

# PROPERTY PLANNING COMMON ELEMENTS

## COMPONENTS OF MASTER PLANS

### HABITATS AND THEIR MANAGEMENT

#### Patch Selection

##### *Description*

Patch selection is a method to regenerate and maintain uneven-aged stands by removing patches of trees at regular intervals. An uneven-aged stand structure is maintained by periodically regenerating new age classes in patches while manipulating the overstory structure between patches to facilitate development of quality growing stock. Generally, most regeneration is of seed origin, although a component can be vegetative.

Trees are periodically removed in groups to create conditions favorable for the regeneration and establishment of new age classes (cohorts). Canopy openings for regeneration are >0.5 acre and typically <2 acres in size. Spatial distribution of regeneration openings may be regular or irregular as dictated by variations in stand condition such as the age, size, vigor, quality, composition, and health of patches of trees. Regeneration recruited by past cutting may require release; the remainder of the stand is thinned. Regeneration cuts, release, thinning, and harvesting usually occur simultaneously (time) but can be variable across the stand (space). Area regulation guides age distribution and silvicultural treatments.

##### Characteristics

- Uneven-aged stand composed of even-aged patches (cohorts)
- Seed origin
- Overstory never completely removed – periodic removal of patches of overstory trees create openings to recruit or release regeneration.
- Regeneration may be advanced regeneration that is released during patch overstory removal, or regeneration may come from seed distributed prior to, during, or following harvest (usually originating within the stand).
- Generally favors regeneration and maintenance of mid-tolerant species; however, relatively shade-intolerant or tolerant species can be encouraged. Shading effects will vary spatially across the regeneration opening, ranging from completely open at the center to shaded at the edge.
- Method allows for variations in regeneration and structure (e.g., age class, composition, density) over space and time.
- Regeneration cuts (patch opening creation), release, thinning, and harvesting usually occur simultaneously (time) but are variable across the stand (space).

##### *Considerations*

General considerations in the application of the single-tree selection method are:

- Site evaluation (suitable to meet nutrient-moisture needs of species)



- Stand composition, size and age class structure, condition, and health
- Potential seed and sprout sources – competition, condition, health
- Advanced regeneration
- Regeneration requirements (moisture, nutrients, light, heat) of desired species
- Competitive abilities of desired species, and potential competition among species
- Overstory impacts on understory light, heat, and moisture availability
- Regeneration openings management:
  - Size of regeneration openings and impacts on composition and growth
  - A minimum 0.5-acre opening is equivalent to a 167-foot diameter circular opening
  - Site preparation – seedbed preparation and competition control
- Area regulation
  - Number and distribution of new regeneration openings to release advanced regeneration or establish new regeneration
  - Release and thinning of many different cohorts (age and spatial differentiation)
  - Order and removal of overstory trees for establishment of regeneration openings, release, and thinning
    - Generally, trees retained are the most vigorous crop trees
    - Generally, trees cut (individuals and groups) are high-risk, less vigorous, lower quality, and/or undesirable species
  - Cohort rotation length
  - Cutting cycle and allowable cut
- Protection of residual stems, crowns, root systems, and advanced regeneration from logging damage

### Advantages

- Permanent forest with multiple age classes – overstory not completely removed
- Maintenance of permanent overstory allows treatment adjustments and modification if problems arise or objectives are not initially achieved
- Relatively continuous (near) full site occupancy
- Local, known seed source
- System favors mid-tolerant species, but shade-intolerant or tolerant species can be encouraged; can encourage species diversity
- Periodic improvement of stand quality through judicious tending
- Periodic income can be relatively frequent (sustained yield)

### Disadvantages

- Requires technical skill and the need to monitor stand conditions



- Area regulation for many small cohorts can become complex
- Application techniques are not well developed for every species
- May require timing to seed crop for some species
- Site preparation and release may be needed
- Careful logging practices required to protect overstory and advanced regeneration; some damage is unavoidable
- Frequent re-entry increases frequency of site disturbance
- Frequent re-entry requires a more extensive and permanent network of access roads and skid trails
- For any given entry, income is less than for complete overstory removal
- Added time and cost for timber sale establishment

