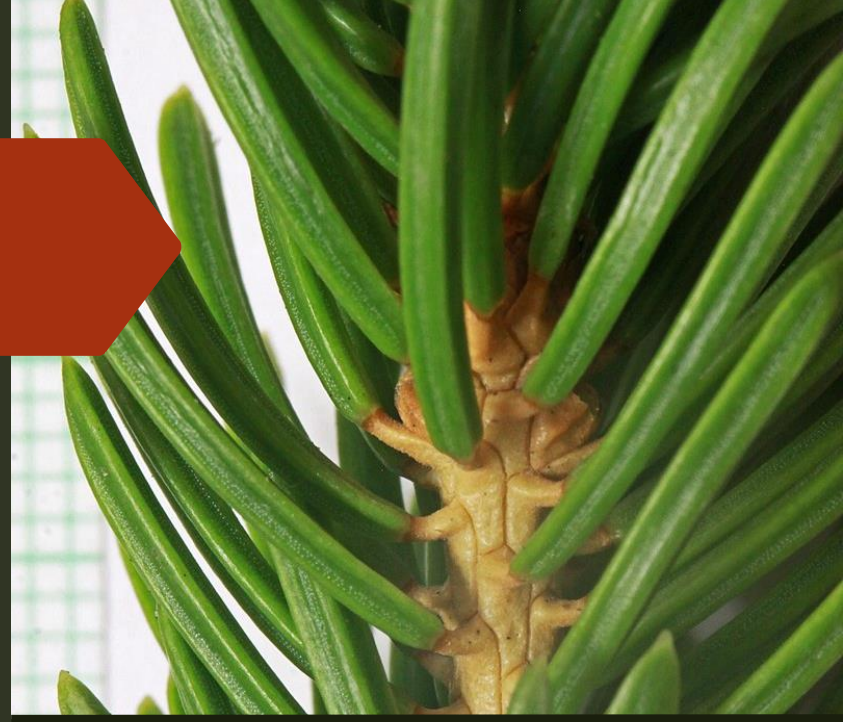
Colorado Spruce as Bonsai

Development and Refinement

By Will Kerns, AICP

Native Colorado Spruce Species

- Blue Spruce – Picea Pungens
- Engelmann Spruce – Picea engelmannii



Native Spruce Characteristics

- **Colorado Spruce**
- ***Bark:*** Gray-brown with thick scales on mature trees.
- ***Needles:*** Evergreen needles are blue or light green with white lines; 1 to 1-1/4 inches long. stiff and the points extremely sharp, light green with a white stripe.
- ***Fruit:*** Shiny light brown, cylindrical cones; 2 to 4 inches long with thin, long, flexible and irregularly toothed scales; contains paired, long-winged seeds.
- ***Elevation:*** 6,700 to 11,500 feet.
- ***Height:*** 70 to 115 feet.
- ***Habitat:*** Well-drained, sandy soils; moist sites of narrow bottomlands or along mountains streams; often in pure stands.
- ***Relation to Fire:*** Easily killed by fire due to thin bark, shallow roots and low branches.

- **Engelmann Spruce**
- ***Bark:*** Gray-brown, thick, with flaky scales.
- ***Needles:*** Evergreen needles are deep blue-green with white lines; 5/8 to 1 inch long; slender, sharp and flexible; skunk-like odor when crushed.
- ***Fruit:*** Light chestnut-colored, oblong cones; 1 to 2 inches long; in upper part of crown with scales that are paper-thin and ragged along the outer edge. Seeds have a single, long and well-developed wing.
- ***Elevation:*** 8,000 to 11,000 feet.
- ***Height:*** 45 to 130 feet.
- ***Habitat:*** High, cold forest environments on moist, northern slopes; with subalpine fir and other conifers.
- ***Relation to Fire:*** Generally killed by fire due to thin bark, shallow roots, low growing branches, tendency to grow in dense stands and support heavy lichen growth. Large trees may survive low-intensity fires.

Native Spruce Cone Characteristics

- **Colorado Spruce**

- **Engelmann Spruce**

Why use Spruce for bonsai?

- **Pros**
- Short compact foliage
- Rough dark grey to black bark
- Backbuds easily when pinched
- Hearty and rugged
- *Sun and drought tolerant
- Overwater tolerant
- Foliage comes in many colors
- Spruce holds its needles for multiple years

- **Cons**
- Foliage is physically painful to work on
- Heavy foliar work produces an allergic reaction (burning sensation and rash) on arms and hands
- Sensitive to major changes in sunlight, needs time to acclimate
- Certain spruce species are not heat tolerant

*Not applicable to Engelmann Spruce

Pruning and Wiring

- Prune branches from threes to two's
- Spruce has flexible branches that can be easily bent
- Wire needs to be left on for years before a branch will take shape
- Rewiring is often necessary even after branch has taken shape
- Best times for wiring: early spring, late summer, fall, and winter
- Avoid wiring in mid-spring to mid-summer as dieback can occur
- Pro Tip: Wet the foliage before and during wiring of Spruce branches, wet needles are more flexible at the needle base and less prone to fall off or get knocked off when wet

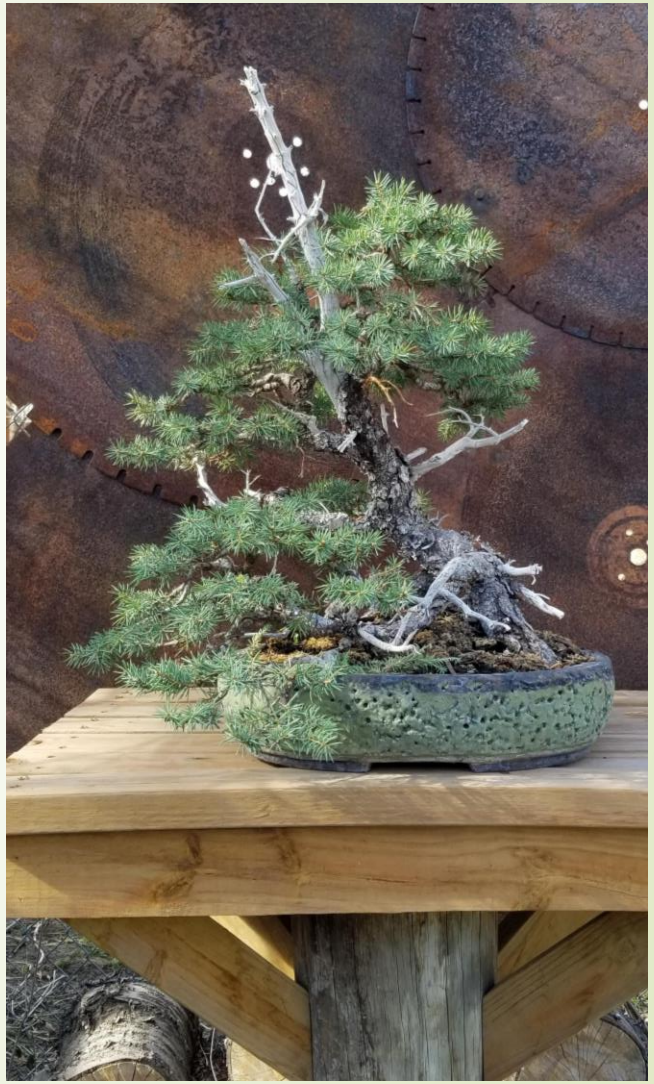
Spruce as Bonsai

Photo courtesy of Bonsai Empire

Spruce Bonsai - Development

March 16, 2016

May 5, 2016



April 22, 2020

Spruce Bonsai - Development Timeline

2012 – Purchased from Jerry Morris @ ABS Convention, Denver

2013 – Will Kerns initial pruning/wiring, create right jin

2015 – Purchase Horst Heinzlreiter pot from Bonsai Mirai

2016 – Ryan Neil chooses front and performs second pruning/wiring

2016 – Still very healthy, Todd Schlafer and Will Kerns repot, RMBS show tree

2019 – Dave Regan and Will Kerns third pruning/wiring

Earth Day, April 22, 2020

Spruce Bonsai – Other Projects

Project: Super Spruce

Spruce Bonsai - Development Timeline

2017 – Collected by Todd Schlafer with permission on private land.

2018 – Will Kerns jin treatment with lime sulfur, lowest jin resecured with wood hardener and clamps

2019 – Todd Schlafer and Will Kerns set initial structure and wiring

2020 – Todd Schlafer and Will Kerns repot tree

Project: Super Spruce, August 24, 2019

Spruce Bonsai – Finished Project

Project: Super Spruce, April 25, 2020

Bonsai – Ethics and Collecting

- Issue: We are now seeing the highest population ever exposed to bonsai through social media, live streaming, and bonsai in the media.
- Problem: Hungry for yamadori, increasing population collecting trees and other plant material illegally from **public lands**.
- **Proposal: Collected trees and yamadori should carry provenance of legality during collection and before being bought or sold.**
- Example: Yamadori collected legally in public lands comes with the USFS or BLM Collection Permit in a transaction when bought or sold.
- Example: Yamadori collector carries a Proof of Permission form for the landowner to sign stating that the tree was collected with permission.

Spruce Bonsai – Sourcing Material

- Finest ethically sourced Spruce Yamadori, talk to Todd Schlafer, First Branch Bonsai, 720.309.0060
- Todd collects raw spruce stock with permission on a private ranch in Colorado

Other Spruce Species Used In Bonsai

- Alberta Spruce - Picea glauca ‘Conica’
- Birdsnest Spruce – Picea abies ‘Nidiformis’
- Black Hills Spruce – Picea glauca ‘Densata’
- Black Spruce – Picea mariana
- Japanese Spruce – Picea jezoensis
- Japanese Spruce – Picea glehnii
- Norway Spruce – Picea abies
- Other species are also used

Pests and Disease for Spruce Species

- Attacked by two species of *Adelges*, an aphid-like insect that causes galls to form. Nymphs of the pineapple gall adelgid form galls at the base of twigs which resemble miniature pineapples and those of the Cooley's spruce gall adelgid cause cone-shaped galls at the tips of branches.
- The larva of the spruce budworm eat the buds and growing shoots while the spruce needle miner hollows out the needles and makes them coalesce in a webbed mass.
- An elongated white scale insect, the pine needle scale feeds on the needles causing fluffy white patches on the twigs and aphids also suck sap from the needles and may cause them to fall and possibly dieback. Mites can also infest the blue spruce, especially in a dry summer, causing yellowing of the oldest needles.
- Another insect pest is the spruce beetle (*Dendroctonus rufipennis*) which bores under the bark. It often first attacks trees which have blown over by the wind and when the larvae mature two years afterwards, a major outbreak occurs and vast numbers of beetles attack nearby standing trees.
- The blue spruce is susceptible to several needle casting diseases which cause the needles to turn yellow, mottled or brown before they fall off. Various rust diseases also affect the tree causing yellowing of the needles as well as needle fall. Canker caused by *Cytospora* attacks one of the lower branches first and progressively makes its way higher up the tree. The first symptom is the needles turning reddish-brown and falling off.

Thank You

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