

TREE AND LANDSCAPE EVALUATION ¹

by Leslie S. Mayne

Ever since the time when man first started to cultivate the same soil on a permanent basis for his subsistence rather than relying on shifting forms of tillage, or the gathering of wild seeds and fruits, or by hunting, he has built permanent homes. In all regions of the world, except in those so arid or so cold that little or no vegetation can grow, or where the tropical rain forest clearings soon have their fertility leached out of them, he has planted trees and shrubs.

Initially those trees and shrubs were fruit or nut trees, or those that provided fiber or dyes. But with those plantings came unexpected benefits in the form of shelter from the sun or wind or barriers against the encroachment of their cattle or wild animals. Then as man had more leisure, he started not only with his arts but also the cultivation of trees and shrubs as decorations to his home, so combining the aesthetic with the functional.

Ultimately, this cultivation of trees and shrubs in the immediate home grounds, expanded to include the total manipulation of all the landscape surroundings, was extended to cover all trees, shrubs, and other vegetation which had as its main purpose the enhancing of the aesthetic and other intangible values combining them, if possible, with the more functional ones such as shelter from the wind, the sun, and sound, or as a screening.

I wish to place before you the various aspects which can influence the monetary value of trees and shrubs due to their influence on the landscape. It is obvious that they do have a value. But what is that value in dollars, and how do we arrive at that value? And do these values change as we recognize more and more that trees and shrubs generally provide benefits other than the aesthetic ones alone? For example, and this is particularly important in this day of energy saving, by providing shade, they serve as air conditioners and by so doing reduce the cost of the energy

required to bring the temperature and humidity within a residence down to a comfortable level. The U.S. Forest Service is credited with stating that the landscaping is worth 20 percent of the total value of the property. I wonder whether or not the value of the trees on a property for air conditioning purposes was considered in this evaluation.

There is substance to the statement that trees in the right location saves energy. In the regions of the eastern states where the Dutch elm disease has virtually wiped out the elms lining the streets, it has been found that the cost of keeping a house cooler in the summer and warmer in the winter can be related to the loss of the elm trees for the cost has increased considerably. Under those circumstances, could not these elms have been valued not only on the basis of their intangible aesthetic values but also on the basis of the annual saving in the energy bill? Then, in this same theme, does it not seem reasonable that if an air conditioning system is destroyed by storm or fire, and so becomes a casualty loss that can be expressed in dollars, so too should not the loss of a tree that serves the same purpose be valued on the same basis as the air conditioner?

Since woody shrubs are generally replaceable, they can usually be valued at the cost of replacing them. However, the attempts to arrive at the true value of an amenity tree is more complex. The necessity of doing so includes 1) income tax deductions where casualty loss is concerned; 2) tort cases where damage to trees are involved; and 3) as part of the total value where appraisals for real estate transactions are required.

None of the methods yet devised is perfect, for not only are the various aspects of a tree's value very complex but also all appraisals inevitably include some subjective judgments or values.

Some of the methods tried and used are as

¹ Paper given at the San Francisco International Appraisers Conference in 1977.

follows:

1. The evaluation by foresters of tree loss due to fire, windstorm, or theft. The loss trees are valued based on their economic values when processed into lumber or cordwood. However, today with our greater awareness of the possible environmental consequences, the total loss should also include factors for 1) degradation of the soil due to erosion caused by the loss of cover; 2) degradation of streams for the same reason, 3) increased windfall of the remaining trees due to the opening up of the forest canopy, and 4) loss of wildlife habitat.

2. Food crop or fiber trees can be valued based on their annual production times their expectancy of life modified by the cost of their care, a relatively simple formula.

3. For the evaluation of landscape (or amenity) trees and woody shrubs, several methods have been tried.

a. Replacement value. This method is the simplest type of appraisal for it only requires the estimated cost of replacing the casualty tree and caring for it until it becomes established. Often the casualty tree cannot reasonably be replaced with one of the same size and species. So this method can be used only when replacing comparatively small trees, that is, those trees not over 12 inches in diameter. Furthermore, in many instances, it is not possible to move in trees of equal size to the casualty tree because of inaccessibility and other reasons.

b. Capital gains method. This method takes the cost of planting a 2- to 3-inch diameter tree of like species to the casualty tree, and compounding this cost by a given rate of interest, such as 5 percent, for the number of years that it takes to grow the small tree to the size of the one that it replaces. Added to this would be the annual cost of caring for this tree compounded in the same way. Since many of the landscape trees that become casualties are 50 years old, the total amount cannot be considered as realistic.

c. Considering the casualty tree as part of the land and valuing it as the difference between the value of the land immediately before the casualty and immediately after. This is a method favored in

some instances by the IRS, particularly when large trees are involved. I shall elaborate on this method in greater detail later.

d. The value per square inch of the cross-section of the trunk at 4½ feet above the ground method as published in the booklet entitled *A guide to professional evaluation of landscape trees, specimen shrubs, and evergreens* developed and published by the International Society of Arboriculture, under the auspices of the Council of Tree and Landscape Appraisers.

It is this last method that I wish to discuss in detail for it is the best method yet devised, providing that it is used by qualified professionals. Furthermore, this method may require a close cooperation with a qualified land appraiser since, at times, the value of the tree may have to be, according to the present IRS rules, related to the value of the land.

This method, basically, values trees that are impractical to replace with trees of the same size at \$10 per square inch of the cross-section of the trunk. Where trees with multiple stems are involved, the square-inch factor is generally considered as the cross-section area of the largest trunk (stem) plus the sum of half of each additional trunk. This \$10-per-square-inch value is for the best species, in the best location, and in the best condition. Seldom will a tree meet all of these conditions 100 percent so usually there is considerable modification.

Four factors are used in arriving at the value of a landscape tree under this method. The first two are simple and uncomplicated but both location and condition must be broken down into subheadings in order to arrive at the proper value of any particular tree. The four factors are:

1. Kind (species). Obviously certain species of trees are more desirable in the landscape than others, not only for their ornamental value in that particular location but also because of their relatively lower maintenance costs, or they belong to a species that is immune or more resistant to certain diseases that might be in that region, for example, Dutch elm disease, or root rot of oak (*Armillaria*). Climate or microclimate might influence the choice of species as the

most desirable in a region.

2. **Size.** Small trees, those from 2 to 12 inches in diameter measured 12 inches above the ground, can generally be in the replacement class, therefore, replacement costs are the factor here. Trees from 10 inches in diameter at breast height (4½ feet) to 40 inches are within the size limit where the square-inch-of-cross-section basic formula is used. Trees over 40 inches in diameter are so large that the values obtained by the basic formula are not realistic unless one considers the potential liability for future care.

3. **Condition.** What is the remaining expectancy of life? Does it require immediate attention, such as pruning or cabling, or does it have a curable disease or pest which could be an expense? Does it have any of the crown rot diseases which may be temporarily cured but would shorten its life? Is the *Armillaria* fungus present? Is it under stress due to grading and what would be the expense to alleviate the problem? Placing all of these condition factors together, do they imply a tremendous financial liability in the future? It is possible that under some circumstances a tree with such a list of defects may have a negative value.

4. **Location.** What does it "do" for the landscape? Was it a main feature in the landscape plan? Is it a focal point? Does it suppress a more desirable tree? Is it the wrong tree in that location by casting too much shade, obscuring a desired view, or causing damage to driveways or foundations? Would its absence improve the landscape? Does it have historical significance?

Qualitative judgments have to be made in three of the above categories. And indeed, even the fourth (size), requires a decision on whether to use the replacement value or the square-inch formula.

The chief reasons for tree and shrub appraisals are 1) income tax deductions and 2) tort cases involving tree damage. According to Treasury regulations under Section 165, U.S. Treasury Regulation 1.165-7 (b) (2) (ii), loss is measured by the difference in value immediately before and after the casualty of the property considered as a whole. Under this regulation, it is clear that only a land appraiser can make such an appraisal.

Although the land appraiser may be competent in his own field, his competency would enable him to only evaluate within 10 percent of the market value on that particular day. If this assumption is correct he is not competent to judge a loss which may be less than 5 percent of the total value of the property, nor would his capabilities be such that he could make a guess at the value since neither species, location, or condition are within the field of his expertise.

If he indeed makes a guess, for example the loss of a \$2,000-tree on a \$150,000 piece of property, he may be doing an injustice to the IRS (which represents all of us) or to his client. The alternative, therefore, is to call in a competent arborist to make the appraisal for him, and then in order to comply with the IRS regulations, endorse the arborist's appraisal. A 10 percent error on an appraisal of \$150,000 is \$15,000. Can any land appraiser value a piece of property within 1½ percent of the true market value?

Moreover, the situation may be even more complicated for under U.S. Rev. Rul. 66-303. 1966-2C B 55. the IRS has specifically recognized the replacement cost as acceptable evidence of the loss in the property value caused by casualty loss to trees.

Because of these two rulings, the ISA booklet *A guide to the professional evaluation of landscape trees, specimen shrubs, and evergreens* suggests that in the main, trees under 12 inches in diameter, measured 12 inches above the ground (10 inches dbh), should be valued at their replacement cost, and only larger trees (up to 40 inches) should be valued on the basis of area of the cross-section. Even larger trees are subject to the judgment of the appraiser.

Under the present regulations the land appraiser requires the services of an arborist who by education and experience is capable of assisting him. The arborist requires the services of a land appraiser for a fair evaluation for one property may not be fair on another. In final analysis the value of a shade tree must be related to the value of the property, otherwise, the total value could be out of proportion. Obviously, one could not place a \$5,000 tree on a \$5,000 lot, nor could one place a \$1,000 tree on a \$5,000

lot if there are remaining four other trees of equal size, location, and condition.

I have been challenged in court, for after explaining the square-inch method and relating my evaluation to the value of the land, the opposing attorney said that he was aware that I was a tree expert but he was not aware that I was a qualified land appraiser.

I disagree with the "before and after" regulation for appraising, unless the owner has a house on the market, for his loss represents possibly many years of tendering loving care which is not compensated for by the method of evaluation. Possibly this is sentiment on which no dollar value can be placed.

I have not discussed the partial loss of trees due to casualty, such as fire or windstorm, because I feel that this field belongs almost entirely to the arborist. Almost entirely because in tort cases, the tree owner's loss should include the partial loss of the casualty tree by disfigurement. The other factors in his loss would be the cost of immediate remedial repair work, and since seldom is such repair work final, the projected cost of future remedial work and care due to the casualty should also be included. The partial loss is a matter of subjective judgement expressed as a percentage of the appraised value of the tree, or by replacement, if that is an appropriate solution. The item for projected cost of future remedial work has been questioned many times, and yet in personal injury cases, the immediate medical attention can be but a small part of the total medical treatments, which the court well recognizes.

An example of the projected cost of future repair is a large tree with the wound in the trunk. Inevitably this wound will cause decay which will form a cavity unless regularly treated for several years. The expenses incurred through the wound, therefore, must be projected until the wound has healed. For the life of this tree there will be a scar which disfigures it and this constitutes a partial loss of the tree.

Finally an appraisal of a property for the purpose of consummating a sale could be to the disadvantage of the purchaser who may have

relied on such appraisal. For if the property has on it trees with incurable diseases or diseases that require extensive and expensive treatment for which no allowance has been made in the appraisal, the purchaser may be paying more than he intended to pay due to the additional expense of unforeseen tree care costs, or worse still by the death of important trees to the landscape. Again, it must be emphasized, the land appraiser should collaborate with an arborist.

Another example, we had a very severe freeze in December 1972. Some owners wishing to take a tax loss due to damage by the freeze to many of their shrubs and trees, used land appraisers for the before and after evaluation. Immediately after, the vegetation had the appearance of never recovering from the damage and was appraised. Six months later, after an inexpensive pruning, the recovery was almost complete. The IRS allowed a greater deduction than would have been necessary if the appraisal had been made by someone competent in evaluating the freeze loss. The observations concerning freeze damage applies also to fire damage, for no correct appraisal of partially killed trees can be made just after the fire occurs. Time is the only judge.

Where do you find a competent plantsman to aid in an appraisal? It is my opinion that only an arborist who has had a background, which not only includes a knowledge of physiological and pathological diseases but, also, has had experience in the treating of them, is competent to evaluate large trees. A nurseryman or a landscape contractor would have the capability of evaluating shrubbery loss but not large trees.

One source of a competent arborist would be from members of the American Society of Consulting Arborists who have standards for admittance to membership.

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