SILVICULTURE PRESCRIPTION REQUIREMENTS AND GUIDELINES

Massachusetts Department of Conservation and Recreation

Bureau of Forestry – Management Forestry Program

STAND EXAM

All standard silvicultural prescriptions will be based on a stand level inventory conducted by the Management Forester prior to drafting the prescription. The inventory will be conducted at an intensity to provide accurate stand data for describing the stand(s) and formulating decisions for treatment and predicting the results of the treatment. The inventory will follow accepted New England or Northeast stand exam design protocol to provide overstory and understory information for each stand including but not limited to:

Overstory:

1. Species
2. Quadratic Mean Diameter
3. Average Height
4. Total Basal area
5. Basal Area by Species
6. Total Trees per Acre
7. Trees Per acre by Species
8. Relative Density by species
9. Total volume
10. Volume by species

Understory:

1. Coarse Woody Debris
2. Percent cover of understory plants.
3. Tree, shrub, forb and grass species
4. Total trees per acre
5. Trees per acre by species

The project reconnaissance and stand inventory will note and record other aspects of the treatment area such as steep and inoperable slopes, water resources, evidence of endangered plant and animal species, stone walls, and cellar holes.

REQUIRED ELEMENTS OF THE SILVICULTURAL PRESCRIPTION

Silviculture is a basic tool of forest management - it is applied forest ecology. The treatments prescribed in most silviculture prescriptions are not exclusive to timber management. Prescriptions may include project treatment to meet several forest uses simultaneously. Examples are field and orchard treatments, harvesting to improve safety along roads and trails or recommendations for prescribed burning to improve wildlife habitat.

The following outline indicates required elements of each DCR Bureau of Forestry prescription. Additionally, prescriptions can be augmented with further information to provide a more robust document. The Management Forestry Program Supervisor will review and approve each prescription before a project may proceed.

All vegetative management projects conducted by the Bureau of Forestry will require a prescription containing the **elements in bold**. Virtually all projects will require the elements and subtopics noted here. The scale of a project may affect the depth of information in respective projects. Small incidental projects may not require the extensive information that a standard prescription will require. That relative determination will be made by the Program Supervisor.

1. **Site data** – This provides the general basis for vegetative treatment and timber harvesting (or not) in the state forest, park or reservation. It is an overview description of the area that sets the stage for stand specifics and the actual prescription.
    a. Geology and Landforms
        i. Parent Material
        ii. Topography and slope
    b. Climate
        i. Precipitation
        ii. Wind patterns
        iii. Extreme weather events/disturbance
    c. Soils
        i. Describe and map soils including complexity, productivity and sensitivity to forest management
            1. Use NRCS Soils survey
    d. Hydrology and watershed
        i. Identify municipal water supply lands
        ii. Describe permanent water bodies and water courses
        iii. Wetlands present
    e. Potential Vegetation
        i. Species Composition – Overstory and Understory
        ii. Seral State and track
        iii. Land Use History
    f. Site Productivity
        i. Site index
        ii. Prime Soils Analysis
    g. Cultural and Archeological Features
        i. Describe how the property is located relative to public interface.
        ii. Document contact with DCR Office of Cultural Resources

2. **Stand data** – The basic unit for which the prescription(s) are written. Stands will be described in terms of structure, structural complexity, condition, productivity, and age in text and in tabular form. The stand exam will provide the physical data and information for the stand data section.
    a. Forest Stand Attributes
        i. The basis of the prescribed treatment for the stand(s).
            1. Disturbance history and regime
            2. Forest structure, species and age classes
    b. Wildlife Habitat conditions
        i. Include attributes such as snag density and condition and the presence of down woody material
        ii. Specific information on endangered species that exist within stands
    c. Water resources.
    d. Recreational and Aesthetic Resources
        i. Hiking Trails
        ii. Developed recreational sites
    e. Forest Protection Concerns
        i. Physical or biological agents observed or of concern

3. Evaluation of Data and Projected Results
    a. Objectives of the forest management activity; e.g. demonstrate silvicultural system, increase within stand diversity, increase landscape level diversity, improve growth on high quality stems, restore late successional characteristics, improve wildlife habitat, etc.
    b. Silvicultural Prescription by Stand
        i. Explanation of treatments using accepted silvicultural terminology
        ii. Describe how the treatment (or exclusion from treatment) fits the approaches and directions to silviculture as described in the 2012 Management Guidelines for Woodlands.
    c. Desired and Expected results
        i. Within the text and in tabular form describe the stand conditions shortly after the harvest/treatment and in terms of the next entry or rotation cycle. Describe the expected successional processes in addition to expected tree and plant growth after the harvest. The results should discuss how the treatment can achieve the stated objectives.
        ii. Use forest modeling/simulation software to project results of treatment (or exclusion from treatment). Use tables and graphics to describe expected results immediately post harvest and long range in terms of growth and mortality. What will the area look like in 2 – 5 years and what will be its appearance and structure in 50 years?
    d. Logging System Requirements
        i. This section should explain how the harvest will take place and describe the logging system and machinery that is best suited for the silviculture to be implemented.
        ii. Describe how down woody material will be augmented or maintained.

4. Prescription Documentation
    a. Timber Marking Guidelines
    b. Stand tables of Projected Results
    c. Visualization of Projected Results
    d. Maps

i. Current Stand/Property Map
ii. Locus Map
iii. Soils map
iv. Logging Plan
    1. Primary Log Haul Roads
    2. Primary Skid or Forwarder Roads
    3. Expected Secondary Skid Roads
    4. Mitigation of Resource Impacts
        a. Water Resources - Filter Strips
        b. Wildlife Resources

e. References
    i. Scientific and technical references used as a basis for the prescription.