

# Bonsai Energy Management - 'A Big Picture View'

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- What do I do to manage energy in my bonsai?
  - It Depends
  - On What?
    - Species and Variety
    - Time of Year
    - Strength of tree
    - Bonsai development stage
    - What was done last week, last month, last year
    - Wiring
    - Other
- This talk grew out of two conversations
  - One on needle thinning/timing for different pines
  - One with Gary Wharton while working on my wiring skills
- The key is learning to listen to the tree – action/reaction
- Most of what we do in Bonsai is energy management
- Cycles (from long term to short term)
  - Life of the tree
  - Show refinement
  - Repotting
  - Seasonal
  - During the season
- All are interrelated
- Missing a step can:
  - Put everything out of sequence
  - Open up new opportunities
- Parallels to people
  - Seedlings: protect like infants and toddlers, but not too much
  - Young trees: grow fast and heal quickly like school kids and teens
  - Developing trees: Grow in complexity like most adults, but take time to recover and heal
  - Mature trees: show their age and become more prone to injury and disease
- Strength is relative in bonsai
  - Trait: Growth
    - Strong
      - J. Black Pine
      - Trident Maple

- Weak
      - J. white pine
      - J. maple
    - Trait: cold hardiness
      - Strong
        - J. White pine
        - J. Maple
      - Weak
        - J. Black Pine
        - Trident Maple
    - Trait: Lower branches
      - Strong
        - Azaleas
        - Flowering Quince
      - Weak
        - Pines
  - Goal:
    - Strong (not rampant) growth evenly distributed over the entire tree
      - Top to bottom
      - Inside to outside
  - How do we get there? It depends
    - General behaviors then apply to the specific tree
    - There are no complete recipes
    - General trends
      - Only plan one major insult to the tree per year or two
        - Collecting from the field
        - Major styling/restyling
        - Big bends
        - Repotting
    - The tree needs time to recover
    - Make sure it is strong and healthy before each one
  - Repotting
    - A common cycle for most bonsai
    - Every 1-5 years typically
      - 2-4 most common
    - Root and top energy
      - Yr. 1: repot – energy goes into growing new roots
      - Yr. 2: good roots and soil – can put out good top growth
      - Yr. 3: Often best top growth – strong roots nourished by good growth last year
      - Yr. 4: top starts to weaken – pot is full of roots
      - Yr. 5: repot again

- Cycle length varies for different trees
  - Mature trees can be longer
  - Young trees shorter
  - Some species like wisteria and willow may be every year
- Also depends on the type of repot
  - Full with all soil removed
  - Wedges/Partial
  - Removing field soil
  - Trimming to fit into display pot
    - Will need a more major repot to change out interior soil fairly soon
    - Changes the cycle for the tree
- How can we use?
  - Repot the 'year' before a show
    - Top growth will be weak that year and getting stronger the year of the show
- Fertilizer
  - What are you trying to achieve?
  - We probably under fertilize our trees
    - Can over do it, particularly with granular, inorganic fertilizer
  - Limiting fertilizer as the shoots push to keep them in check presumes:
    - The tree is healthy
    - Fertilized well the previous year so it has reserves
    - Does not need fertilizer to recover from repotting
- Wiring
  - Suppresses growth
    - Recovery from the bend
    - Pressure from the wire slows sap flow
    - Direct away from the tree branch's natural growth path
      - Pulling branches down
      - Pulling up a side branch is a temp suppression
      - Tip pointed down
  - Enhances growth
    - Gives the branch more light
    - Tip pointed up – particularly important in pines
    - New leader from side branch can take a year to adapt to the role
      - How can we use this?
        - Short internodes 1<sup>st</sup> year
        - Fatten up in 2<sup>nd</sup> and 3<sup>rd</sup>

- Climate
  - Macroclimate: Spokane generally has hot, dry summer and cold, low light winter
    - Growing season is less than many bonsai writers
    - When does the growing season start?
      - Mar/Aprl – some years
      - June – other years
  - Microclimate is:
    - Your yard and conditions
      - Light – morning, afternoon, shade level
      - Temp – next to house, facing north/south
      - Wind – windy spot, sheltered
      - Winter storage
        - On ground
        - Cold Frame
        - Hoop house
        - Green house (can extend the season)
- Pinching, pruning, defoliation, etc.
  - Most obvious way of managing energy
  - Lots of recipes
    - Based on observing trees under same conditions for many years
    - Not your trees, not your conditions
    - Very much action/reaction
- General behaviors
  - More interior light = more interior buds
  - Cutting off tips promotes back budding (they send a signal to inhibit)
  - Timing is important
    - Some trees bud once a year (beech, J. Wt. pine)
    - Some can bud more than once a year (J. black pine)
    - Some bud continuously (junipers, larch, maples, elm)