

AIR-LAYERING

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&

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AGENDA

- What It Is
- Why to Air-Layer
- How to Do It
- When to Do It
- Aftercare & Pitfalls to Avoid
- Future Projects



WILD OLIVE

Olea europaea sylvestris



BEARBERRY

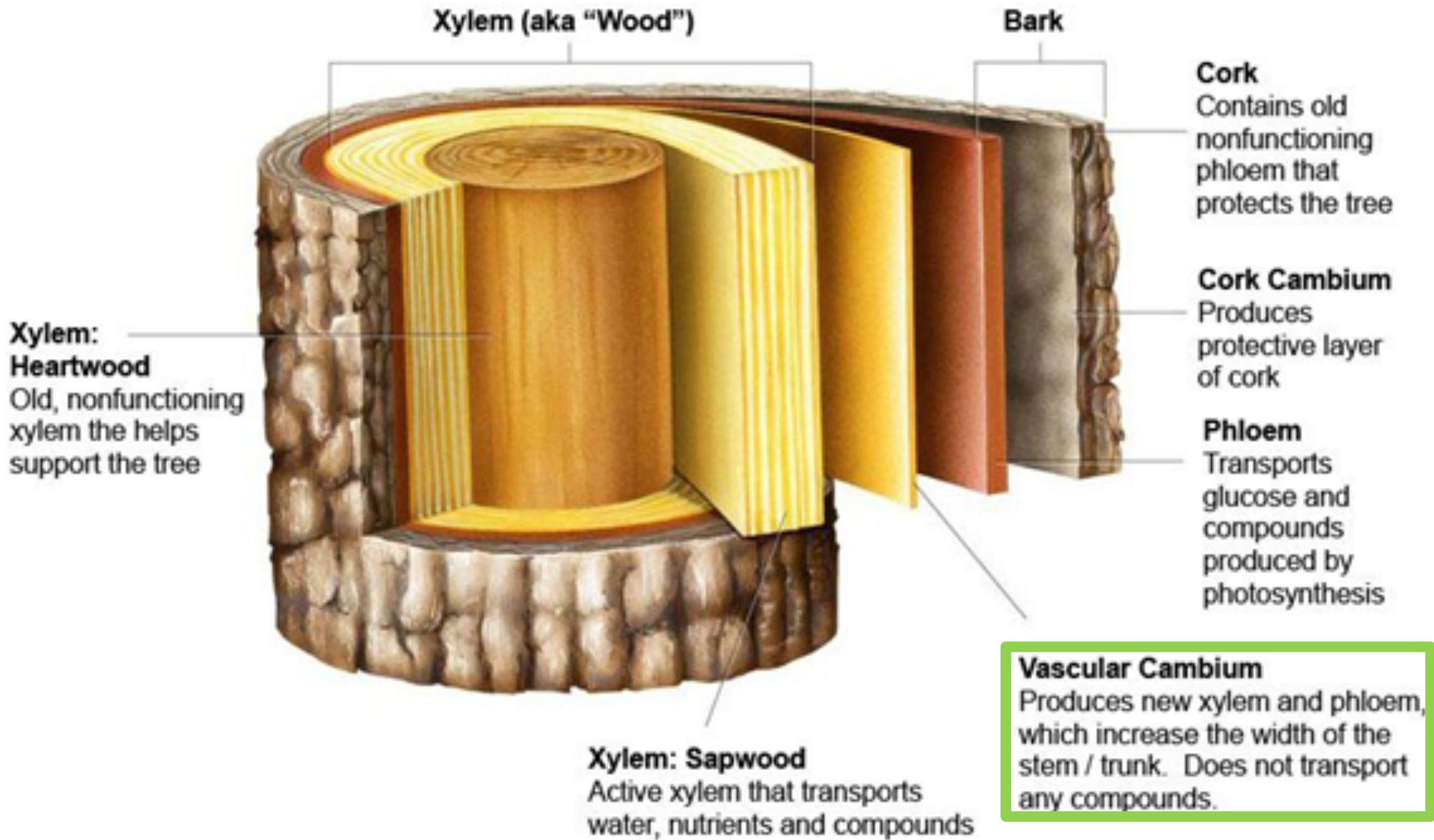
Cotoneaster dammeri

WHAT IS AIR-LAYERING?

A propagation method to generate roots on a cutting before separation from the parent plant.

Roots grow out of necessity (cuttings) or opportunity (layering). Branches that sense a “ground” develop a new layer of roots, such as in a ground-layer.

Air-layering simulates “ground” where you want roots to grow.

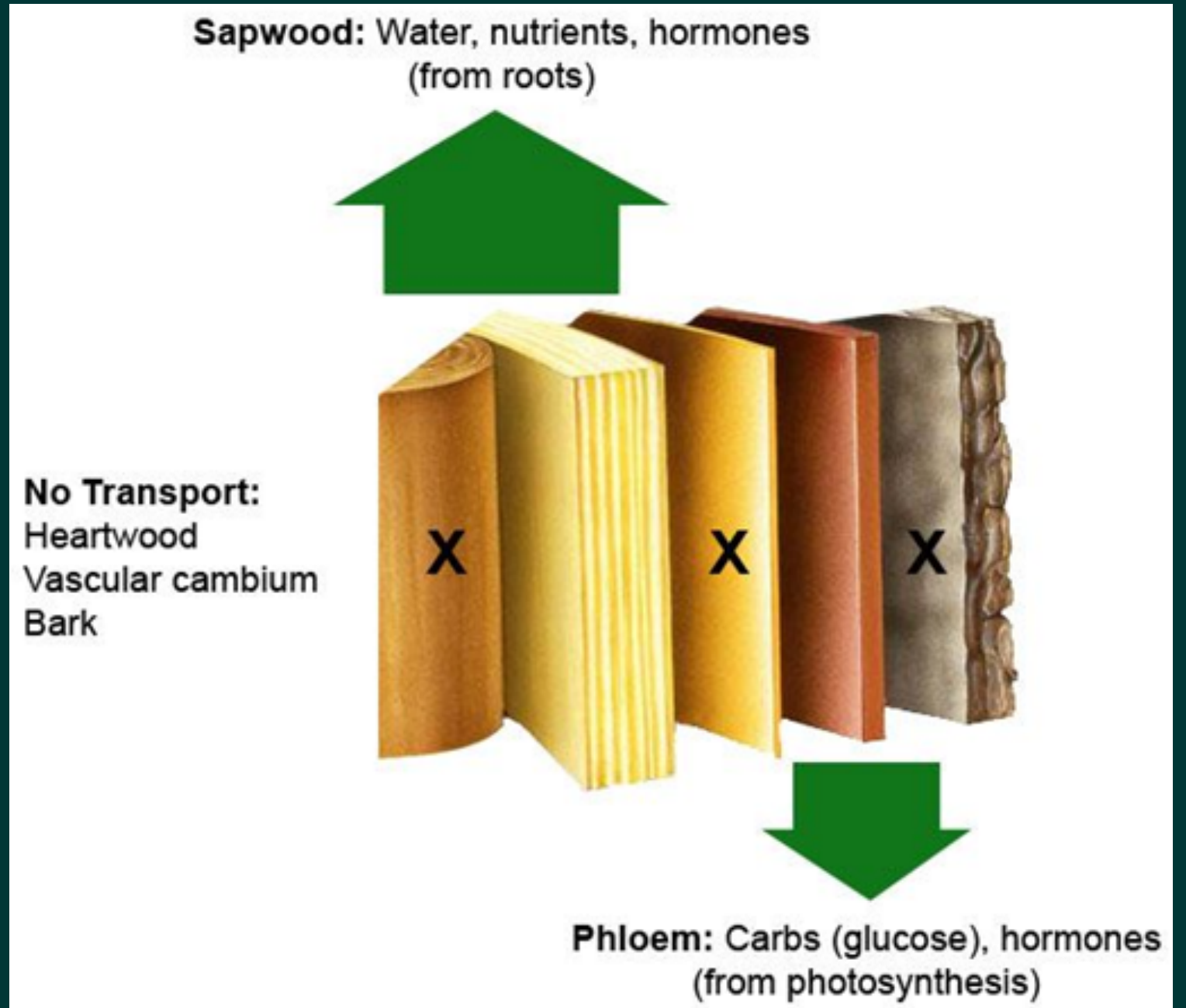


AUXIN

- Primarily generated at branch tips (apical meristems) and travels down.
- Suppresses lateral buds.
- Smaller amounts produced in the roots, promoting lateral root growth.
- Moves away from light (encourages growth on the darker side).

CYTOKININS

- Produced in the roots and travels up the sapwood.
- Promotes lateral bud development.

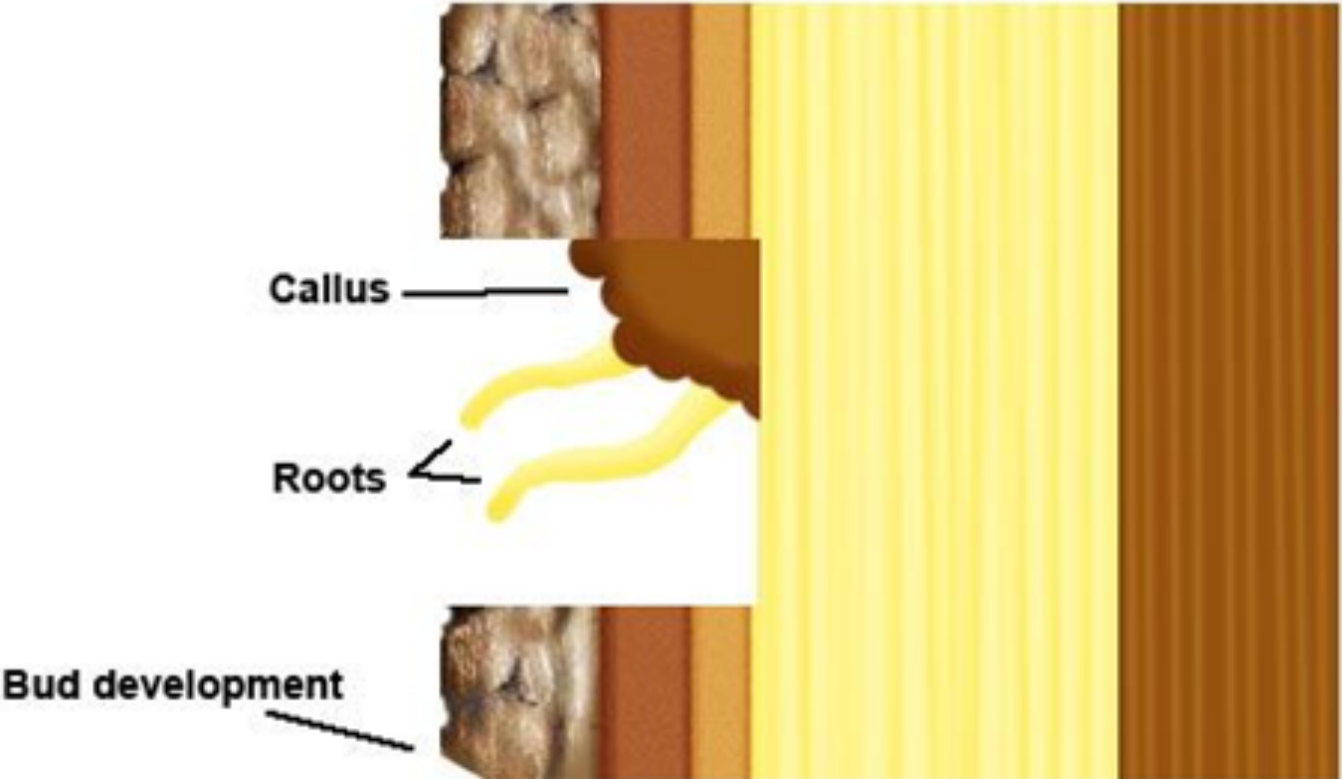


ROOTS DEVELOP AT THE TOP OF THE GIRDLE WHERE AUXIN BUILDS UP

Sapwood: Water, nutrients, cytokinin
(from roots)



Sapwood: Water, nutrients, cytokinin
(from roots)



HOW TO GIRDLE



Use a sharp knife to cut two parallel slits around the circumference of the branch.



Keep enough space between both cuts.



Girdle should be at least the diameter of the branch.



Cut away phloem
(including
cambium) between the
cuts.



Cambium shows up as
a light green.



Scrape away all
remaining cambium,
down to the sapwood.



Wrap a ball of soaked sphagnum moss around the girdle and wrap tightly.



If using a clear plastic, wrap a layer of aluminum foil around the plastic.



Once roots are developed, separate the air layer from below the girdle.

TOOLS & MATERIALS

Optional tools and variations:

- Rooting hormone, honey, cinnamon, willow water
- Repurposed container, plastic wrap, grafting tape, aluminum foil, nursery pot
- Clothespins, zip ties, aluminum wire
- Grafting tool

Required Tools:



DEMO TIME!

IDEAL SPECIES



ELM
Ulmus



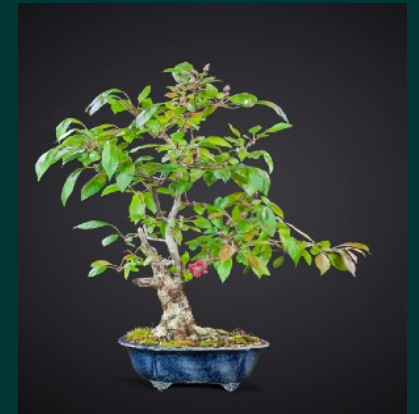
OLIVE
Olea



MAPLE
Acer



AZALEA



CRABAPPLE
Malus

HORMEX ROOTING DIFFICULTY RATING

#1

- *Barberry/Bayberry (Berberis)*
- *Bougainvillea*
- *Crape Myrtle (Lagerstroemia indica)*
- *Elm (Ulmus)*
- *Euonymus*
- *Flowering Cherry (Prunus)*
- *Honeysuckle (Lonicera)*
- *Lantana*
- *Spirea*
- *Stewartia (Stewartia pentagyna)*
- *Waxmyrtle (Myrica)*

#3

- *Beech (Fagus)*
- *Dogwood (Cornus florida)*
- *Douglas Fir (Pseudotsuga)*
- *Fig (Ficus carica)*
- *Firethorn (Pyracantha)*
- *Maidenhair Tree (Ginkgo biloba)*
- *Osmanthus*
- *Plum (Prunus domestica)*
- *Privet (Ligustrum ovalifolium)*
- *Sequoia (Sequoia gigantea)*
- *Spruce (Picea pungens)*
- *Wisteria*
- *Zelkova*

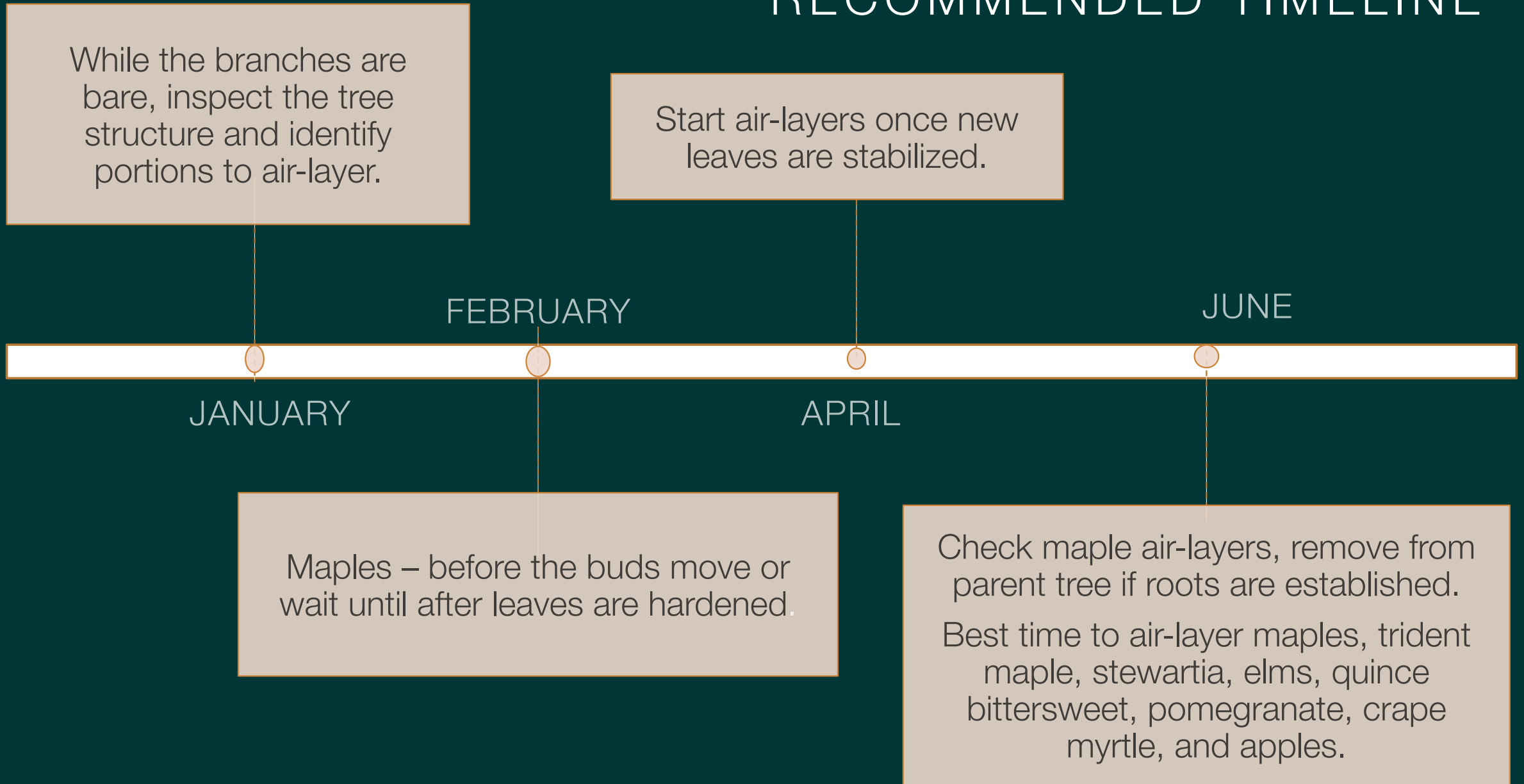
#8

- *Apple/Crabapple (Malus)*
- *Azalea (Rhododendron arborescens)*
- *Birch (Betula)*
- *Boxwood (Buxus)*
- *Cotoneaster (Cotoneaster horizontalis)*
- *Fir (Abies)*
- *Flowering Quince (Chaenomeles)*
- *Grape (Vitis)*
- *Hawthorne (Crateagus)*
- *Maple (Acer palmatum)*
- *Oak (Quercus)*
- *Olive (Olea)*
- *Orange (Citrus)*
- *Pine (Pinus)*
- *Pomegranate (Punica granatum)*
- *Russian Olive (Elaeagnus)*
- *Snowbell (Styrax)*

SHOW & TELL



RECOMMENDED TIMELINE



AFTERCARE

- Avoid disturbing the new roots as much as possible.
- For best results, do not remove moss from the roots.
- Keep the separated layer under shade cloth or in a greenhouse to let it recover.
- Don't forget to water!



PITFALLS TO AVOID

Impatience

- Roots growth varies by species and can take anywhere from 2 weeks to 2 years. Don't separate the layer until roots are strong throughout the moss.

Uneven Roots

- Roots develop on the darker side of the plant; turn the tree to receive even sun on all sides.

Layer Failure

- Bridging Cambium – roots won't develop if tissue grows across the girdle.
- Drying out – Keep the moss moist at all times.





TRANSFORM EXISTING BONSAI

This is a Seiju Cork Bark Elm and was acquired from John Planting in 2016.

The tree had suffered some considerable die-back and needed a creative intervention.

Michael Greenstein suggested to air-layer the tree into 2, which has been put into practice in 2017.



The bottom part is still in a grow box for re-branching and a new apex.

The top portion was featured in the 2021 Kusamura Club Show.

PROJECT LACEBARK

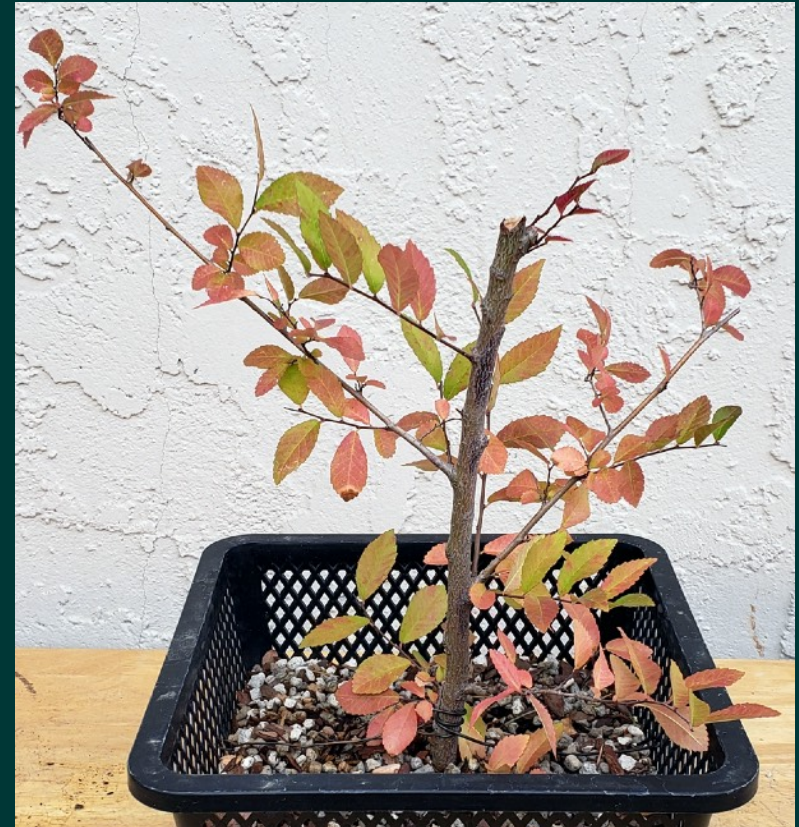


**CHINESE ELM AKA
"LACEBARK" ELM**
Ulmus parvifolia "Drake"









SOME TREES WILL FORGIVE YOUR MISTAKES...



STARTED: JULY 26



FINISHED: AUGUST 24







FIELD MAPLE
Acer campestre





“BENI KAWA”



“TWOMBLY’S RED SENTINEL”



“FJELLHEIM”



“BLOODGOOD”

USING A PLASTIC BOTTLE





WISTERIA





JAPANESE MAPLE
Acer palmatum

USING A NURSERY POT



USING A NURSERY POT





STRAWBERRY TREE

Arbutus unedo



RED BOTTLEBRUSH
Callistemon citrinus







CHERRY TREE
Prunus spp.



“SHISHIGASHIRA”

Acer palmatum cv.





GOOD LUCK!

