no branch should be removed without a reason.

Removing foliage from a tree has two distinct effects on its growth. Removing leaves reduces photosynthesis and may reduce overall growth. This is why pruning should always be performed sparingly. Over-pruning is extremely harmful because without enough leaves, a tree cannot gather and process enough sunlight to survive. However, after pruning, the growth that does occur takes place on fewer shoots, so they tend to grow longer than they would without pruning. Understanding how the tree responds to pruning should assist you when selecting branches for removal.

Pruning mature trees may require special equipment, training, and experience. If the pruning work requires climbing, the use of a chain or hand saw, or the removal of large limbs, the use of personal safety equipment, such as protective eye wear and hearing protection, is a must. Arborists can provide a variety of services to assist in performing the job safely and reducing risk of personal injury and damage to your property. They also are able to determine what type of pruning is necessary to maintain or improve the health, appearance and safety of your trees.

## Removal

Although tree removal is a last resort, there are circumstances when it is necessary. An arborist can help decide whether or not a tree should be removed. Professionally trained arborists have the skills and equipment to safely and efficiently remove trees. Removal is recommended when a tree:

- is dead, dying, or considered irreparably hazardous.
- is causing an obstruction, or is crowding and causing harm to other trees and the situation is impossible to correct through pruning.
- is to be replaced by a more suitable specimen.
- should be removed to allow for construction.

With proper maintenance, trees are attractive and can add considerable value to your property. Poorly maintained trees, on the other hand, can be a significant liability. Pruning or removing trees, especially large trees, can be dangerous work. It should only be performed by those trained and equipped to work safely in trees. For more information on mature tree care, contact your local ISA Certified Arborist, garden center, county extension agent or city arborist.

## The PHC Alternative

Maintaining mature landscapes is a complicated undertaking. You may wish to consider a professional *Plant Health Care* (PHC) maintenance program which is now available from many landscape care companies. Their program is designed to maintain plant vigor and should initially include inspections to detect and treat any existing problems which could be damaging or fatal. Thereafter, regular inspections and preventive maintenance will assure plant health and beauty. Refer to our "*Plant Health Care*" brochure for more information.

This brochure is one in a series published by the International Society of Arboriculture as part of its Consumer Information Program. You may have additional interest in the following titles currently in the series:

- Avoiding Tree Damage During Construction
- Avoiding Tree and Utility Conflicts
- Benefits of Trees
- Buying High-Quality Trees
- Insect and Disease Problems
- Mature Tree Care
- New Tree Planting
- Plant Health Care
- Proper Mulching Techniques
- Pruning Young Trees
- Pruning Mature Trees
- Recognizing Tree Hazards
- Treatment of Trees Damaged by Construction
- Tree Selection
- Tree Values
- Trees and Turf
- Why Hire an Arborist?
- Why Topping Hurts Trees

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www.isa-arbor.com



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# Mature Tree Care

***Think of tree care as an investment. A healthy tree increases in value with age; paying big dividends, increasing property values, beautifying our surroundings, purifying our air, saving energy by providing cooling shade from summer's heat and protection from winter's wind.***

Providing a preventative care program for your landscape plants is like putting money in the bank. Regular maintenance, designed to promote plant health and vigor, assures their value will continue to grow. Preventing a problem is much less costly and time-consuming than curing one once it has developed. An effective maintenance program, including regular inspections and the necessary follow-up care of mulching, fertilizing, and pruning, can detect problems and correct them before they become damaging or fatal. Considering many tree species can live as long as 200-300 years, including these practices when caring for your home landscape is an investment that will offer enjoyment and value for generations.

## Tree Inspection

Tree inspection is an evaluation tool to call attention to any change in the tree's health, before the problem becomes too serious. *By providing regular inspections of mature trees (at least once a year), you can prevent or reduce the severity of future disease, insect and environmental problems.* During the inspection, be sure to examine four characteristics of tree vigor: new leaves or buds, leaf size, twig growth, and crown dieback (gradual death of the upper part of the tree).

A reduction in the extension of shoots (new growing parts), such as buds or new leaves, is a fairly reliable cue that the tree's health has recently changed. To evaluate this, compare the growth of the shoots over the

past three years. Determine if there is a reduction in the tree's typical growth pattern.

Further signs of poor tree health are trunk decay and/or crown dieback. These symptoms often indicate problems that began several years before. Loose bark or deformed growths, such as trunk conks (mushrooms) are common signs of stem decay.

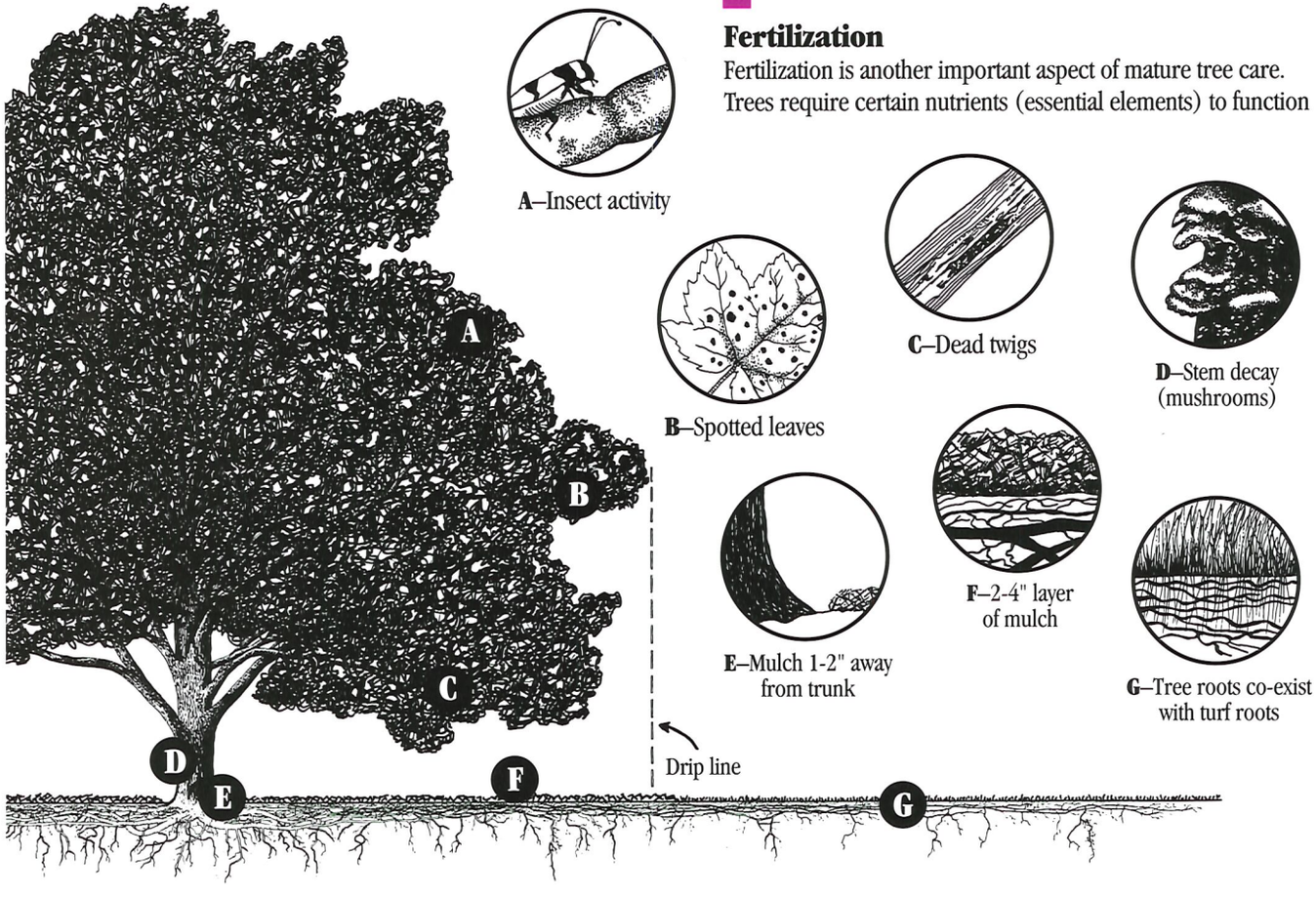
Any abnormalities found during these inspections, including insect activity, spotted, deformed, discolored or dead leaves and twigs, should be noted and watched closely. If you are uncertain as to what should be done, report your findings to your local ISA Certified Arborist, or other tree care professional, for advice on possible treatment.

## Mulching

Mulching can reduce environmental stress by providing trees with a stable root environment that is cooler and contains more moisture than the surrounding soil. Mulch can also prevent mechanical damage by keeping machines such as lawnmowers and weedwhips away from the tree's base. Further, mulch reduces competition from surrounding weeds and turf.

*To be most effective in all of these functions, mulch should be placed two to four inches deep and cover the entire root system, which may be as far as two to three times the diameter of the branch spread of the tree.* If the area and activities happening around the tree do not permit the entire area to be mulched, it is recommended that you mulch as much of the area under the drip line of the tree as possible (refer to diagram). When placing mulch, care should be taken not to cover the actual trunk of the tree. This mulch-free area, one to two inches wide at the base, is sufficent to avoid moist bark conditions and prevent trunk decay.

An organic mulch layer of two to four inches of loosely packed shredded leaves, pine straw, peat moss, or composted wood chips is adequate. Plastic should *not* be used because it interferes with the exchange of gases between soil and air, which inhibits root growth. Thicker mulch layers, five to six inches or greater, may also inhibit gas exchange.






**A**–Insect activity



**B**–Spotted leaves



**C**–Dead twigs



**D**–Stem decay (mushrooms)



**E**–Mulch 1-2" away from trunk



**F**–2-4" layer of mulch



**G**–Tree roots co-exist with turf roots

## Fertilization

Fertilization is another important aspect of mature tree care. Trees require certain nutrients (essential elements) to function and grow. Urban landscape trees are often growing in soils that do not contain sufficient available nutrients for satisfactory growth and development. In these situations it may be necessary to fertilize to improve plant vigor.

Fertilizing a tree can increase growth, reduce susceptibility to certain diseases and pests, and can even help reverse declining health. However, if fertilizer is not applied wisely, it may not benefit the tree at all, and may even adversely affect the tree. Mature trees making satisfactory growth may not require fertilization. When considering supplemental fertilizer, it is important to know what nutrients are needed, and when and how it should be applied.

Soil conditions, especially pH and organic matter content, vary greatly making the proper selection and use of fertilizer a somewhat complex process. When dealing with a mature tree that provides considerable benefit and value to your landscape, it is worth the time and investment to have the soil tested for nutrient content. Most quality garden centers can arrange to have your soil tested at a soil testing laboratory. With the test results in hand, you can consult your local garden center staff, ISA Certified Arborist or a plant care professional for advice on application rates, timing, and the best blend of fertilizer for each of your trees and other landscape plants.

Mature trees have expansive root systems that extend from two to three times the size of the leaf canopy. A major portion of actively growing roots are located outside the tree's drip line. It is important to understand this when applying fertilizer to your trees as well as your turf. Many lawn fertilizers contain weed and feed formulations that may be harmful to your trees. When you apply a broadleaf herbicide to your turf, remember, tree roots co-exist with turf roots. The same herbicide that kills broadleaf weeds in your lawn is picked up by tree roots and can harm or kill your broadleaf trees if applied incorrectly. Understanding the actual size and extent of a tree's root system, before you fertilize, is necessary to determine how much, what type, and where to best apply fertilizer.

## Pruning

Pruning is the most common tree maintenance procedure next to watering. Pruning is often desirable or necessary to remove dead, diseased, or insect infested branches, improve tree structure, enhance vigor, or maintain safety. Since each cut has the potential to change the growth of (or cause damage to) a tree,