand pruners can be grouped into by-pass or anvil styles based on the blade configuration. Anvil style pruners have a straight blade that cuts the branch against a small anvil or block as the handles are squeezed. By-pass pruners use a curved cutting blade that slides past a broader lower blade, much like a scissors. To prevent unnecessary tearing or crushing of tissues, it is best to use a

by-pass style pruner. Left- or right-handed types can be purchased.

Slightly larger branches that cannot be cut with a hand pruner may be cut with small pruning saws (up to 10 cm) or lopping shears (up to 7 cm diameter) with larger cutting surfaces and greater leverage. Lopping shears are also available in by-pass and anvil styles.

For branches too large to be cut with a hand pruner or lopping shears, pruning saws must be used. Pruning saws differ greatly in handle styles, the length and shape of the blade, and the layout and type of teeth. Most have tempered metal blades that retain their sharpness for many pruning cuts. Unlike most other saws, pruning saws are often designed to cut on the "pull-stroke."

Chain saws are preferred when pruning branches larger than about 10 cm. Chainsaws should be used only by qualified individuals. To avoid the need to cut branches greater than 10 cm diameter, prune when branches are small.

Pole pruners must be used to cut branches beyond reach. Generally, pruning heads can cut branches up to 4.4 cm diameter and are available in the by-pass and anvil styles. Once again, the by-pass type is preferred. For cutting larger branches, saw blades can be fastened directly to the pruning head, or a separate saw head can be purchased. Because of the danger of electrocution, pole pruners should not be used near utility lines except by qualified utility line clearance personnel.

To ensure that satisfactory cuts are made and to reduce fatigue, keep your pruning tools sharp and in good working condition. Hand pruners,

lopping shears, and pole pruners should be periodically sharpened with a sharpening stone. Replacement blades are available for many styles. Pruning saws should be professionally sharpened or periodically replaced. To reduce cost, many styles have replaceable blades.

Tools should be clean and sanitized as well as sharp. Although sanitizing tools may be inconvenient and seldom practiced, doing so may prevent the spread of disease from infected to healthy trees on contaminated tools. Tools become contaminated when they come into contact with fungi, bacteria, viruses and other microorganisms that cause disease in trees. Most pathogens need some way of entering the tree to cause disease, and fresh wounds are perfect places for infections to begin. Microorganisms on tool surfaces are easily introduced into susceptible trees when subsequent cuts are made. The need for sanitizing tools can be greatly reduced by pruning during the dormant season.

If sanitizing is necessary it should be practiced as follows: Before each branch is cut, sanitize pruning tools with either 70% denatured alcohol, or with liquid household bleach diluted 1 to 9 with water (1 part bleach, 9 parts water). Tools should be immersed in the solution, preferably for 1-2 minutes, and wood particles should be wiped from all cutting surfaces. Bleach is corrosive to metal surfaces, so tools should be thoroughly cleaned with soap and water after each use.

Treating wounds

Tree sap, gums, and resins are the natural means by which trees combat invasion by pathogens. Although unsightly, sap flow from pruning wounds is not generally harmful; however, excessive "bleeding" can weaken trees.

When oaks or elms are wounded during a critical time of year (usually spring for oaks, or throughout the growing season for elms) -- either from storms, other unforeseen mechanical wounds, or from necessary branch removals -- some type of wound dressing should be applied to the wound. Do this immediately after the wound is created. In most other instances, wound dressings are unnecessary, and may even be detrimental. Wound dressings will not stop decay or cure infectious diseases. They may actually interfere with the protective benefits of tree gums and resins, and prevent wound surfaces from closing as quickly as they might under natural conditions. The only benefit of wound dressings is to prevent introduction of pathogens in the specific cases of Dutch elm disease and oak wilt.

Pruning Guidelines

To encourage the development of a strong, healthy tree, consider the following guidelines when pruning.

General

- ? Prune first for safety, next for health, and finally for aesthetics.
- ? Never prune trees that are touching or near utility lines; instead consult your local utility company.
- ? Avoid pruning trees when you might increase susceptibility to important pests (e.g. in areas where oak wilt exists, avoid pruning oaks in the spring and early summer; prune trees susceptible to fireblight only during the dormant season).
- ? Use the following decision guide for size of branches to be removed: 1) under 5 cm diameter - go ahead, 2) between 5 and 10 cm diameter - think twice, and 3) greater than 10 cm diameter - have a good reason.

Crown Thinning

- ? Assess how a tree will be pruned from the top down.
- ? Favor branches with strong, U-shaped angles of attachment. Remove branches with weak, V-shaped angles of attachment and/or included bark.
- ? Ideally, lateral branches should be evenly spaced on the main stem of young trees.
- ? Remove any branches that rub or cross another branch.
- ? Make sure that lateral branches are no more than one-half to three-quarters of the diameter of the stem to discourage the development of co-dominant stems.

- ? Do not remove more than one-quarter of the living crown of a tree at one time. If it is necessary to remove more, do it over successive years.

Crown Raising

- ? Always maintain live branches on at least two-thirds of a tree's total height. Removing too many lower branches will hinder the development of a strong stem.
- ? Remove basal sprouts and vigorous epicormic sprouts.

Crown Reduction

- ? Use crown reduction pruning only when absolutely necessary. Make the pruning cut at a lateral branch that is at least one-third the diameter of the stem to be removed.
- ? If it is necessary to remove more than half of the foliage from a branch, remove the entire branch.

Glossary

Branch Axil: the angle formed where a branch joins another branch or stem of a woody plant.

Branch Bark Ridge: a ridge of bark that forms in a branch crotch and partially around the stem resulting from the growth of the stem and branch tissues against one another.

Branch Collar: a "shoulder" or bulge formed at the base of a branch by the annual production of overlapping layers of branch and stem tissues.

Crown Raising: a method of pruning to

provide clearance for pedestrians, vehicles, buildings, lines of sight, and vistas by removing lower branches.

Crown Reduction Pruning: a method of pruning used to reduce the height of a tree. Branches are cut back to laterals that are at least one-third the diameter of the limb being removed.

Crown Thinning: a method of pruning to increase light penetration and air movement through the crown of a tree by selective removal of branches.

Callus: see woundwood.

Decurrent: a major tree form resulting from weak apical control. Trees with this form have several to many lateral branches that compete with the central stem for dominance resulting in a spherical or globose crown. Most hardwood trees have decurrent forms.

Epicormic Sprout: a shoot that arises from latent or adventitious buds; also known as water sprouts that occur for on stems and branches and suckers that are produced from the base of trees. In older wood, epicormic shoots often result from severe defoliation or radical pruning.

Excurrent: a major tree form resulting from strong apical control. Trees with this form have a strong central stem and pyramidal shape. Lateral branches rarely compete for dominance. Most conifers and a few hardwoods, such as sweetgum and tuliptree, have excurrent forms.

Flush Cuts: pruning cuts that originate inside the branch bark ridge or the branch collar, causing unnecessary injury to stem tissues.

Included Bark: bark enclosed between

branches with narrow angles of attachment, forming a wedge between the branches.

Pollarding: the annual removal of all of the previous year's growth, resulting in a flush of slender shoots and branches each spring.

Stub Cuts: pruning cuts made too far outside the branch bark ridge or branch collar, that leave branch tissue attached to the stem.

Tipping: a poor maintenance practice used to control the size of tree crowns; involves the cutting of branches at right angles leaving long stubs.

Topping: a poor maintenance practice often used to control the size of trees; involves the indiscriminate cutting of branches and stems at right angles leaving long stubs. Synonyms include rounding-over, heading-back, dehorning, capping and hat-racking. Topping is often improperly referred to as pollarding.

Topiary: the pruning and training of a plant into a desired geometric or animal shape.

Woundwood: lignified, differentiated tissues produced on woody plants as a response to wounding (also known as callus tissue).

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“How to Prune Trees” was written to help people properly prune the trees they care about. If you doubt your ability to safely prune large trees, please hire a professional arborist. Information in this publication can be used to interview and hire a competent arborist.

TREE PRUNING

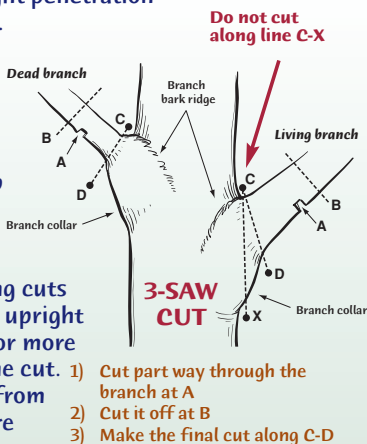
Prune Mature Trees Properly for Optimum Tree Health

Proper tree pruning removes dying, diseased or injured wood, crossing or crowded branches and restructures tree shape or reduces tree height. Proper thinning of the tree's canopy can increase light and air circulation within the canopy, reduce the occurrence of some diseases and reduce wind resistance. Pruning also influences the degree of vegetative growth and flower bud formation.

There are two types of pruning cuts: thinning and heading. A thinning cut removes a branch at its point of origin. When thinning to a lateral branch, the branch needs to be large enough to assume the terminal role. Ideally, the diameter of the retained lateral should be $\frac{1}{3}$ or more the diameter of the branch removed. Trees pruned with thinning cuts are more open, retain natural shape and allow more light penetration within the canopy.

Heading cuts remove a growing branch back to a bud, remove a lateral back to a stub or cut a lateral not large enough to assume a terminal role. Heading cuts result in vigorous, upright growth from one or more buds just below the cut. These shoots are from latent buds and are weakly attached.

To remove a limb use a 3-saw cut to ensure a clean, proper cut. See diagram. Avoid heavy pruning. Make pruning cuts just outside of the branch collar. Avoid making large pruning cuts, e.g. 3" or larger.



Do not leave stubs. Stubs allow pest and diseases to invade.

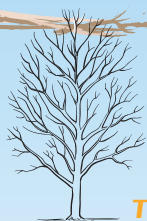
(see reverse)

Pruning is encouraged during winter or dormant months.

Do Not Top Trees!!

Start out right by planting trees appropriate for available space at tree's maturity. Prune a young tree for structure and form during the first 3-5 years.

Thinning vs. Topping



BEFORE PRUNING

TOPPING, No!

1 year later

The topped tree is stubbed and only a remnant of a lovely tree remains.



3 years later

Vigorous upright sprouts emerge. Sprouts are weakly attached and prone to breakage. They are abnormal, grow rapidly, and cause the tree to lose its natural shape.



When severely pruned, a tree branch will form many vigorous upright sprouts. These sprouts are weakly attached and look unsightly over time.

6 years later

A topped tree is as tall as the pruned tree yet far bushier and more prone to limb failure than originally.



THINNING AND CROWN REDUCTION, YES!

1 year later

If pruned properly, corrective thinning and crown reduction cuts occur but beauty and form are retained.



3 years later

Growth of thinned branches is spread evenly throughout canopy, maintaining its natural shape.



6 years later

A properly pruned tree is safer with strongly attached branches, more beautiful in form and its size better controlled.



For more information, refer to the ANR website at <http://anrcatalog.ucdavis.edu>, call your local UC Cooperative Extension office, or consult a certified arborist.



Funding for this project made possible from the Elvenia J. Slosson Endowment Fund.



How do I water my yard trees during this severe drought?

(August 2011)

Your trees are very valuable. Follow the simple directions below to help your trees to survive this extreme drought.

Should I water my tree? Texas is in one of the worst droughts in state history. If you have a tree in your yard, it's likely stressed from the drought. Protect your trees by watering now. A couple of dollars worth of water **right now** can protect your tree investment.

When should I water? If you can, avoid watering during the hottest part of the day (10 a.m. to 6 p.m.). Check with your city or local water utility company for watering restrictions. Many place limits the time of day, method and duration to conserve water.

What are the best ways to water my valuable, larger yard tree?
See the pictures and instructions for:

Garden Hose and Soaker Hose: These are the preferred methods, especially if you have watering restrictions.

Garden Hose Sprinkler: This is the fastest way to water larger areas.

What if I have in-ground, pop-up automatic sprinklers? Take a long screwdriver and poke it into the soil under the tree. If it doesn't go 6" to 8" deep in the soil, give your tree more water with the above methods.

What should I not do in a drought? Don't apply high-salt, quick release fertilizers or dig under the canopy of a tree in a severe drought. Don't prune live branches off young trees just because of drought. The tree may need these branches when the rains return.

Where can I get more information about the care of my tree?

Contact a local ISA Certified Arborist at www.isatexas.com or check out the Texas Forest Service website for more tree and drought related information.

**If you use a garden hose:**

Test your soil with a screwdriver blade. If it doesn't go into the soil 6 to 8 inches it's time to deeply water.



Turn the faucet on as high as you can – adjust the flow to just before the water starts to run off.

This saves you time.

Water closer to the trunk first and work your way out from there. Make sure to at least water the area under the canopy.



Check every half hour until you know how long it takes for water to penetrate the soil to at least 6 to 8 inches deep.



Once the screwdriver goes in at least 6 to 8 inches, note how long it took to water that spot. Keep moving the hose under the canopy of the tree until it is all watered.

Repeat every week during a severe drought.

Use the 6 to 8 inch screwdriver test to see if you need to re-water.



If you use a soaker hose:
(may be difficult to find in stores in a drought)

Soaker hoses work best for small to medium sized trees. It is a slow tree watering method.

Test your soil with a screwdriver blade. If it doesn't go in 6 to 8 inches into the soil it's time to deeply water.



On some soaker hoses, it can take four hours to put out one inch of water and eight hours for two inches of water.

Follow the directions that came with your soaker hose.



Put out 1 to 2 inches of water under the tree, starting near the trunk. Make sure to at least water the entire area under the canopy.



Repeat every week during a severe drought.

Use your 6 to 8 inch screwdriver test to see if you need to re-water.



If you use a sprinkler:

This is the fastest method to water your tree.

Test your soil with a screwdriver blade. If it doesn't go in 6 to 8 inches into the soil it's time to deeply water.



Cat food, tuna fish, soup or vegetable cans can be used to measure the amount of water a hose-end sprinkler puts out.

Put a can out under the sprinkler and water until there is 1 inch of water in the can.

This will take about 30 minutes depending on your sprinkler.

Check your container water levels every 15 minutes or so until you know how long it takes to put out 1 inch of water.



Once you know how long it takes for your sprinkler to put out 1 inch, just set your timer and keep moving the sprinkler around under the canopy of the tree. Put 1 to 2 inches of water out in each spot.

After a couple of hours, test how deep you have watered by pushing a screwdriver at least 6 to 8 inches deep into the soil. The blade will go in as far as water has penetrated. Water more if it doesn't go in at least 6 to 8 inches deep.

Repeat weekly in severe drought. Use the 6 to 8 inch screwdriver test to see if you need to re-water.