

## The Unkindest Cut: Pruning Myths

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You've got your trusty pruners - now what? The whens, wheres, hows, and whys of pruning woody plants is littered with conflicting information and just plain bad advice. This seminar will focus on the science of pruning, allowing gardeners to understand how good and bad pruning affects plant responses. Handouts containing the text of the talk will be provided.

### **Seminar roadmap**

#### General effects of pruning

- ♥ Short term
- ♥ Long term

#### Bad practices

- ♥ Topping young trees
- ♥ Pruning at transplant
- ♥ Pruning laterals on young trees
- ♥ Pruning ancient trees

#### General effects of pruning

- ♥ Thinning cuts have little effect on bud growth
- ♥ Heading cuts stimulate bud growth - epicormics shoots
- ♥ Crown pruning decreases root growth
- ♥ Pruning dwarfs trees
  - ♥ The greater the crown removal, the greater the reduction in ring growth and canopy years later
  - ♥ Summer pruning decreases carbon fixation proportionally
  - ♥ Renovation pruning increases reproductive growth over girth

#### Topping young trees

##### "Building a better tree"

- ♥ Production nursery approach to creating columnar forms
- ♥ Requires constant maintenance to retain form and remove competing leaders
- ♥ Maintenance pruning rarely built into the budget
- ♥ Unmanaged trees develop bark inclusions, can become hazardous

##### Creating miniature adults

- ♥ Retail nursery practice that appeals to unwary customers
- ♥ Requires corrective pruning to restore natural shape

Instead: Choose the right species, variety or cultivar for the site

#### Pruning at transplant

- ♥ Common in nurseries for container plants - easier to ship
- ♥ Long term negative effects though in short term water use is decreased

Instead: Leave the crown alone until roots have established

## Pruning laterals on young trees

- ✦ Creates artificial adult form
- ✦ Reduces resources to adjacent tissues
- ✦ Exposes thin bark to environmental stresses
  - ✦ Sun/heat
  - ✦ Cold
  - ✦ Animal damage

Instead: Let lower laterals senesce naturally (cladogenesis)

## Pruning ancient trees - aka "retrenchment"

### Retrenchment

- ✦ Removal of significant portion of crown, leaving stubs and topped terminals
- ✦ Approach to reduce the risk of the tree splitting apart and to promote growth of new branches from the lower part of the tree

### Physiological effects

- ✦ Biggest impact on roots and lower stem
  - ✦ Change in carbon allocation to secondary axes
  - ✦ Reduces taper as well as girth
  - ✦ Creates resource deficits for roots and associated beneficial organisms
- ✦ Severity of wound and vigor of host influence response and survival
  - ✦ Older trees are less likely to recover from pruning than younger trees (compensatory response)
  - ✦ Stressed trees attract pest insects (e.g. pine beetles)
  - ✦ Emerald ash borer most likely to lay eggs on trees with 40-60% of crown removed
  - ✦ New growth attracts browsers
  - ✦ Large branch pruning has increased associated costs
    - ✦ take longer to seal
    - ✦ increase the chance of pathogens
- ✦ Concerns
  - ✦ Damage from increased exposure of shade leaves to full sun
  - ✦ Structural integrity decreased
  - ✦ Aesthetically unappealing
  - ✦ Not based on any published science

Instead: Follow accepted pruning standards and prune conservatively

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