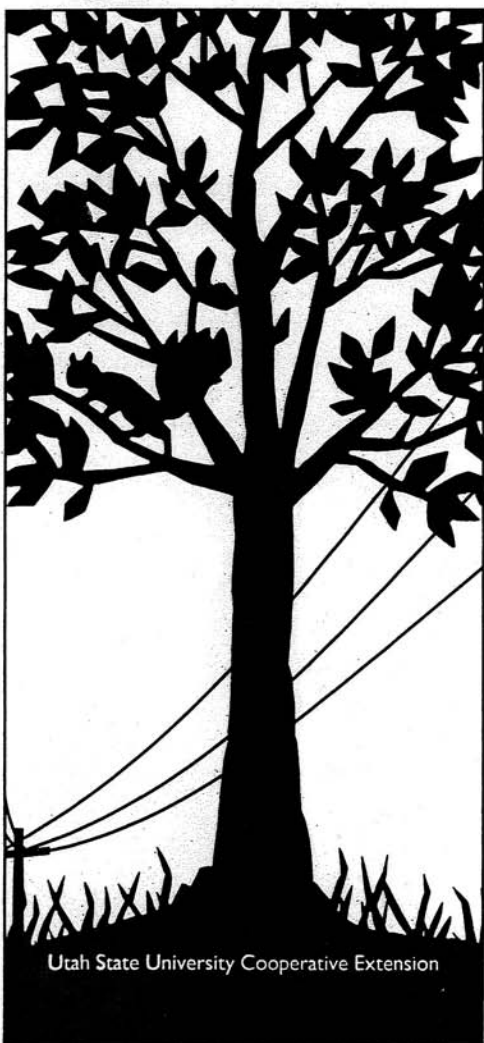


T rees & Power Lines



Trees and power lines are both important assets for our communities. Trees provide beauty, shade, wildlife habitat, and wind protection, while power lines bring us electricity for lights, heat, and appliances.

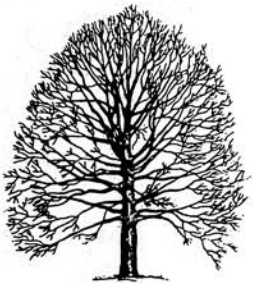
Unfortunately, trees and power lines often end up in conflict. Many power outages are caused by trees that have grown into the lines. Trees growing into power lines cause increased line clearing costs. The pruning done during line clearing may also decrease tree health and cause trees to become dangerous.

Fortunately, modern power line pruning techniques have been developed that result in healthier, safer trees and reduced line clearing costs. However, they also make a tree look much different than it would if traditional techniques were used.

This brochure will describe these modern techniques so you will understand the basics of good and bad utility pruning. Some reminders about planting trees near power lines are also included.

Never try to clear tree branches from power lines on your own.

Always refer such work to a qualified technician.



Modern Power Line Pruning

Topping, also called hedging or rounding-over, is the traditional technique for clearing trees

from power lines. In this technique, all branches are cut at a certain distance below the lines, leaving a hedge-like appearance (Figure 1). Stubs are created where cuts are made, and some of the resulting wounds can be quite large.

These stubs create two major problems. First, they encourage the formation of many fast-growing sprouts that can reach the lines in one or two growing seasons (Figure 2). Second, stubs are very difficult for a tree to heal. Therefore, the crown of a topped tree usually consists of dense “nests” of sprouts attached to a rotten branch. Such a tree is hazardous and needs to be pruned every year or two to maintain line clearance.

Tree care professionals, realizing the problems with topping, have developed a new method called *natural pruning* or *directional pruning*.

Power Lines

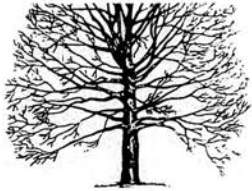


Figure 1. Topped tree

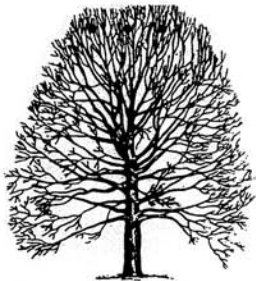


Figure 2. Sprouts on topped tree

Natural pruning takes advantage of the way a tree grows naturally to minimize sprouting and encourage wound healing. It is quickly becoming the standard for power line pruning nationwide.

In natural pruning, branches that grow toward a power line are removed while those that grow away from it are retained. Stubs are avoided by cutting a branch where it meets another branch or the trunk (Figure 3).

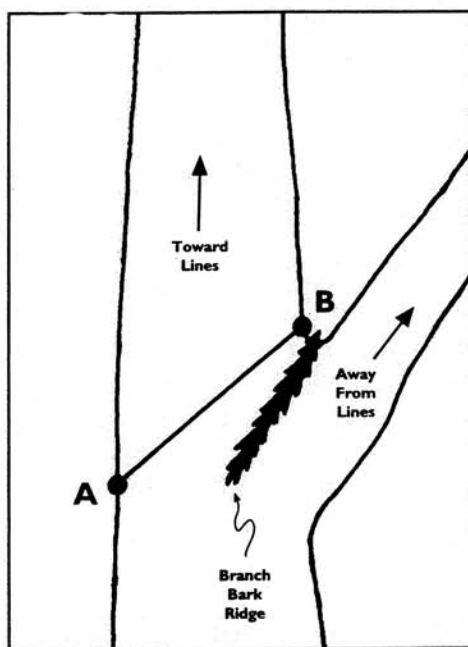


Figure 3. Cut A-B removes limb that is growing toward lines.

The branch or trunk that remains is at least one-third the diameter of the branch that is removed. This reduces sprouting and creates a wound that heals quickly.

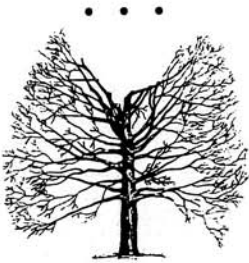


Figure 4. Natural or directional pruning

Trees that are properly pruned using the natural method often take on a V-shape if the lines are directly overhead (Figure 4).

If the lines are to one-side the tree may be L-shaped or may have little or no crown on one side (Figure 5). This may appear to create an unbalanced or weak crown. Natural pruning does not weaken the crown, however, and the tree will adjust for any lack of balance. Often the power lines and pruning cuts are less visible using this method than when a tree is topped.

Natural pruning works best if started when a tree is young and may not work on trees that have been topped many times. Such trees often are too rotten and poorly formed to benefit. Trees with crowns that spread are the most easily pruned. Conifers and other trees with strong central leaders or trunks are more difficult to train with this method

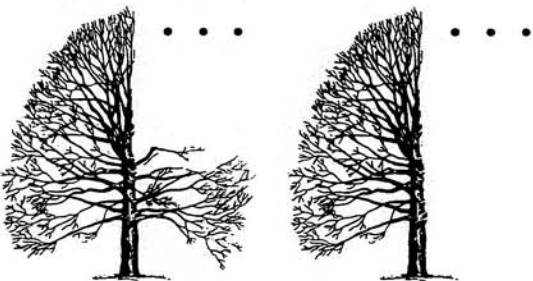


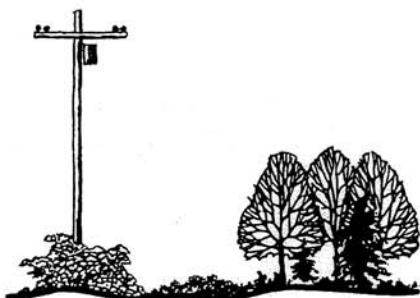
Figure 5. Natural or directional pruning with lines to side

Tree Removal

Natural pruning can be used on most trees to keep branches clear of power lines. However, trees that are very unhealthy, rotten, or that have been topped many times should be removed. Undesirable species such as tree-of-heaven should also be removed rather than pruned. Many times such trees were not part of a planned landscape anyway, but grew due to natural seeding or sprouting.



Talk to a qualified arborist or tree pruning professional if you have a tree near a power line that you think might need to be removed. This often will be done free-of-charge by your electrical utility.



Planting Precautions

The best way to prevent conflicts between trees and power lines is to plant trees in the correct location. Though some large trees grow under power lines naturally, many are planted there because people do not realize how large they will get. Remember that a four foot tall, two foot wide tree might end up being 60 feet tall and 30 feet across. Learn the mature size and crown characteristics of any tree you buy and plant accordingly.

Avoid planting trees of any size directly under main power supply lines since utility crews may need access to these areas. Small trees (up to 20 feet tall) can be planted adjacent to power lines but off to one side. Medium or large trees should be spaced 20 to 30 feet horizontally from power lines. The following table shows the spacing from power lines for some trees commonly planted in Utah.

Credits: Text by Mike Kuhns, Extension Forestry Specialist, Utah State University. Design by Michael W. Smith, Extension Publications. Tree drawings used with permission from *Native Trees for Urban and Rural America* by Gary L. Hightshoe.

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Tree Size and Power Lines

Tree Size/Type Mature Height

Small: *Can be planted adjacent to power lines*

Dwarf Fruit Trees	20 to 25 feet
Flowering Crabapple	10 to 25 feet
Redbud	15 to 20 feet
Purpleleaf Plum	15 to 20 feet
Hawthorns	15 to 20 feet
Ornamental Junipers	10 to 20 feet

Medium-Small: *Plant at least 15 feet horizontally from power lines*

Callery (Bradford) Pears	20 to 35 feet
Mountain-Ash	20 to 30 feet
White Spruce	30 to 45 feet

Medium-Large: *Plant at least 20 feet horizontally from power lines*

Green Ash	40 to 60 feet
Linden or Basswood	40 to 60 feet
Austrian, Scotch, Ponderosa Pines	45 to 65 feet
Norway Maple	40 to 50 feet
Honeylocust	40 to 50 feet
Buckeye and Horsechestnut	30 to 45 feet
Blue and Norway Spruces	50 to 70 feet

Large: *Plant at least 30 feet horizontally from power lines*

Silver Maple	50 to 70 feet
Oaks	50 to 70 feet
Hackberry	50 to 70 feet
Sycamore and London Planetree	70 to 80 feet
Cottonwoods, Poplars	70 to 90 feet

For Assistance...

For additional information on tree selection, planting, and care contact your County Extension office, District Forester, or local nursery.

