

A spring workshop hosted by



Tree and Shrub Pruning

Plant Selection

- ✓ One of the most important decisions
- ✓ Poor plant choices become maintenance problems
- ✓ Plant the right plant in the right place
- ✓ Use adaptable plants specific to site, whether native or not

Objectives of Pruning

- ✓ Control size
- ✓ Direct and train growth
- ✓ Influence flowering and fruiting
- ✓ Corrective pruning
- ✓ Maintain health and appearance
 - Remove dead, diseased, or damaged tissue
- ✓ Safety: hazard trees
- ✓ Rejuvenate old, overgrown plants
- ✓ Specialty pruning: topiary, espalier, pleaching, pollarding, bonsai

Principles of Good Pruning

- ✓ Always assess entire plant before making any cuts
- ✓ Never prune without a good reason
- ✓ Keep in mind growth rate of plant, form, mature height and width
- ✓ Don't forget flower and fruit display
- ✓ All plants have a finite life, may not be worth rejuvenating half dead shrub

General Responses to Pruning

- ✓ Responds by making new growth elsewhere
- ✓ Stimulates budbreak at cut
- ✓ Response varies based on:
 - Growth habit
 - Plant age
 - Size
 - Timing
 - Severity of pruning

General Responses to Pruning

- ✓ Breaks apical dominance
- ✓ Removal of terminal shoot/bud
 - Sap flow stops to terminal
 - Shoots just below wound sprout
 - Related to reduced flow of auxin
 - Common example: pinching of tips of annuals causes bushiness
- ✓ Removal of lateral shoot
 - More terminal growth

General Responses to Pruning

- ✓ Cutting back hard into older wood
 - Only on suitable plants
 - Some plants may respond poorly with poor growth, no flowers, or die of shock
- ✓ Dormant buds at base of plant stimulated on some plants only

General Rules of Pruning

- ✓ Shrubs generally look their best with natural habit and size
- ✓ Well positioned pruning cuts
 - Key to restoring balanced outline
 - Maximizes flower and fruit display
 - Maintain plant health and vigor
- ✓ Remove unwanted growth when young!
- ✓ Clean pruning cuts
 - Close faster than if torn or bruised
 - Small as possible, prune regularly

Types of Pruning Tools

- ✓ Pruners: by-pass blade
 - Stems up to 1/2" in diameter
- ✓ Loppers
- ✓ Pruning saw
- ✓ Pole pruners: tall shrubs
- ✓ Hand shearing clippers: hedges, topiary
- ✓ Electric hedge trimmers
 - Safety glasses
 - Ear plugs
- ✓ Chainsaw: leave it to an expert!

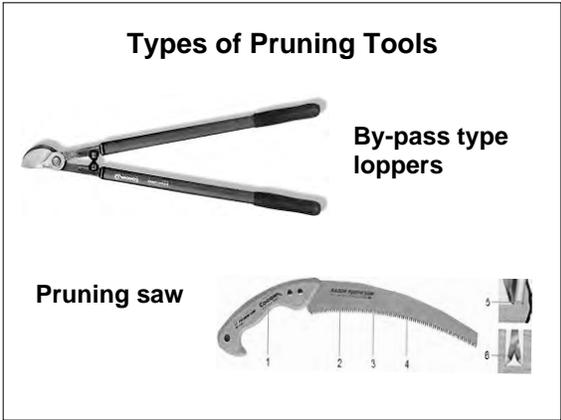
Types of Pruning Tools



By-pass type of pruners are best

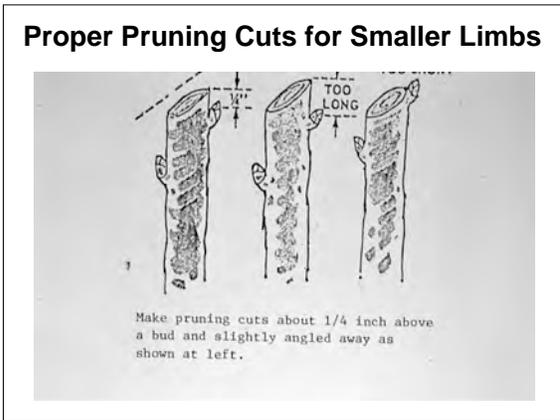
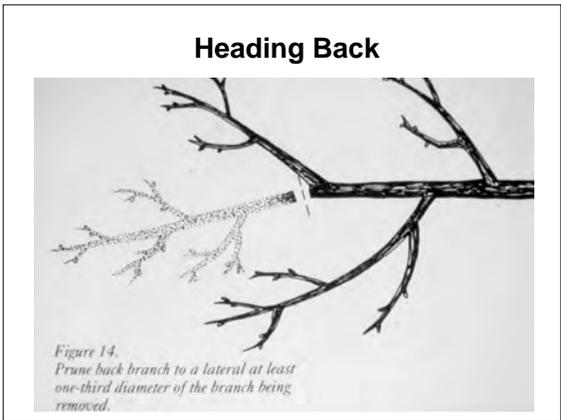


Anvil type of pruners: not recommended



- ### Tools Maintenance
- ✓ Clean and dry daily
 - ✓ Final wipe with oily rag
 - ✓ Sharpen often with file
 - ✓ Disinfectant if pruning diseased plants
 - 10% bleach solution, rusts
 - Alcohol
 - Lysol: easy to use, no rust

- ### Types of Shrub Pruning Cuts
- ✓ Heading back
 - ✓ Renewal (selective thinning cuts)
 - ✓ Rejuvenation: cut all the way back to within 4"-2'
 - ✓ Pinching
 - ✓ Deadheading: spent flowers
 - ✓ Shearing: formal hedges



Heading Back Pruning Cuts

- ✓ Envision the direction of shoot growth that will result from pruning cut
- ✓ Avoid poorly shaped plants with crossing branches or crowded center
- ✓ Prune back to an outward facing bud
- ✓ If opposite, can prune back to buds or remove one of them, leaving outward facing bud
- ✓ Do not leave a stub

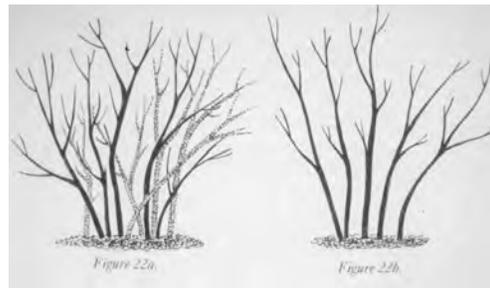
Heading back cuts

- ✓ Most species tolerant to this type of pruning besides most trees:
 - *Chaenomeles* spp.: flowering quince
 - *Chionanthus virginicus*: fringetree
 - *Clethra alnifolia*: summersweet clethra
 - *Cotoneaster apiculatus*, *C. horizontalis*: cranberry and rockspray cotoneasters
 - *Daphne x burkwoodii*: daphne
 - *Diervilla lonicera*: dwarf bush honeysuckle
 - *Deutzia* spp.: deutzia
 - *Euonymus alatus*: burning bush

Heading back cuts

- ✓ Most species tolerant to this type of pruning
 - *Fothergilla* spp.: fothergillas
 - *Hamamelis* spp.: witchhazels
 - *Hibiscus syriacus*: rose-of-Sharon
 - *Hydrangea paniculata*: panicle hydrangea
 - *Hypericum kalmianum*: Kalm St. Johnswort
 - *Prunus tomentosa*: Manchu cherry
 - *Prunus triloba*: double flowering plum
 - *Syringa meyeri* 'Palibin': dwarf Korean lilac
 - *Syringa patula* 'Miss Kim': Miss Kim lilac
 - *Viburnum carlesii*, *V. x juddii*: Koreanspice and Judd viburnums
 - *Weigela* spp.: weigela

Thinning or Renewal: Completely remove 1/3 of largest diameter branches back to the base of the plant on a yearly basis, opens it up, allows for new sucker growth



Species Tolerant to Renewal Pruning: Suckering Shrubs

- ✓ *Aesculus parviflora*: bottlebrush buckeye
- ✓ *Aronia* spp.: chokeberries
- ✓ *Berberis thunbergii*: Japanese barberry
- ✓ *Cornus* spp.: shrub dogwoods, except for *Cornus mas*
- ✓ *Corylus americana*: American hazelnut
- ✓ *Forsythia* spp.: forsythias
- ✓ *Kerria japonica*: Japanese kerria
- ✓ *Ilex verticillata*: winterberry
- ✓ *Morella pennsylvanica*: northern bayberry
- ✓ *Philadelphus* spp.: mockorange
- ✓ *Physocarpus opulifolius*: eastern ninebark

Species Tolerant to Renewal Pruning

- ✓ *Potentilla fruticosa*: potentilla
- ✓ *Prunus x cistena*: purpleleaf sandcherry
- ✓ *Rhus* spp.: sumacs
- ✓ *Rosa rugosa*: rugosa rose (suckering types)
- ✓ *Salix* spp.: shrub willows
- ✓ *Sorbaria sorbifolia*: Ural falsespirea
- ✓ *Spiraea* spp.: spireas
- ✓ *Symphoricarpos* spp.: snowberry, coralberry
- ✓ *Syringa vulgaris*, *S. x hyacinthiflora*, *S. x chinensis*: common, early, and Chinese lilac
- ✓ *Viburnum dentatum*, *V. trilobum*, *V. opulus*, *V. lentago*, *V. lantana*: arrowwood, American and European cranberrybush viburnums, nannyberry, wayfaringtree viburnum

Rejuvenation: Severely cutting back stems of shrubs, used on suckering, fast growing overgrown, leggy shrubs only

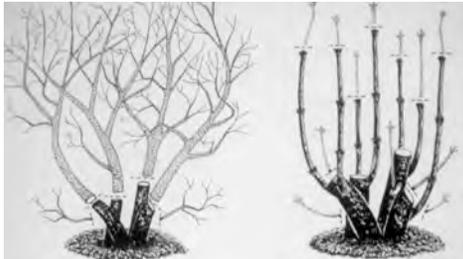


Figure 21a. Rejuvenation by severing stems at the base.

Figure 21b. Heading back and removing new canes.

Rejuvenation

- ✓ Cut back to strong, large stems to redevelop main framework of branches, remove side branches first
- ✓ Cut back entire plant to 3-12" from ground (depends on species)
- ✓ Do not prune below graft union
- ✓ Do in dormant season ONLY
- ✓ Can do gradually over several years
- ✓ Will produce numerous shoots from pruned stumps, thin to 2-3 per stump
- ✓ Species to rejuvenate heavily: shrub willows, elderberry

Rejuvenation

- ✓ Other species tolerant to rejuvenation: redbud dogwood, potentilla, Japanese spirea, Annabelle hydrangea, *Genista*, smokebush, shrub roses (if some winter kill)
- ✓ Combine with thinning of older branches: potentilla and spirea
- ✓ Dieback shrubs: butterfly bush, Russian-sage, purple beautyberry, bluebeard, vitex



Pinching: Removal of tips of shoots to allow for lateral branches to break, increases bushiness of shrub

Deadheading: Removal of faded flowers, avoids fruit and seed formation, can encourage second flush of flowers

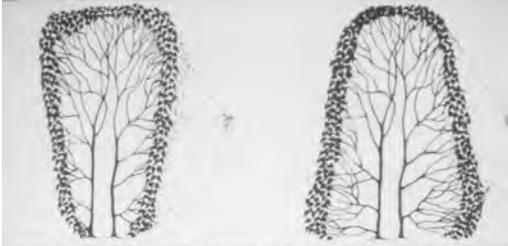


Cut back to an outward facing bud

Shearing: For formal hedges only, new growth is sheared off to maintain tight, geometric form, higher maintenance



Shearing Rules: Bottom of hedge should be wider than the top of hedge



The formal hedge, left, is improperly shaped. The top should not be wider than the bottom. The right, a properly-shaped formal hedge. The top is narrower than the bottom.

Shearing Rules: Do not continue to cut top of sheared hedge back to the original point of last year's cut, get witches brooming, leave 1/2-1" of previous season's growth



Do not shear plants that can produce showy flowers or fruit or lack latent buds (junipers)



Species Tolerant to Shearing

- ✓ Produce latent buds farther down stem, tolerant of close clipping, dense habit, non-showy flowers or fruit
- ✓ Plant often grown for foliage only or as a screen
 - *Berberis thunbergii*: Japanese barberry
 - *Buxus* spp.: boxwoods
 - *Cotoneaster lucidus*: hedge cotoneaster
 - *Euonymus alatus*: burning bush
 - *Ligustrum* spp.: privets
 - *Lonicera x xylosteoides* 'Clavey's Dwarf': Clavey's Dwarf honeysuckle
 - *Ribes alpinum*: alpine currant
 - *Taxus x media*, *T. cuspidata*: yews
 - *Thuja occidentalis*: arborvitae
 - *Tsuga canadensis*: Canadian hemlock (young)
 - **NEVER** shear *Cornus stolonifera*, *C. alba*, *C. sanguinea*, very prone to stem canker

Topping: Removal of all the larger branches back to a certain height on trees or large shrubs, not recommended, very prone to decay, internodal cuts



Timing of Pruning

- ✓ To stimulate shoot growth: prune prior to budbreak
- ✓ To retard shoot growth: prune just after leaf expansion
- ✓ Never prune trees or shrubs during leaf expansion
- ✓ Don't prune at time of planting except for damaged, diseased, or dead wood
- ✓ Prune during dry weather, if possible

Timing of Pruning: Dormant Season

- ✓ Best time to prune, can see form
- ✓ No diseases or insects active
- ✓ Required for oaks and elms
- ✓ Good for summer flowering plants
 - Produce flowers on current season's new growth
 - Prune before flower buds develop
 - Late winter to early spring
- ✓ Season for rejuvenation pruning
- ✓ Cuts off flower buds on spring flowering plants, but can prune

Prune in Dormant Season: Summer or Fall Flowering

- ✓ Shrubs
 - *Aesculus parviflora*: bottlebrush buckeye
 - *Buddleja davidii*: butterfly bush
 - *Caryopteris x clandonensis*: bluebeard
 - *Cephalanthus occidentalis*: buttonbush
 - *Clethra alnifolia*: summersweet clethra
 - *Cornus alba*, *C. stolonifera*, *C. sanguinea*, *C. racemosa*, *C. amomum*: Tatarian, redosier, bloodtwig, gray, and silky dogwoods
 - *Corylus americana*: American hazelnut (no flowers)
 - *Cotinus coggygria*: smokebush
 - *Diervilla lonicera*: bush honeysuckle
 - *Genista tinctoria*: common woodwaxen
 - *Hamamelis virginiana*: common witchhazel
 - *Hibiscus syriacus*: rose-of-Sharon
 - *Hydrangea macrophylla*, *H. arborescens*, *H. paniculata*: bigleaf, smooth, and panicle hydrangeas

Prune in Dormant Season: Summer or Fall Flowering

- ✓ Shrubs
 - *Hypericum kalmianum*: Kalm St. Johnswort
 - *Myrica pennsylvanica*: northern bayberry (foliage)
 - *Lespedeza bicolor*: shrub bushclover
 - *Perovskia atriplicifolia*: Russian-sage
 - *Potentilla fruticosa*: potentilla
 - *Pyracantha coccinea*: scarlet firethorn
 - *Rhus* spp.: sumacs
 - *Rosa* spp.: shrub roses
 - *Sambucus canadensis*: American elderberry
 - *Sambucus nigra*: European elderberry
 - *Sorbaria sorbifolia*: Ural false-spirea
 - *Spiraea japonica*: Japanese spirea
 - *Stephanandra incisa* 'Crispa': cutleaf stephanandra
 - *Tamarix chinensis*: tamarisk
 - *Vitex agnus-castus*: chastetree, vitex
 - *Yucca filamentosa*: Adam's needle yucca

Timing of Pruning: Spring

- ✓ Quicker wound closure as bark is slipping
- ✓ Can do on summer flowering plants if done in early spring (mid-late April)
- ✓ Don't prune until new, expanding growth has hardened off (June)
- ✓ Worst time to prune oaks and elms due to vascular wilts
- ✓ Many insects and diseases active
- ✓ Worst time of year to prune!

Timing of Pruning: Early to Mid Summer

- ✓ Not a good time to prune either
- ✓ Many diseases and insects active
- ✓ Retards further shoot growth
- ✓ But o.k. time for spring flowering plants
 - Produce flowers on previous season's, older growth
 - Prune right after flowering
 - Early summer as if wait too long, next year's flower buds are being produced
- ✓ Cuts off flower buds on summer flowering plants

Prune in Early to Mid Summer: Spring Flowering Plants

- ✓ Shrubs
 - *Aronia* spp.: chokeberries
 - *Caragana arborescens*: Siberian peashrub
 - *Chaenomeles* spp.: flowering quinces
 - *Chionanthus virginicus*: fringetree
 - *Cornus mas*: Corneliancherry dogwood
 - *Cotoneaster* spp.: cotoneaster
 - *Daphne x burkwoodii*: daphne
 - *Deutzia* spp.: deutzia
 - *Forsythia* spp.: forsythia
 - *Fothergilla* spp.: fothergillas
 - *Hamamelis vernalis*: vernal witchhazel
 - *Ilex verticillata*: winterberry
 - *Kerria japonica*: Japanese kerria

Prune in Early to Mid Summer: Spring Flowering Plants

- ✓ **Shrubs**
 - *Kolkwitzia amabilis*: beautyberry
 - *Lonicera* spp.: honeysuckles (non-invasive ones)
 - *Philadelphus* spp.: mockorange
 - *Physocarpus opulifolius*: eastern ninebark
 - *Prunus* spp.: cherry, plum, almond
 - *Rhodotypos scandens*: black jetbead
 - *Salix* spp.: shrub willows (can prune in late winter)
 - *Syringa* spp.: lilacs
 - *Spiraea* spp.: spring flowering spireas, not *S. japonica*
 - *Symphoricarpos* spp.: snowberry, coralberry
 - *Viburnum* spp.: viburnums
 - *Weigela* spp.: weigela

Timing of Pruning: Late Summer to Early Fall

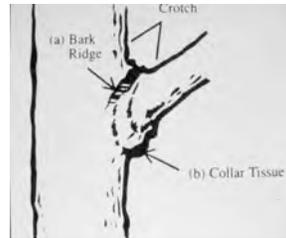
- ✓ Second worst time to prune
- ✓ May stimulate late season shoot growth, won't harden off (on species that flush growth several times normally in season)
- ✓ Slow to poor wound closure
- ✓ Many diseases and insects active
- ✓ Cuts off flower buds on spring flowering plants
- ✓ Best reserved for storm damaged plants only

Invasive Species Pruning



Best time to prune: late fall and immediately treat stumps with systemic herbicide

Proper Pruning Cuts



- ✓ **Branch collar:** trunk tissue that forms around the base of a branch

- ✓ **Branch bark ridge:** ridge of bark in a branch crotch that marks where branch and trunk tissues meet and can extend down tree trunk



3-Point Method of Larger Branch Removal: Leave branch collar and branch bark ridge alone

Pruning Spring Flowering Shrubs



- ✓ Heading back or thinning cuts (if suckering), do not shear
- ✓ Prune after flowering or when dormant



Pruning Summer or Fall Flowering Shrubs



- ✓ Heading back or thinning cuts (if suckering), rejuvenation, do not shear
- ✓ Prune in early spring or when dormant



Pruning Shrubs Produced on a Standard



Pruning Shrubs Produced on a Standard

- ✓ Training shrubs as standards
 - Clear, tall stem with shrub on top
 - Formal appearance, suitable for containers
 - Only certain plants suitable
 - Often topgrafted onto seedling rootstock
 - After first season, shorten laterals by half, encourage bushiness
 - Remove sprouts on main trunk and suckers
 - Prune to maintain neat, balanced head of foliage

Pruning Shrubs Produced on a Standard

- ✓ Non-grafted standards: train leading shoot from early age on clear stem, needs staking, due in stages
 - Shorten laterals
 - Remove laterals later
 - Once at desired height (3-5 1/2'), allow 3 more sets of buds to develop above 3-5 1/2'
 - Pinch out terminal bud
 - Encourages laterals to break
 - After first season, shorten laterals by half, encourage bushiness

Pruning Broad-leaved Evergreens



- ✓ Little pruning is needed, few heading back cuts
- ✓ Do not thin, often lacks latent buds on stem
- ✓ Growth from terminals
- ✓ Can shear boxwood only



Pruning Needle-leaved Evergreens: Pines



- ✓ Little pruning is needed
- ✓ Growth from terminals
- ✓ Prune to maintain compact habit

- ✓ Remove 1/2-2/3 of elongated candles before needle expansion in spring
- ✓ Do not thin or shear, often lacks latent buds on stem



**Pruning Needle-leaved Evergreens:
Spruce, Fir, Douglas-fir**



- ✓ Little pruning is needed
- ✓ Growth from terminal and lateral buds
- ✓ Prune tip of branch back to a lateral bud, can do when dormant
- ✓ In early summer, remove 2/3 of an unbranched tip to keep full
- ✓ Keep natural form, do not prune back into older wood

Pruning Needle-leaved Evergreens: Yews, hemlocks, arborvitae



- ✓ Shrubs with latent buds
- ✓ Heading back in spring to side branch or bud
- ✓ Head back or shear in late spring to mid summer after flush of growth (yews)
- ✓ Prune after new growth is hardened (lignified)

Yew before and after heading back, mask cuts with remaining foliage



**Pruning Needle-leaved Evergreens:
Junipers and falsecypress**



- ✓ Shrubs without latent buds
- ✓ Heading back cuts to lateral branch, hide cuts
- ✓ Never rejuvenate or shear into older wood, no shoots will develop
- ✓ Prune in late spring to early summer
- ✓ Plant in appropriate place away from sidewalks

Unfortunate Pruning: deer browsing on arborvitae

- ✓ Slow to fill back in
- ✓ Does not regenerate quickly from old, inner wood, but will over a long time



Pollarding

Pollarding is not topping!



Wound wood forms a knob from which epicormic branches develop

Wounds are highly compartmentalized