



PINYON PINE: A BONSAI FRONTIER

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OVERVIEW



Ecology and natural habitat



Natural characteristics for bonsai



Water and oxygen balance



Sunlight and microclimate considerations



Foliage Management



Development as bonsai



Refinement as bonsai



Wintering considerations

ECOLOGY AND NATURAL ENVIRONMENT



Courtesy of Jonas Dupuich and Bonsai Tonight

- Grow in **arid southwestern** portions of our region (prefer tundra / desert)
- 4 pinyon species in region, tend to be **most drought tolerant of pines**
- *Pinus edulis* most common species, but occurs in a **relatively cool and wet niche relative to other pinyon.**
- July temps 68-81°F USDA zone 5

ECOLOGY AND BONSAI CULTIVATION



Courtesy of Mike Britten

- Environment high sunlight, dry conditions
- Don't like to compete for light
- Avid water utilizers (adaptive)
- Remember in pot no long tap roots as in nature
- As bonsai, if in high light, ample water must be provided

ECOLOGY: ROOTS AND SOILS



- Rely on **mycorrhizae** like other pines
 - Symbiotic relationship for nutrients
- **Never bare root when transplanting**
- Do well in “poor” natural soils
- Rocky, well draining, nutrient deplete, shallow basins
 - Standard aggregate mix works well (more later)

ATTRACTIVE CHARACTERISTICS

- **Rough bark** displays appearance of age well
- Naturally occurring **deadwood** features
- Sinuous **movement**
- **Short, dense needle clusters** more conducive to small to medium bonsai
- Good ability to **back-bud** on old wood
- **Flexible** and can undergo extreme bends with proper technique



BALANCE OF WATER AND OXYGEN



Drought tolerant pines adapt to container environment

Tend to be avid water utilizers

Overwatering results in undesired needle elongation

Pinus edulis (our species) tends to enjoy water more than species native to arid desert

Prefers moist (not logged) soil that remains free-draining (aeration)

Balance closer to JBP than other native pines (ponderosa and limber)

SUNLIGHT AND MICROCLIMATE CONSIDERATIONS

- Enjoy **bright morning sunlight**
- Shaded during bright afternoon sunshine
- **Can be tolerant of extreme heat** due to natural environment
- Eastern light exposure with shade by 1-2pm seems to be ideal



PINYON PINE FOLIAGE MANAGEMENT

- Concepts:
 - Mature and juvenile foliage
 - Single-flush vs. multi-flush pine



PINYON FOLIAGE TYPES

MATURE FOLIAGE

- Preferred type for nature and bonsai
- Occurs with good growing conditions
- 2 needles per fascicle, occasionally 1 or 3
- Cuticle more delicate than other regional pine species

JUVENILE FOLIAGE

- Sharp and spikey
- Akin to juvenile growth in junipers
- Occurs during stress / damage / trauma
- Natural defense mechanism

****Pinyon may display both foliar types at one time. If juvenile growth occurs, provide nutrients and ideal conditions. Ultimately mature form will recur**

MATURE FOLIAGE



JUVENILE FOLIAGE



Pinus edulis showing predominantly juvenile growth at right

FOLIAGE MANAGEMENT: MULTI-FLUSH PINE?



Decandling of JBP in June. Courtesy of Mike Hagedorn

- **Are pinyon “multi-flush pines” akin to Japanese black / red pines?**
- **Multi-flush technique:** Cut entire candle in June = generates second flush growth
 - **Advantage:** Accelerates refinement of pine bonsai by 2x
- **Pinyon: if decandled, will generate additional buds, but **invariably will result in juvenile foliage.****
 - Likely NOT true multi-flush pines
 - Single flush pine that generates one MATURE flush of growth per year

DEVELOPMENT TECHNIQUES

- Concepts:
 - Short needle-single flush pine technique
 - Soil and potting considerations
 - Wiring and bending



DEVELOPMENT: SHORT NEEDLE SINGLE-FLUSH PINE



Short-needle single flush pine: Limber Pine by Steve Varland

- **Produce one flush of growth per season.**
- Extreme **work only after growth hardens** in late summer
- Fertilize heavily spring to fall during growing season without concern for excessive needle length
- **Leave extra foliage mass during growing season** to move resources and generate back-budding for development

PINYON SOIL CONSIDERATIONS



- **Boon mix works well**
 - Equal parts akadama (or turface) : pumice: scoria
- **Particle size depends on bonsai size**
 - 1/16"-1/4" size
- **Enjoy additional moisture retention**
 - Water oxygen balance closer to JBP than Pondo
 - Leave 1/16" in, remove 1/4" for small tree
 - Consider deeper containers
 - MUST remain free-draining

WIRING AND BENDING



- **Copper** appropriate for structural and secondary wiring
- New adventitious buds are delicate in spring and easily damaged: **wire in fall**
- Flexible: **Large bends can be executed**
- Raffia or similar material helps **protect from breakage and bark loss** (likely to lose without)

REFINEMENT TECHNIQUES

- Concepts:
 - Springtime pinching
 - Late Summer Pruning



PINYON REFINEMENT: PINCHING



Pinching candles of single flush pine. Courtesy of Mike Hagedorn

- **Springtime: new shoots elongate.**
- **Pinch PRIOR to needles emerging.**
 - This is not “decandling,” do NOT remove entire shoot
 - Promotes back-budding, establishes branch profile.
- **This technique applies to short-needle single flush pines**
 - Apply preferentially once developmental goal for branch has been achieved
 - Generally not used on weak areas until strengthened

PINCHING VS. DECANDLING



Pinching candles of single flush pine. Courtesy of Mike Hagedorn

Appropriate single-flush pine technique including pinyon pine



Decandling of JBP in June. Courtesy of Mike Hagedorn

Appropriate multi-flush pine technique: not ideal for pinyon

PINYON REFINEMENT: PRUNING

- **Summertime:** once growth has “hardened off”
- **Needles have already emerged from shoot:**
 - allow to harden then prune
- **Thin out coarse or congested terminal growth**
 - Redirects energy, refines profile of bonsai
- **Post-hardening prune to remove:**
 - Undesired branches
 - Cut back long branches to desired length
 - Remove branches that are shading desired branching
 - Reduce branching at node to prevent swelling



WINTERING TECHNIQUES

- **Pinyon “should be” cold hardy in container**
 - **Caution is the key**
- **Tom** keeps his in cold greenhouse (40-70F)
- **Andy** has had success:
 - Unheated garage (30-60F, occasional freeze)
 - Cold-frame (20-50F, often freezes)
 - Ground, heated in with mulch (10s-50F, quite frozen)
- **Todd Schlafer**
 - Cold greenhouse (occasional freeze)

Photo courtesy of National Wildlife Federation



BOTTOMLINE

- Natural ecology informs bonsai culture, good specimen characteristics
- Necessary to understand water and sunlight requirements
 - Just because they *tolerate* arid conditions in nature, does not mean that they thrive in such conditions as bonsai.
- Understand how to manage tendency for juvenile foliage
- Utilize single-flush short needle pine technique bonsai
- Pinch emerging candles for refinement
- Allow growth to harden prior to pruning in fall, working prior to this will result in juvenile growth

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